The 2nd Congress of

The Asian Pacific Society for Scar Medicine

with The 14th Japan Scar Workshop

Date

November 2 Sat - 3 Sun, 2019

Venue

Akihabara UDX

Congress President

Rei Ogawa Professor and Chief, Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School, Tokyo, Japan

Chair of the Society

Yixin Zhang (Shanghai, China)
and
Rei Ogawa (Tokyo, Japan)

Royal Adelaide Hospital

Download on the App Store

ClinMAPS™ Pro

What is ClinMAPS Pro?

ClinMAPS™ PRO is a user-friendly smart-phone app currently available FREE to download in the iOS App Store that provides efficiency, convenience, functionality and portabilty for clinicians and patients when assessing scar healing and scar assessment scales.

The app allows clinicians and researchers to accurately record the location of the scar for re-assessment by dropping a pin on one of the charts provided or onto a photograph taken with your device's camera or from your photo library.

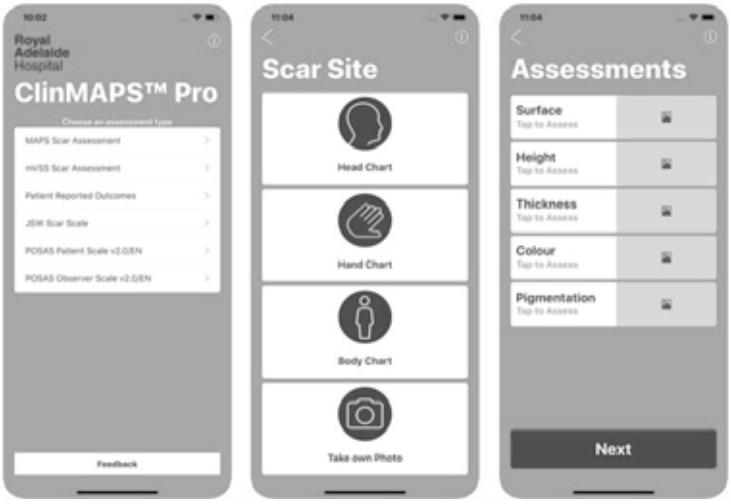
The app allows for the assessment and scoring of scar parameters and efficiently follows the process required for the assessment being conducted.

Notes may be entered in the separate notes section.

Scores are then totalled automatically and entered into a printable report that can be sent to a linked printer or attached to an email as a pdf.

To ensure patient confidentiality, no patient data is stored within the app. Patient details can be added on the pdf or handwritten on the printed report once the report has been produced.

The report is then ready for insertion into an electronic or paper record.



In-app Scar Assessment Tools Available.

- Matching Assessment using Photographs with Scars (MAPS)
- Modified Vancouver Scar Scale (mVSS)
- Patient Reported Outcomes questionnaire
- Japan Scar Workshop Scar Scale (JSW Scar Scale)
- POSAS Patient Scale v2.0/EN
- POSAS Observer Scale v2.0/EN

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Welcome Message

It's my pleasure to welcome you to **The 2nd Congress of The Asian Pacific Society for Scar Medicine (The 2nd APSSM)** with **The 14th Meeting of The Japan Scar Workshop (The 14th JSW)** we are preparing to host in the wonderful city of Tokyo, Japan during November 2 – 3, 2019. The congress venue is Akihabara UDX. Akihabara is one of the most lively districts in central Tokyo and it's famous for its many electronics shops including duty-free shops.

In 2017, we organized The 1st Congress of The APSSM in Shanghai where many international specialists across the world came together to share and discuss the most recent scar treatments. "Scar" is challenging yet a real hot topic in the health and beauty fields worldwide. We aspire to make the "scarless wound healing" dream come true in the future.

We will also shed the light on the association of the high severity of pathologic scars such as keloids, hypertrophic scars, and scar contractures with Asian population, which makes our APSSM unique among the scar conferences held in western countries. Asian knowledge is essential to study the mechanisms of pathologic scars and treat them.

We very much look forward to your participation in The 2nd APSSM in Tokyo. Please submit many abstracts related to clinical and basic research of scars, keloids, hypertrophic scars, scar contractures and fibrosis. Let's aim to achieve scarless wound healing and contribute together to help our patients overcome their scars.

The 2nd APSSM Congress President

Rei Ogawa

Rei Ogawa, M.D., Ph.D., F.A.C.S.
Professor and Chief, Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School, Tokyo, Japan

Asian Pacific Society for Scar Medicine

Presidents

Yixin Zhang

Department of Plastic Surgery, Shanghai Ninth People's Hospital

Rei Ogawa

Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School, Tokyo, Japan

Board Members

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Faculty of Medicine Universitas Airlangga- Soetomo General Teaching Hospital Surabaya Indonesia

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Division of Plastic Surgery, Department of Surgery, Siriraj Hospital Faculty of Medicine, Siriraj Hospital Mahidol University

Hsu, Chao-Kai

Department of Dermatology, International Center for Wound Repair and Regeneration (iWRR), National Cheng Kung University, Taiwan

Josephine Wing-Yuk Ip

Department of Orthopaedics and Traumatology, Queen Mary Hospital, the University of Hong Kong, Hong Kong

Tae Hyun Choi

Associate professor, Department of Plastic and Reconstructive Surgery, Seoul National University College of Medicine

Yee Siang Ong

Plastic, Reconstructive and Aesthetic Surgery, Singapore General Hospital

Frank Bietra Buchari

Division of Plastic Reconstructive and Aesthetic Surgery, Department of Surgery, Adam Malik General Hospital, Faculty of Medicine University of North Sumatra, Medan, Indonesia

Vu Quang Vinh

Professor and Director of Plastic And Reconstructive, Aesthetic Surgery Center Vietnam National Hospital Of Burn

Asian Pacific Society for Scar Medicine

Pang Fong Kuong

Marcau

Teddy O.H. Prasetyono

Plastic Surgeon. Division of Plastic Surgery, Department of Surgery. Cipto Mangunkusumo Hospital, Universitas Indonesia.

Rajeev B Ahuja

Department of Plastic & Aesthetic Surgery, Sir Ganga Ram Hospital

Si Jack Chong

Consultant Plastic surgeon ,Ministry of Health Singapore

Fiona Wood

Director of the Burns Service of WA, Fiona Stanley and Perth Children's Hospitals

Jun Wu

The First Affiliated Hospital, Sun Yat-sen University

Wei Liu

Department of Plastic Surgery Shanghai Ninth People's Hospital

CHIU, Tor Wo

Plastic Reconstructive Surgery Department of Surgery Prince of Wales Hospital Hong Kong

Eldon Mah

Department of Plastic Surgery, St Vincent's Hospital, Melbourne, Australia

Japan Scar Workshop

Representative Board Member

Rei Ogawa

Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School, Tokyo, Japan

Board Members

Sadanori Akita

Department of Plastic Surgery, Wound Repair and Regeneration Fukuoka University, School of Medicine

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Department of Plastic and Reconstructive Surgery School of Medicine, Keio University

Taro Kono

Department of Plastic Surgery, Tokai University

Fumiaki Shimizu

Department of plastic surgery, Oita university hospital

Munetomo Nagao

Department of Plastic and Reconstructive Surgery, Tohoku University Graduate School of Medicine

Toshihiko Hayashi

Department of Plastic and Reconstructive Surgery, Graduate School of Medicine, Hokkaido University, Sapporo, Japan

Hajime Matsumura

Department pf Plastic and Reconstructive Surgery, Tokyo Medical University

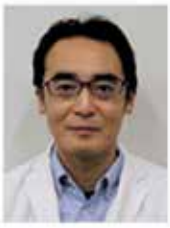
Naoki Murao

Department of Plastic and Reconstructive Surgery, Faculty of Medicine, Hokkaido University

Satoko Yamawaki

Japanese Red Cross Fukui Hospital

Japan Scar Workshop



Satoshi Akaishi

Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School, Tokyo, Japan

Teruyuki Dohi

Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School, Tokyo, Japan

Mamiko Tosa

Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School, Tokyo, Japan

Auditors

Kazuo Kishi

Department of Plastic and Reconstructive Surgery, Keio University, School of Medicine

Yasuyoshi Tosa

Department of Plastic and Reconstructive Surgery, Showa University School of Medicine

Honorary Members

Takehiko Ohura

Professor Emeritus, Hokkaido University(Plastic Surgery)

Nobuyuki Shioya

Professor Emeritus at Kitasato University

Shigehiko Suzuki

Professor Emeritus, Kyoto University

Hiko Hyakusoku

Nippon Medical School Emeritus Professor

Ryousuke Fujimori

President Fujimori's Plastic Surgery Clinic

Takahiko Moriguchi

Kawasaki Medical School General Medical Center

Access

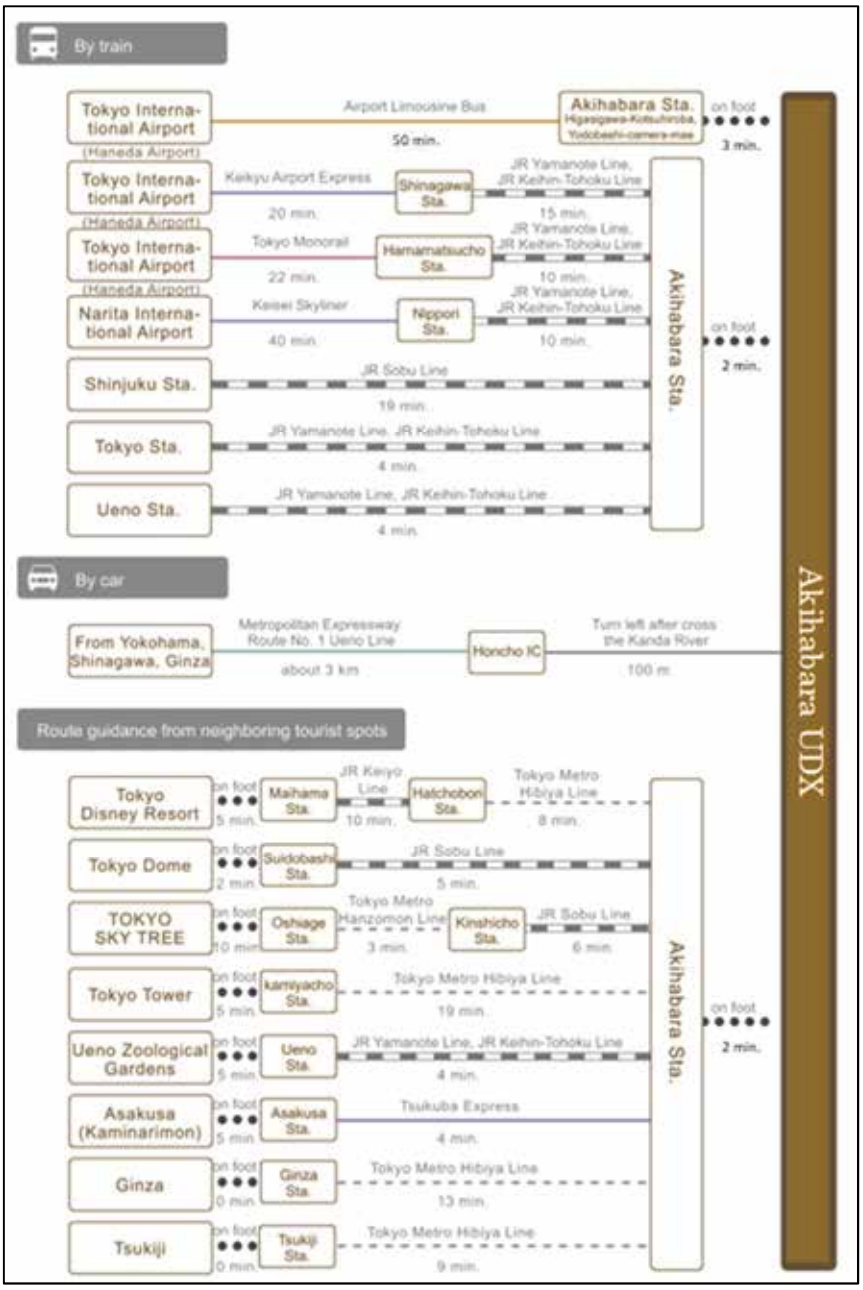
Major Transfer Information

- Haneda Airport - Akihabara Sta. by Taxi: About 6,500 yen (25 min.)
- Haneda Airport - Akihabara Sta. by Limousine Bus: 930 yen (50 min.)

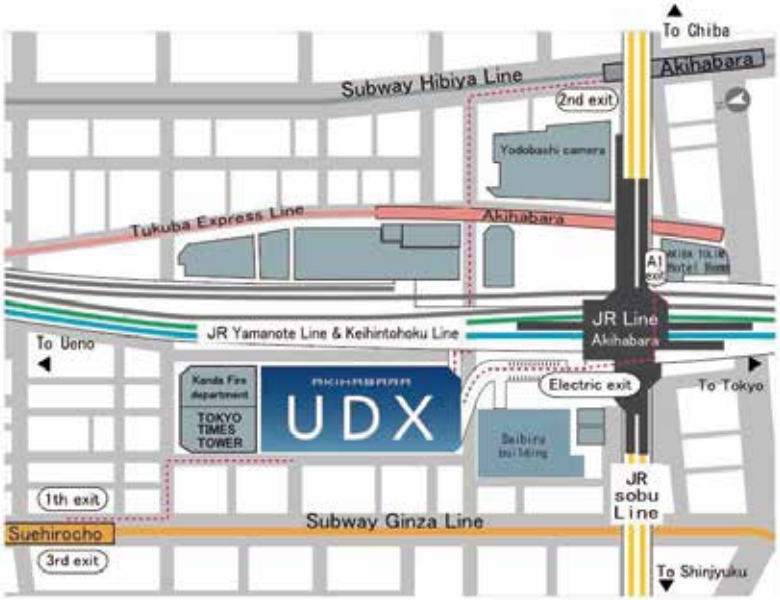
  * Since there are a few buses, check the timetable in advance.

https://www.limousinebus.co.jp/en/areas/bus_stop/hnd/mejiro_kudan_akihabara/dep/122/

- Haneda Airport - Shinagawa Sta. - Akihabara Sta. by Train: 580 yen (35 min.)
- Narita Airport - Nippori Sta.- Akihabara Sta. by Train: 2,620 yen (50 min.)



《ACCESS》



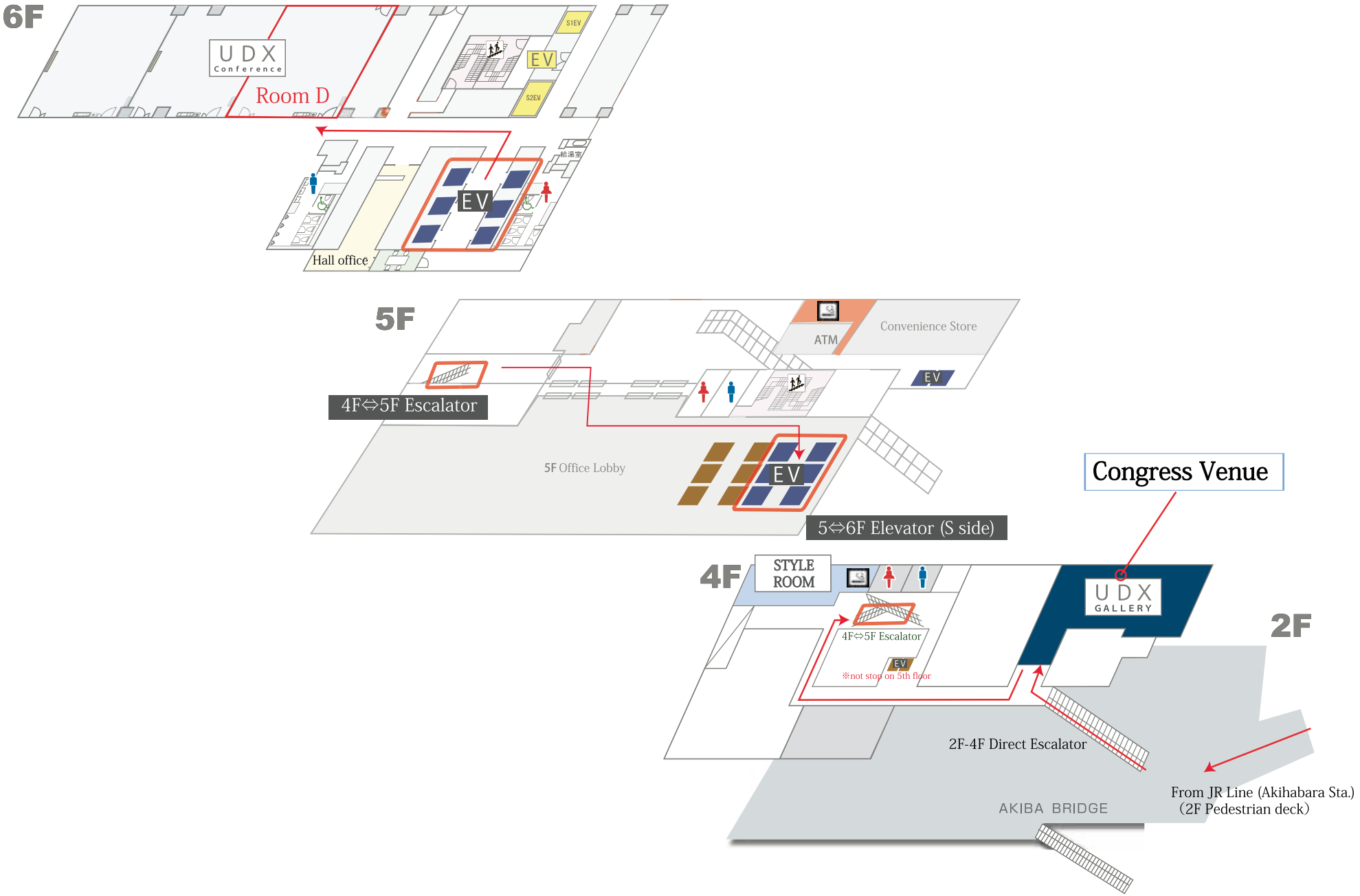
JR Line
[Akihabara] station
Electric town exit
2 minutes by walk

Subway Ginza Line
[Suehirocho] station
1st or 3rd exit
3 minutes by walk

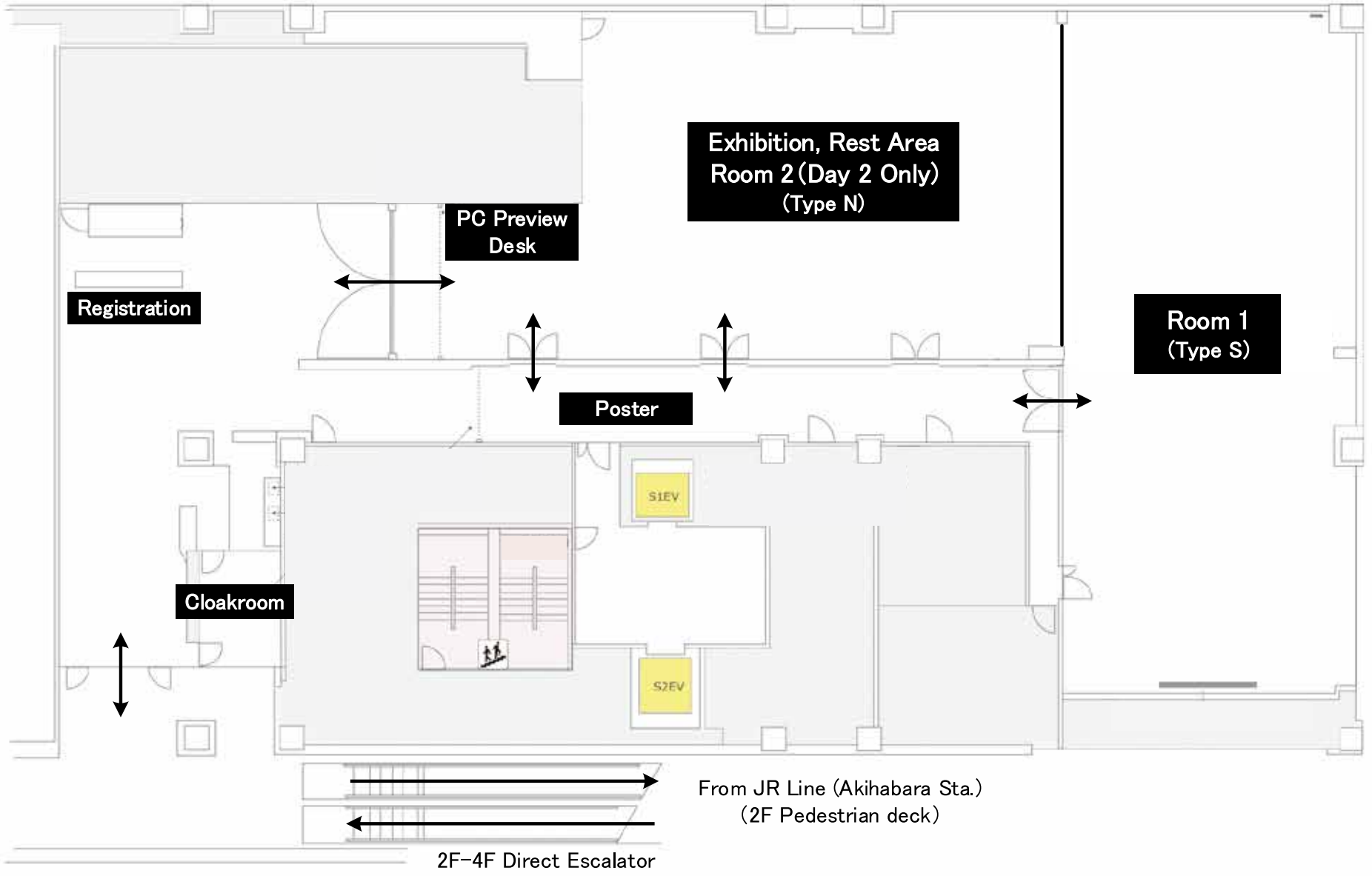
Subway Hibiya Line
[Akihabara] station
2nd exit
4 minutes by walk

Tsukuba Express Line
[Akihabara] station
A1 exit
3 minutes by walk

Akihabara UDX 6F⇔4F Route Map



Akihabara UDX
Floor Plan (4F GALLERY)



Information for Participants

1. Registration

I. Registration Desk

Date	Time	Venue
November, 2 (Sat.)	8:20 – 18:30	4F Gallery Foyer
November, 3 (Sun.)	8:20 – 18:30	4F Gallery Foyer

II. On-Site Registration Fees

Category	Fee
Member（Chinese Society for Scar Medicine）*1	JPY 35,000
Member (Japan Scar Workshop）	JPY 35,000
Non-Member	JPY 40,000
Resident / Student / Medical Staff *2	JPY 25,000
Accompanying Person *3	JPY 10,000

- Above members can participate in gala dinner free of charge.
- On-Site Registration for **The 14th JSW only** abolished due to the program.
- *1 Member of Chinese Society for Scar Medicine need to show your membership certificate. (Photo is OK)
- *2 Resident refers to the clinical trainee of up to two years after graduation. Resident and student are requested to submit a status verification (Download from homepage) at the reception.
- *3 Accompanying Person registration is limited to family members and will be entitled to attend all scientific sessions, the Exhibition, lunch and gala dinner.
- On-Site Registration can be paid by credit card(Visa, MasterCard, JCB, American Express, and Diners Club) or cash (Japanese yen).

III. Notes for pre-participants

Please print **"Registration Confirmation"** and bring it. It can be printed out through the "Registration Confirmation" botton of On-line Registration My page.

IV. Name Card

Name Card will be given to all participants during check-in at the Registration Desk. Name Card is your identification for access to all scientific sessions , the Exhibition, lunch and gala dinner. Participants should wear their name card while attending congress sessions and related events.

V. Certificate of Attendance

A Certificate of Attendance will be attached to your name card and will be handed to you at the registration desk.

2. For Chairs

Please arrive at the presentation room at least 15 minutes prior to the session and sit at the front, right-hand side of the room.

*There is no “Chairs’ Reception Desk”.

3. For Oral Presenters

I. Presentation Time

Session Category	Presentation	Q&A	Note
Burn Scar Management	15min.	5min.	No debate on stage
Difference of Scar Management by Country	15min.	5min.	Same as above
Mechanobiology of Scarring	15min.	5min.	Same as above
Special Lecture	25min.	5min.	Same as above
Basic Researches for Scars and Keloids	12min.	5min.	Same as above

Various Wounds and Scarring	12min.	5min.	Same as above
Laser and Cell Therapies for Scars	15min.	5min.	Same as above
Pharmacological Treatment of Scars	12min.	5min.	Same as above
Diagnosis and Clinical Features of Keloids	12min.	5min.	Same as above
Scar Surgery	12min.	5min.	Same as above
Oral Presentations Session 1	8min.	4min.	
Oral Presentations Session 2	8min.	4min.	
Oral Presentations Session 3	8min.	4min.	
Oral Presentations Session 4	7min.	3min.	

II. Language

English only: Presentation, Q&A

III. Presentation Methods

[For USB data]

- Please visit “PC Preview Desk” at least 30 minutes prior to the session.

  * PC Preview Desk Opening Hours

Date	Time	Venue
November, 2 (Sat.)	8:20 – 18:30	4F Gallery Type N
November, 3 (Sun.)	8:20 – 18:00	Gallery4F Type N

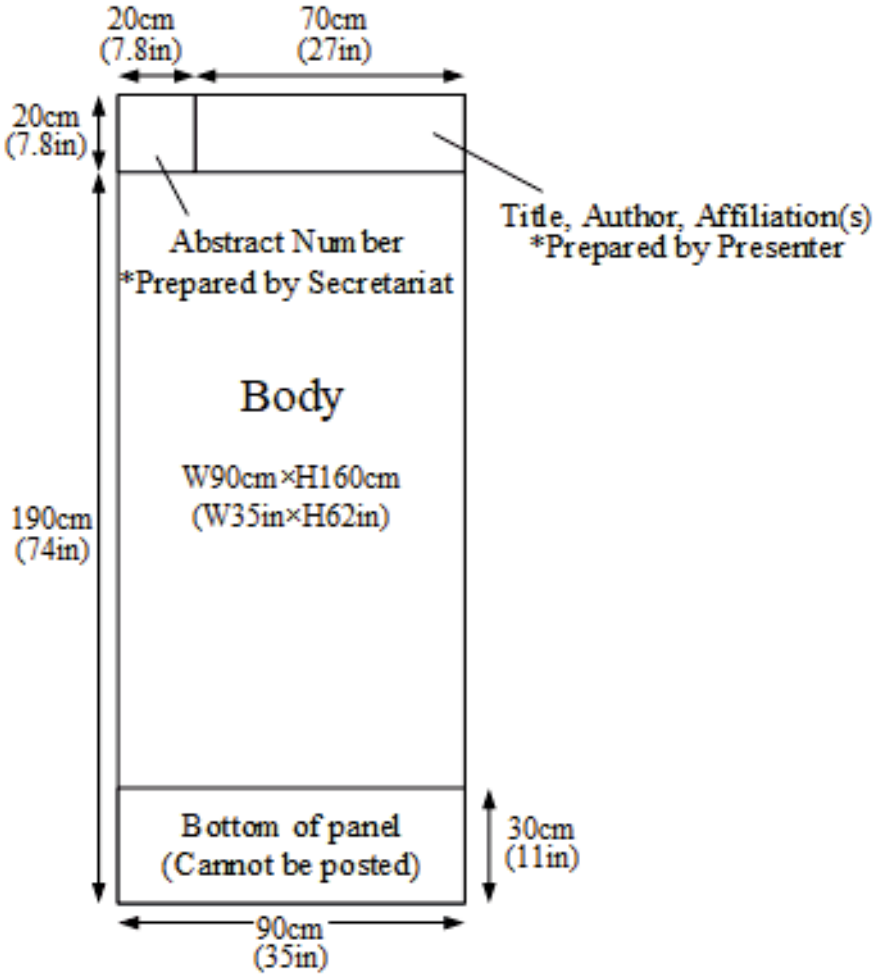
- Please arrive at the presentation room at least 15 minutes prior to the session and sit at the front, left-hand side of the room.
- Please create your lecture presentation in a widescreen aspect ratio (16:9).
- Please bring your own PC if you use a Mac computer.

[For use of your own PC]

- Please bring your computer to “PC Operating Desk” (located at the front left-hand side of the presentation room) at least 20 minutes prior to your presentation to check the output. Please pick up your computer after your presentation.
- Please bring a connector if you use a Mac computer.
- Bring the AC adaptor for your computer.
- HDMI connector is necessary to connect your laptop to the projector equipment.
- Deactivate password lock, screen-saver and power-saving mode in advance.
- Bring backup data of your presentation. We kindly ask you to have backups of your laptop content to protect data from accidental loss.
- Audio output is available.
- Please create your lecture presentation in a widescreen aspect ratio (16:9).

4. Poster Presentation Guidelines

- Please prepare your poster according to the following panel size and figure.
- There are no oral presentations for poster papers
- Please put up your poster in the morning on Day 1 (November 2 (Sat.)).



5. Gala Dinner

ASAKUSA VIEW HOTEL 4F 飛翔(Hisyou) III+B

3-17-1 Nishiasakusa Taito Tokyo-to 111-8765, Japan

TEL: +81-3-3847-1111

Date & Time: November 2 (Sat.) 19:20-21:20

Transportation: Shuttle Bus (for free)

*The shuttle buses will arrive around the end of the program (18:40) and depart from the Congress Venue.

*The shuttle service is exclusively to registered attendees. Congress Name Card must be displayed to board the shuttle bus.

6. FREE Wi-Fi

SSID: udx-07

Password: udx-g007

* Only available in the Gallery 4F.

7. Others

- Photography and Recording is limited to approved press and media ONLY and is otherwise prohibited during the congress.
- Contact during the congress

  Akihabara UDX

  4-14-1, Soto-kanda, Chiyoda-ku, Tokyo 101-0021, Japan

  TEL: +81-3-3254-8421

8. Secretariat

Department of Plastic, Reconstructive and Aesthetic Surgery,
Nippon Medical School
1-1-5 Sendagi Bunkyo-ku, Tokyo 113-8602, Japan
TEL: +81-3-5814-6208 / FAX: +81-3-5685-3076

Program at a Glance

Day 1 November 2(Sat.), 2019

Akihabara UDX

Venue	Room 1	Room 2	Exhibition	Poster	Meeting Room
	Type S	Type N		Aisle	Room D
Floor	4F･GALLERY				6F･CONFERENCE

Opening Remarks

9:00〜10:40
Burn Scar Management
Chairs:
Apirag Chuangsuwanich, Jun Wu
Speakers:
Apirag Chuangsuwanich, Yee Siang Ong, Vu Quang Vinh
Jun Wu, CHIU, Tor Wo

10:50〜11:50
Difference of Scar Management by Country
Chairs: David S Perdanakusuma, Si Jack Chong
Speakers:
David S Perdanakusuma, Si Jack Chong, Chia-Hsuan, Tsai

12:00〜13:00
Mechanobiology of Scarring
Chairs: Keisuke Okabe, Teruyuki Dohi
Speakers:
Keisuke Okabe, Teruyuki Dohi, Chenyu Huang

13:10〜14:10
Luncheon Seminar 1 (Sponsored by Nichiban Co., Ltd.)
Chair: Noriko Aramaki-Hattori
Speaker: Rei Ogawa

14:20〜15:20
Special Lecture
Chair: Rei Ogawa
Speakers: Yinka Zevering, Reiko Kazuki

15:30〜16:38
Basic Reseraches of Keloids
Chairs: Kazuo Kishi, Satoko Yamawaki
Speakers:
Noriko Aramaki-Hattori, Naoki Murao, Satoko Yamawaki
Kazuo Kishi

16:50〜18:32
Various Wounds and Scarring
Chairs:
Josephine Ip, Sadanori Akita
Speakers:
Wei Liu, Josephine Ip, Tae Hyun Choi, Eldon Mah
Sadanori Akita, Mamiko Tosa

8:20〜17:00
Exhibition

8:20〜12:00
Poster Mounting

12:00〜18:15
Poster Viewing

Gala Dinner
Date：19:20〜21:20
Venue：Asakusa View Hotel 4F 飛翔(Hisyou)III+B

Program at a Glance

Day 2 November 3(Sun.), 2019

Akihabara UDX

Venue	Room 1	Room 2	Exhibition	Poster	Meeting Room
	Type S	Type N		Aisle	Room D
Floor	4F･GALLERY				6F･CONFERENCE

8:40〜9:20
Laser and Cell Therapies for Scars
Chairs:Yixin Zhang, Fiona Wood Speakers:Yixin Zhang, Fiona Wood

9:30〜10:38
Pharmacological Treatment of Scars
Chairs: Hajime Matsumura, Yasuyoshi Tosa
Speakers:
Toshihiko Hayashi, Hajime Matsumura, Yasuyoshi Tosa
Hak Chang

10:50〜11:58
Diagnosis and Clinical Features of Keloids
Chairs: Fumiaki Shimizu, Munetomo Nagao
Speakers:
Hsu, Chao-Kai, Fumiaki Shimizu, Munetomo Nagao
Sung-Tack Kwon

12:10〜13:00
Luncheon Seminar 2 (Sponsored by Cosmotec Co., Ltd.)
Chair:Rei Ogawa
Speaker:Fiona Wood

13:10〜14:18
Scar Surgery
Chairs:
Teddy O.H. Prasetyono, Rajeev B Ahuja
Speakers:
Yixin Zhang, Teddy O.H. Prasetyono, Rajeev B Ahuja

14:30〜16:30
Oral Presentations Session 1
Chairs:
Toshihiko Hayashi, Toshihiko Hayashi

16:40〜18:28
Oral Presentations Session 2
Chairs:
Tae Hyun Choi, Eldon Mah

Closing Remarks

14:30〜15:54
Oral Presentations Session 3
Chairs:
Naoki Murao, Satoshi Akaishi

16:15〜17:25
Oral Presentations Session 4
Chairs:
Chenyu Huang, Hsu, Chao-Kai

8:20〜12:00
Exhibition

8:20〜14:20
Poster Viewing

14:20〜17:00
Poster Removal

15:00〜16:00
Board Meeting of APSSM

16:40〜17:20
Board Meeting of JSW

Special Lectures

Chair: Rei Ogawa

HOW TO PUBLISH IN HIGH-RANKING JOURNALS

Yinka Zevering
SciMeditor Scientific Writing and Editing Services
E-mail: SciMeditor@gmail.com

Academic writing is difficult, including for native speakers of the publication language. In my 20-year experience with editing >3000 biomedical science papers for physicians and scientists all over the world, I have identified a number of common mistakes that authors make. Some of these mistakes significantly increase the chance that the manuscript will be rejected outright by the journal or will struggle to be published. The good news is that there are rules and tips that can prevent these mistakes as well as make the writing process easier, thereby helping to facilitate publication in high-ranking journals. The rules include those in scientific report guidelines such as CONSORT, STROBE, STARD etc. The elements of these guidelines will be discussed, especially those elements that are still too rarely met in papers but whose inclusion will impress the experienced reader. I will also provide tips on how to avoid serious mistakes, including an inconsistent central hypothesis and inadvertent plagiarism introduced by the commonly used copy-and-paste technique. In addition, I will briefly discuss predatory journals, which have proliferated enormously in the last few years to the detriment of authors, patients, and the scientific process. Tips on how to detect these journals will be provided.

CURRICULUM VITAE

Current Position
■Editor of scimeditor science & medical editing Website: www.SciMeditor.com
2002-now Melbourne, Australia; Metz, France

Aided publication of >3000 English-language biomedical research articles, chapters, books, and textbooks in the fields of biology, medicine, and dentistry. Edited >100 NIH grant applications and >400 reply-to-reviewer letters. Wrote >200 Analytical Reviews of research articles to guide revision for publication.

Training Related to Current Position
■Workshops in medical writing 2011-2015
European Medical Writers Association (EMWA)
Obtained EMWA Professional Development Programme (EPDP) Certificate in Drug Development Writing in 2015

Prior Work History
■Postdoctoral Fellow 1998-2001
Netherlands Cancer Institute, Amsterdam, The Netherlands
Effect of expressing myelin basic protein in antigen-presenting cells on T-cell tolerance in experimental autoimmune encephalomyelitis.

■Postdoctoral Fellow 1996-1998
Max-Planck Institute of Infection Biology, Berlin, Germany
(i)Role of commensal Neisseria species in T-cell autoimmunity in rheumatoid arthritis
(ii)Development of vaccines against Helicobacter pylori.

■Postdoctoral Fellow 1995
Queensland Institute of Medical Research, Brisbane, Australia
Effect of natural polymorphisms in immunodominant T-cell epitopes in the circumsporozoite protein of Plasmodium falciparum on peripheral blood T-cell responses.

University Education
■PH.D. in tropical medicine and immunology 1990-1994
Queensland Institute of Medical Research/University of Queensland, Brisbane, Australia
Thesis: CD4+ T-cell responses to the circumsporozoite proteins of Plasmodium falciparum and P. vivax by adults living in endemic and non-endemic regions of Thailand. Field research performed in the Research Institute of Health Sciences, Chiang Mai, Thailand.

■B.SC. (honors) in tropical medicine and immunology 1989
Queensland Institute of Medical Research/University of Queensland, Brisbane, Australia
Thesis: CD4+ T-cell responses to the circumsporozoite protein of Plasmodium falciparum by malaria-exposed Caucasians.

■Bachelor of science, majors in biochemistry and zoology 1985-1988
University of Queensland, Brisbane, Australia

A PROPOSAL OF REHABILITATION MAKEUP:
THE FUTURE OF THE BEAUTY OF JAPANESE PEOPLE

Reiko Kazuki[1,2]
1 REIKO KAZKI
2 Department of Plastic, Reconstructive & Aesthetic Surgery, Nippon Medical School Hospital
E-mail: watanabe@kazki.co.jp

Rehabilitation makeup, a strategy that I proposed in 1995, promotes social rehabilitation through the application of makeup for congenital or acquired issues involving external appearance, such as skin diseases and lesions. Differing from camouflage makeup, which focuses on hiding defects, rehabilitation makeup allows patients to actively apply makeup by themselves with the aim of accepting the affected parts and is an established technique to cover defects while looking natural. In addition, rehabilitation makeup focuses on subjective beauty instead of objective beauty and encourages patients to ultimately accept their own external appearance.

Indications for rehabilitation makeup widely vary and include not only problems in skin tone and roughness, such as scars and birthmarks, but also mental problems that do not appear to be issues for perceiving individuals, such as bipolar disorder and body dysmorphic disorder. In addition, recently, rehabilitation makeup is expected to be effective in functional recoveries, such as the improvement of blepharospasm. Rehabilitation makeup is reversible and can be implemented at any stage of treatment; thus, it may greatly contribute to the improvement of the quality of life of patients.

In this section, I propose the future of the beauty of Japanese people using my experience with rehabilitation makeup.

CURRICULUM VITAE

1973	Graduated from Kinran College (English Literature)
2000	Adjunct Lecturer, Niigata University Graduate School of Medical and Dental Sciences
2004	Adjunct Lecturer, Tokyo Women's Medical University
2005	Advances, Niigata University Graduate School of Medical and Dental Sciences
2006	Adjunct Lecturer, Osaka City University School of Medicine, Hiroshima University School of Dentistry, Nippon Medical School (Department of Plastic Surgery)
2008	Invited Lecturer, School & Graduate of Dentistry Osaka University
2014	Founder, Public Interest Incorporated Association The Study Group of Face, Mind and Body Research Fellowship, Juntendo University School of Medicine
2018	Launching Mental Make-up Therapist qualification system

Publications
Rehabilitation Make-up – Technique for Quality of Life (Iwanami Shinsho Active)
Rehabilitation Make-up – Make-up Therapy and its Choices (Kokuseido Publishing)
Aesthetic Medicine －Mentality and Practice of Rehabilitation Make-up (Zen Nihon Publishing)

Burn Scar Management

Chairs:
Apirag Chuangsuwanich
Jun Wu

MULTIMODALITY MANAGEMENT FOR BURN SCARS

Apirag Chuangsuwanich
Faculty of Medicine Siriraj Hospital, Mahidol University
E-mail: apirag@gmail.com

Burn injury can make the victims suffering from scarring for all their life. The scars may vary from good scar to severe scar contractures that limit normal activity of the patients. The management of burn scars must start at the beginning of burn care until the scars are mature. The personnel should have all the skill of burn and scar management. Multimodality of skin coverage and also scar management are combined together for the good scars.

CURRICULUM VITAE

Office
Division of Plastic Surgery,
Department of Surgery 12th Floor, Siamintr Building,
Siriraj Hospital Faculty of Medicine,
Siriraj Hospital Mahidol University

Position
Clinical Professor

Working Experience

1978-1981	General surgeon in Royal Irrigation General Hospital.
1982-1984	Resident in general surgery Siriraj Hospital, Medical School.
1985-1986	General surgeon in Royal Irrigation General Hospital.
1986-1987	Resident in plastic surgery Siriraj Hospital Medical School.
1987-1991	Instructor in plastic surgery, Siriraj hospital, Medical School
1991-1992	Fellow in Plastic Surgery, at Presbyterian Hospital, University of Pittsburgh, U.S.A.
1992-1998	Assistant Professor in Plastic Surgery, Siriraj Hospital, Medical School.
1999-2010	Associate Professor in Plastic Surgery,
2009 to present	Chief of Division of Plastic Surgery, Faculty of Medicine Siriraj Hospital
2010 to present	Clinical Professor in Plastic Surgery

Professional Organization
Chief of division of Plastic Surgery, Department of Surgery Faculty of Medicine Siriraj Hospital Mahidol University
President of Burn and Wound healing Association (Thailand)
President of The Society of Aesthetic Plastic Surgeons of Thailand
President of The Society of Plastic and Reconstructive Surgeons of Thailand
President of The Society of Micro-vascular Surgeons of Thailand
Editorial board member of Aesthetic Surgery Journal
President of The Society of Plastic and Reconstructive Surgeons of Thailand

MANAGEMENT OF BURN SCARS

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Singapore General Hospital
E-mail: drongys@yahoo.com

We should manage burn scars with a multi-disciplinary and multi- modality approach for the best possible outcome. Early excision and grafting followed by early rehabilitation are crucial to achieving the best function for limb burns. The appropriate use of pressure garments and silicon therapy will also help prevent hypertrophic scarring and keloids. We start laser treatment of scars with Pulse Dye Laser early while scars are still in the remodelling phase. For mature scars fractional CO2 laser would help to remodel the collagen. Scar release, skin grafting and flaps still have a role for more recalcitrant scars

CURRICULUM VITAE

Work Experience

Jan 2019	Head and Senior Consultant, Singapore General Hospital Department of Plastic, Reconstructive and Aesthetic Surgery
Aug 2016	Adjunct Associate Professor, Duke- NUS Medical School
Nov 2014	Senior Consultant, Singapore General Hospital Department of Plastic, Reconstructive and Aesthetic Surgery
Aug 2012	Program Director, Surgery- in- General (Singhealth) Program Director, Plastic, Reconstructive and Aesthetic Surgery (Singhealth)
May 10 – current	Consultant, Singapore General Hospital Department of Plastic, Reconstructive and Aesthetic Surgery Adjunct Assistant Professor Duke- NUS Medical School Adjunct Assistant Professor Yong Loo Lin Medical School
Apr 08 – Apr 10	Associate Consultant, Singapore General Hospital Department of Plastic, Reconstructive and Aesthetic Surgery
Nov 2006 – Oct 2007	Fellow – Reconstructive Surgery Department of Plastic, Reconstructive, Maxillofacial and Oral Surgery, Duke University, USA
May '03 – Mar 08	Registrar– SingHealth SGH Plastic and Reconstructive Surgery
Nov '00 –Apr'03	Medical Officer (Trainee) – National Healthcare Group TTSH General Surgery SGH Plastic and Reconstructive Surgery NUH Accident and Emergency NHC Cardiothoracic Surgery
Sep '99 – Oct '00	Medical officer (National Service) Staff Officer in Headquarters Medical Corps (Health Care Office)
Feb '98 – Aug '99	Medical Officer *NUH Cardiothoracic Surgery* NUH Orthopaedics
Feb '97- Jan '98	Housemanship NUH Obstetric and Gynaecology CGH Surgery TTSH General Medicine

Education

1991- 1996	Cambridge University, UK Bachelor of Medicine and Surgery – Distinction in Obstetrics and Gynaecology Bachelor of Arts (Hons) – Neuroscience, Master of Arts
29 Jan 2002	Member of Royal College of Surgeons (Edinburgh) – Part II
24 Oct 2002	Masters of. Medicine (Surgery) Part 2
5 Sep 2008	Fellow of Academy of Medicine (Plastic Surgery)

Teaching Awards

1. SGH Surgical Star Inspiring Teacher award 2011
2. Duke- NUS Faculty Appreciation Award 2011 – Most Understanding Faculty for MSK
3. Residency In Singhealth Excels (RISE) award 2012 for Passionate Educator and Innovative Educator

Service Awards

1. Singapore Health Quality Service Award (April 2009 – March 2010) – Silver
2. Service Quality Award Winner – September 2010

FLEXIBILITY IN MANAGEMENT EXTENSIVE BURN SCAR

Vu Quang Vinh
Plastic and Reconstructive, Aesthetic surgery Center,
Vietnam National Hospital Of Burn
E-mail: vuvinhvb@gmail.com

According to WHO (2000), every year there are about 100 million people worldwide who suffering from new scars on the body due to many reasons: injury, burns, surgery, cosmetic procedures, insect bites… Most cases of scarring will develop normally (the result is normal scars) if preventive measures is used; on the contrary, some percentage of scars may have abnormal development if there is no good prophylaxis applied, especially in high-risk patients (44% of hypertrophic scarring and 17% of keloid formation. There are many preventive and treatment methods for keloids, hypertrophic scars have been applied. However, in extensive burn scar patient how to control scar development or finding good material for reconstruction is too difficult. Since 2000 up to now, Center of plastic and reconstructive of Vietnam National Hospital of Burn was applying microsurgery super-thin flap for severe neck and face contracture scar reconstruction. Using intergra for intensive scar in thorax, joints to combine laser CO2 fractional to get effectiveness in the treatment. Experience to apply these techniques will be presentation in our report.

CURRICULUM VITAE

Working Place
National Institute Of Burn, Department of Plastic and Reconstructive surgery

Education Background
From 1987 to 1993
General medical doctor student in Hanoi medical university
From 1993 to 2001
Resident in National Institute of Burn of department of plastic and reconstructive surgery
From 1996-1997
Preliminary training of plastic and reconstructive, aesthetic surgery in Hanoi medical university
From 2001 to March, 2006
PhD student in Nippon Medical School Japan (Sponsor by a famous Professor Hiko Hyakusoku)
From March, 2006 up to now
MD, PhD in National Institute Of Burn department plastic and reconstructive surgery
From September 2010 up to now
Vice president of Vietnam association of Plastic and reconstructive surgery
From 2016
Professor and head Department of Plastic and Reconstructive Surgery of National Hospital Of Burn

Working Experience
■Microsurgery
DIEPA breast reconstruction, penis reconstruction, facial reconstruction, finger replantation..etc..

■Burn scar reconstruction
Contracture scar, hypertropic scar, keloid scar treatment..etc..

■Aesthetic plastic surgery
Blepharoplasty, aesthetic surgery of the neck and face..etc..

EMBRYONIC PORCINE SKIN PRECURSORS CAN SUCCESSFULLY DEVELOP INTO INTEGRATE SKIN WITHOUT TERATOMA FORMATION POSTTRANSPLANTATION

Jun Wu
Department of Burn Surgery, First Affiliated Hospital, Sun Yat-sen University, Guangzhou, China
E-mail: junwupro@126.com

How to improve the wound healing quality of severe burn patients is still a challenge, no matter the great progress has been made in the fields of either stem cell or tissue engineering. Herein we for the first time systematically studied the growth potential and differentiation capacity of porcine embryonic skin precursors (PESPs) in a model of nude mince transplantation. The results showed that embryonic skin precursors did generate the integrity skin, including epidermis, dermis and skin appendages, such as hair follicle, sebaceous gland, etc. The maximal growth potential of PESPs after transplantation was found at E42 (Embryonic day 42). While, the safe window time of PESPs transplantation for prevention of teratoma risk was E56 or later. Our data strongly indicated that porcine embryonic skin precursors harvested from E56 of minipig may provide new hope for high-quality healing of extensive burns and traumas. The pig skin used for burn wound covering and for prevention of scaring in clinic will be discussed.

CURRICULUM VITAE

Professor, Chief Scientist of Burn Surgery Department, the First Affiliated Hospital, Sun Yat-sen University.
Deputy Director of Precision Medicine Institute, the First Affiliated Hospital Sun Yat-sen University.
Editor-in-Chief of Burns and Trauma
President of Chinese Burn Association
President of Chinese Burn Rehabilitation Association
Executive member of International Society for Burn Injury (ISBI)
Representative of East Asia of ISBI

DERMAL SUBSTITUTES FOR DEEP BURN INJURIES

Tor Wo Chiu
Plastic Reconstructive Surgery Department of Surgery Prince of Wales Hospital Hong Kong
E-mail: torchiu@surgery.cuhk.edu.hk

Full thickness burn injuries are usually associated with poor healing and a high risk of scar contractures that affect function. Full thickness skin grafts perform better than split/ partial thickness skin grafts. We can combine the use of dermal substitutes with thin skin grafts to reproduce similar functionality to full thickness skin with less donor site cost. We present our protocol in the use of dermal substitutes in a variety of deep injuries including chemical injuries.

CURRICULUM VITAE

Education and Qualifications

1985	10 GCE 'O' Levels
1987	3 GCE A Levels at grade A, 1 GCE S Level at grade 1
1987-1990	University of Oxford Medical School
1988	1st BM Passed with DISTINCTION, Placed 3rd in the University
1990	BA (Hons) (Oxon) Physiological Sciences
First Class Honours	
1990-1993	University of Oxford Clinical Medical School
1993	2nd BM, BCh (Oxon)
1994	University of Oxford, St. Catherine's College
1994	MA (Oxon) Physiological Sciences
1995	F.R.C.S. (Glasgow) – Part A Fellowship, May 1995
2000	F.R.C.S. (Glasgow) - Part B Fellowship, May 2000
2003	F.C.S.H.K. Admitted 9th April, 2003
2007	L.M.C.H.K. July 2007
2008	F.H.K.A.M. (Surg)

Postgraduate Appointments

■Pre-Registration

August 1993	Queen Elizabeth Hospital, University of Birmingham Otorhinolaryngology, General Surgery: Endocrinological, Renal Surgery (transplants).
February 1994	University Department of Medicine and Therapeutics,Glasgow

■Post-Registration

September 1994	Demonstrator in Anatomy/ Temporary Lecturer Laboratory of Human Anatomy, University of Glasgow
September 1995	Lecturer in Anatomy Laboratory of Human Anatomy, University of Glasgow The Royal College Prosectorship in Anatomy (1995-1997) Awarded by the Royal College of Physicians and Surgeons in Glasgow
August 1997	Senior House Surgeon in Otorhinolaryngology Victoria Infirmary, South Glasgow University NHS Trust
December 1998	Experienced Senior House Surgeon in Burns and Plastic Surgery Canniesburn Hospital, Glasgow Royal Infirmary University NHS Trust
August 1999	Senior House Officer in General Surgery Victoria Infirmary, South Glasgow University NHS Trust

Post-Fellowship

August 2000	Senior SHO in Plastic Surgery, Middlesbrough General Hospital
October 2000	Senior House Officer in Plastic Surgery, Manchester South Manchester University NHS Trust
August 2001	Senior House Officer in Plastic Surgery, Pinderfields Hospital, Wakefield
January 2002	Clinical Tutor in Plastic and Reconstructive Surgery, Department of Surgery, Prince of Wales Hospital
July 2003	Lecturer/ Assistant Professor in Plastic and Reconstructive Surgery, Department of Surgery, Prince of Wales Hospital A period of unpaid leave was taken from July 2006 to June 2007 to complete an internship to comply with the requirements for Full Registration with the Hong Kong Medical Council
July 2008	Resident Specialist, Plastic Reconstructive & Aesthetic Surgery (PRAS), PWH
April 2011	Associate Consultant, PRAS, PWH
Sept 2013	Consultant & Burns Director, PRAS, PWH
Jan 2018	Chief of Division, PRAS, PWH

Difference of Scar Managment by Country

Chairs:

David S Perdanakusuma

Si Jack Chong

A COHORT STUDY ON RADIOTHERAPY TREATMENT AFTER EXCISION OF KELOID SCARS

Dr Chong Si Jack, Teh Hui Yin
Department of Plastic Surgery, Singapore General Hospital, Singapore
E-mail: chong_si_jack@hotmail.com

Background: The combination of surgery and post-operative irradiation is the preferred treatment for keloid scars The first paper that describes the treatment combination is dated as far back as 1901. Ogawa et describes that the post-operative radiation response rate in terms of reducing the rate of keloid recurrence ranges between 67-98%. ***Aim:*** We present a retrospective cohort study on radiation therapy treatment after keloidectomy in terms of improvement in scar appearance (resemblance to normal skin) among the local population of Singapore. ***Results:*** 11 patients who had excision of keloid scars in our institution within years 2016-2017 at various body sites were recruited into this study. 7 out of 11 patients received radiation therapy of varying fractionated doses post-operatively. The post-operative irradiated scars were given scores based on the Vancouver Scar Scale by a single investigator at least 1 year after completion of radiation therapy. The Vancouver Scar Scale score ranges from 0 to 13 of which a score of 0 represents normal skin. Patients whom received post-operative radiotherapy had a score of </= 4 with a mean score of 2 as compared to patients who only had surgical excision with a score of >/= 5 with a mean score of 8. The highest score of 12 belonged to a patient who had only surgery and the lowest score of 0 was rated in a patient who received post-operative radiation therapy. All patients who received radiotherapy post-keloidectomy have lower VSS score as compared to those who only have had surgical excision. ***Conclusion:*** This study concludes that all patients with keloid scars who received post-operative radiotherapy treatment resulted in a better scar appearance which more closely resembles normal skin as compared to surgical excision only.

CURRICULUM VITAE

Dr Chong Si Jack is the Consultant plastic surgeon. He is currently the president of Asia Pacific Burn Association and the association for Burn iNjuries in Singapore. He is also the founding council member of the Asia Pacific Scar Society. He has held the key posts of

1. Medical director of the skin bank unit and SGH Burn Centre
2. Founding director for emergency preparedness. SengKang Hospital
3. Deputy Head Plastic surgery SKH
4. Commanding Officer Medical Response Force
5. Deputy Commander Force Medical Protection Command

He spearheads the strategic development of burn care and trauma care in Singapore and is a consultant in the Hospital services division Ministry of Health

He is concurrently a Visiting Consultant in Plastic surgery for SAF and Khoo Teck Puat Hospital

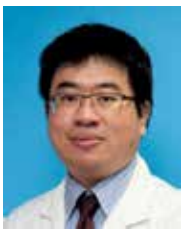
He has published 2books, multiple book chapters and more than 100 scientific publications
He has presented more than 170 times at international meetings.
He sits on the editorial board of international journals such as Burns and Trauma
In addition to research publication, he holds multiple grants with current interest in innovative dressings and skin substitutes
He is heavily involved in Humanitarian mission and has led and completed 17 missions till date

He has won awards such as the lead of the best medical team Singapore Healthcare Excellence Award in 2018
Most cited paper award by Burns and Trauma 2018,
Best of Reviewer Burns 2015

Academic / Clinical Awards

2011 Winner of Best Trainee Research Award in Burns Surgery
80th Australasian College of Surgeons Annual Scientific Congress, Adelaide Australia
2015 Best of Reviewer Award :2015
Burns Journal of International Society for Burn Injuries(ISBI)
2017 Winner Best Oral Presentation award ;
11th Asia Pacific Burn Congress, Taipei Taiwan (Presented by Loh JH, PI and Senior author)
2018 Team Leader and Winner : 30 Jan 2018
Singapore Health Quality Service Award 2018: presented by Minister of Health Gan Kim Yong
Best Team (Clinical Practice Improvement)
"A Multidisciplinary Approach: SGH Burn Centre Protocol"
Most Cited Publication award of the Journal of *Burns and Trauma*

CURRENT STATUS THERAPY OF KELOID IN TAIWAN



Chia-Hsuan Tsai
Chang Gung Memorial Hospital, Keelung
E-mail: chtsai0715@gmail.com

Keloids and hypertrophic scars are fibroproliferative disorders of the skin that result from abnormal healing of injured or irritated skin. Multiple studies suggest that genetic, systemic, and local factors may contribute to the development and/or growth of keloids and hypertrophic scars. Moreover, the severity of scarring is shaped by interactions between these local factors, genetic factors, and systemic factors such as hypertension and sex hormones. The Asian population is challenged with a high incidence of keloid occurrence with a specific genetic predominance. The annual reported incidence of new keloid cases in Taiwan is around 30,000. Nowadays keloid therapy included: surgery plus radiotherapy, compression therapy, steroid injection, cryotherapy and laser treatment. Surgery with adjuvant radiotherapy approach is thought to have the most significant effect on decreasing recurrence rate. Pulsed dye laser (PDL) as well as non-ablative and ablative fractionated devices has been the standard of care for scars in the United States. The Nd:YAG laser has been widely used to treat skin lesions such as erythema, venous malformation, hemangioma, keloids, and hypertrophic scars. At present, I will present some preliminary reports revealed convincing evidence of feasibility and effectiveness of applying adjuvant radiotherapy after keloid excision at Chang Gung Memorial Hospital in the Taiwanese population.

CURRICULUM VITAE

Office Address
Department of Plastic and Reconstructive Surgery,
Chang Gung Memorial Hospital, Keelung branch, Chang Gung University
No.222, Maijin Rd., Anle Dist., Keelung City 204, Taiwan (R.O.C.)

Education, Titles

1993-1999	M.D. Chung Shan Medical University, Taichung, Taiwan
2014-	M.S. Graduate Institute of Clinical Medicine, College of Medicine, National Taiwan University

Professional Positions

2015	Instructor, Department of Plastic and Reconstructive Surgery, Chang Gung Memorial Hospital, Keelung branch and Chang Gung University
2017-2018	Clinical fellow, Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School, Tokyo, Japan
2018/09	Chief, Department of Plastic and Reconstructive, Chang Gung Memorial Hospital, Keelung branch

Board Certification Approved by Society

2006-Present	Medial Board (ROC)
2010-Present	Surgery Board (ROC)
2012-Present	Taiwan Hand Surgery Board
2013-Present	Taiwan Society of Plastic and Reconstructive Surgery

Publications
Atlas of Human Central Nervous Systems
Chyn-Tair Lan, Chia-Hsuan Tsai, Pong-Wen Ru, Hang-Yei Wei, Department of Anatomy, Faculty of Medicine, Chung-Shan Medical University, Taichung 藝軒圖書出版社 2003

First-author
Chia-Hsuan Tsai, Kai-Ping Chang, Shao-Yu Hung, Wei F. Chen, Ming-Huei Cheng, Huang-Kai Kao, Postoperative morbidity in head and neck cancer ablative surgery followed by midcosurgical free tissue transfer in the elderly Oral Oncology 48(9), p811-816, 2012

Chia Hsuan, Tsai M.D, Eric Jen-Wen Liou DDS, MS, Frank Chun-Shin, Chang M.D, Philip Kuo-Ting Chen MD; The Efficacy of Cartilage Dissection & Repositioning in Primary Nasal Reconstruction in Complete Unilateral Cleft Lip Patients Received Nasoalveolar Molding 台灣整形外科雜誌

Mechanobiology of Scarring

Chairs:
Keisuke Okabe
Teruyuki Dohi

SILENCING KELOID BY MODULATING MECHANOTRANSDUCTION

Keisuke Okabe, Tatsuya Kato, Noriko Aramaki-Hattori, Shigeki Sakai, Kazuo Kishi,
Department of Plastic and Reconstructive Surgery, Keio university School of Medicine
E-mail: dawndawn@hotmail.co.jp

Although the detailed pathogenesis of keloid and hypertrophic scars is poorly understood, medical practitioners have empirically recognized that the mechanical stress on healing wound is one of the factors promoting the development of keloid and hypertrophic scars. Taping or compressive materials have been used to prevent keloid formation. Recently, mechanotransduction, the process through which cells sense and respond to mechanical stimuli by converting them to biochemical signals, is actively studied in various research areas using multiple cell sources including fibroblast, myocytes, endhothelial cells, etc. Treatment for keloid and hypertrophic scars by modulating underlying mechanotransduction seems to be promising, though there is no such treatment modality today. To identify the molecular targets involved in mechanotransduction in keloid, we have developed mechanical stress mouse model and co-culture ex vivo model. Gene expressions were globally analyzed and compared between the wound with and without mechanical stress. The signal molecules which are up- or downregulated with mechanical stress would be good candidates for keloid treatment. In the session, we present our study results currently in progress and discuss the future prospect of the study.

CURRICULUM VITAE

Keisuke Okabe

Position
Assistant Professor

Academic Career

2010-2014	Ph.D.	School of Medicine, Keio University
1998-2004	M.D.	School of Medicine, Keio University

Professional Career

2016-present	Assistant Professor, Department of Plastic and Reconstructive Surgery, School of Medicine, Keio University
2014-2016	Instructor, Department of Plastic and Reconstructive Surgery, School of Medicine, Keio University
2006-2010	Resident, Department of Plastic and Reconstructive Surgery, School of Medicine, Keio University
2004-2006	Medical Intern, Shizuoka Red Cross hospital

Society Memberships
The Japanese Society of Plastic and Reconstructive Surgery (Medical Specialist)
The Japanese Society for Wound Healing (Trustee)
The Japanese Vascular Biology and Medicine Organization
The Japanese Society for Regenerative Medicine
Japanese Society of Pressure Ulcers
Japan Society for Surgical Wound Care

Award
ETRS & WHS joint meeting Young Investigator Award (2009)
The Japanese Society for Wound Healing Research Encouragement Award (2010)
WUWHS Young Investigator Award (2012)

EFFECTS OF VARIOUS MECHANICAL STIMULI ON ABNORMAL SCARS

Teruyuki Dohi
Department of Plastic, Reconstructive and Aesthetic Surgery,
Nippon Medical School, Tokyo, Japan
E-mail: dohiprs@gmail.com

Formation of excessive scar tissue as a result of fibroproliferative disorders leads to high morbidity, mortality and costs. Of these, keloid scars presents a particularly challenging clinical problem because the cutaneous scars progress beyond the original site of injury. Changes in gene expression due to mechanical cues, i.e, mechanotransduction has been implicated in keloid and hypertrophic scars development, but how keloid scars progress into the surrounding tissue remains unknown. The role of mechanotransduction in keloids is further complicated by differential mechanical properties of keloid scars and the surrounding skin.

Recently we used human mechanical testing such as changes in human position and the finite element modeling (FEM) and immunohistologic analyses of human specimens to clarify the complex interplay of mechanical properties in keloid scar progression. We found changes in human position are correlated to dynamic changes in local stress/strain distribution, particularly in regions with a predilection for keloids. Stiff keloids are exposed to high stress, which displays a fibrotic phenotype. In contrast, the soft skin surrounding keloids is exposed to high mechanical strain that correlates with increased expression of the Caveolin-1/ROCK signaling pathway and elevated inflammation and proliferation.

Here, we would like to report the further mechanisms of the abnormal scar progression, which based on the effects of various mechanical stimuli for the scars.

CURRICULUM VITAE

Clinical Career

1999-2005	M.D. Nippon Medical School, Tokyo, Japan
2005-2007	Resident, Nippon Medical School Hospital
2007-2009	Senior resident in the Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School
2009-2010	Instructor in the Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School
2010-2012	Graduate Fellow in Plastic, Reconstructive and Regenerative Surgery, Graduate School of Medicine, Nippon Medical School
2014-2015	Graduate Fellow in Plastic, Reconstructive and Regenerative Surgery, Graduate School of Medicine, Nippon Medical School
2015-2016	Chief in Plastic, Reconstructive and Aesthetic Surgery, Towa Hospital
2016-2018	Instructor in the Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School
2018-2019	Clinical Assistant Professor in the Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School
2019-	Assistant Professor in the Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School

Research Career

2010-	Research Fellow, Mechanobiology and Mechanotherapy Laboratory, Department of Plastic and Reconstructive and Regenerative Surgery, Graduate School of Medicine, Nippon Medical School
2012-2014	Graduate Fellow in Biochemistry and Molecular Biology, Graduate School of Medicine, Nippon Medical School
2016-2018	Visiting Scholar of Stanford University, School of Medicine, Department of Surgery, Division of Plastic Surgery

Awards and Honors

2011	Scholarship Award of Nippon Medical School (Co-Investigator) "Development of Novel Strategy for Keloid Treatment by Integrated Approach between Clinical and Basic Researches"
2019	Scholarship Award of Nippon Medical School (Principle Investigator) "Development of Innovative Treatment that Adjust the Mechanical Environment on Wound Healing and Abnormal Scar Formation"
2019	Alumni Award in Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School

MECHANOBIOLOGY IN SCARS AND FIBROPROLIFERATIVE DISORDERS

Chenyu Huang
Beijing Tsinghua Changgung Hospital, Tsinghua University
E-mail: huangchenyu2014@126.com

Pathological scars, mainly keloids and hypertrophic scars, are the results of excessive wound healing. They are the typical dermal fibrosis, which are characterized with accumulated collagens (mainly type I) and fibroblasts. Our recent efforts in scar mechanobiology help to demonstrate the relationship between mechanics and scar formation in terms of their tension-determined shape and distribution, local mechanic-dependent invasion, as well as the systemic hypertension-related severity. Further developing tension-releasing strategies such as small-wave incision in keloids and applying negative pressure in chronic wound proved their responsiveness to mechanotherapeutical strategies from the two sides of a coin, that is, from the excessive and insufficient sides of the wound healings. Moreover, we put forward the mechanisms of endothelial dysfunction and the stiffness gap hypothesis, under the help of the in vitro simulation and the underlying mechanobiological signaling pathways. In particular, lessons learned from liver and cardiac fibrosis help us to uncover a totally new intercellular mechanical communication in fibrosis expansion, under the support of the mechanobiologal mechanisms. Hopefully, further deeper understanding of scar mechanobiology and the subsequent mechanotherapies will help to prevent, reduce, or even reverse keloid formation and progression.

CURRICULUM VITAE

Expertise
Clinical management of pathological scarring, e.g. keloids & hypertrophic scars.
Fundamental explorations in keloid etiology, in particular the mechanobiology mechanisms.
Proposing and applying mechanotherapy in scars, targeting at preventing or reducing scars by mechanical means at molecular, cellular, or tissue levels.
With >45 professional journal article publications focusing on skin fibrosis since 2010

Professional Experience

2014/8 till now	Associate professor Beijing Tsinghua Changgung Hospital, Tsinghua University
2013/1-2013/12	Postdoc Brigham and Women's Hospital, Harvard Medical School
2009/9-2011/8	Visiting scholar Nippon Medical School

Publications (Selected)
(1) Mechanotransduction-modulated fibrotic microniches reveal the contribution of angiogenesis in liver fibrosis. Nat Mater. 2017;16:1252-1261.

(2) Mechanotherapy: revisiting physical therapy and recruiting mechanobiology for a new era in medicine. Trends Mol Med. 2013;19:555-64.

(3) Endothelial dysfunction and mechanobiology in pathological cutaneous scarring: lessons learned from soft tissue fibrosis. Br J Dermatol 2017;177:1248-1255.

(4) Keloid progression: a stiffness gap hypothesis. Int Wound J. 2017;14:764-771.

(5) Mechanosignaling pathways in cutaneous scarring. Arch Dermatol Res. 2012;304:589-97

Basic Researches for Scars and Keloids

Chairs:
Kazuo Kishi
Satoko Yamawaki

TOWARDS THE REGENERATION OF SKIN TEXTURES-RELATIONSHIP BETWEEN KERATIN 17 AND SKIN TEXTURES-

Noriko Aramaki-Hattori, Takumi Idezuka, Yuko Matsui, Hayato Nagashima, Shigeki Sakai, Keisuke Okabe, Kazuo Kishi
Department of plastic and reconstructive surgery, Keio University school of medicine
E-mail: nonken@2001.jukuin.keio.ac.jp

Purpose: In this study, we focused on the relationship between the structure of the hair follicle and the skin texture during the fetal development in order to achieve the complete skin regeneration.
Method: Embryonic 14.5, 15.5, 16.5, 17.5 and 18.5 day of mouse back skin were stained with CD31 and keratin 17 (K17) using whole-mount preparation. In addition, using the gene transfer device①GFP + non-targeting-siRNA②GFP + K17-siRNA③GFP + K16-siRNA + K17-siRNA was introduced into the lateral skin of embryonic day 15.5 ICR mouse fetus by electroporation to knock down the expression. Thereafter, the side skin was peeled and cultured, and the texture was observed 48 hours after introduction. After the observation, the collected tissues were used for ① quantitative PCR ② 3D texture measurement using PRIMOS-CR ③ immunostaining for PCNA (proliferative cell nuclear antigen).
Results: During the fetal development, expression of K17 was observed in the epithelium corresponding to the skin groove from the embryonic day 15.5, and the expression gradually increased and decreased with the completion of the skin groove. It may suggest that the generation process of skin texture is an epithelial hyperproliferative state. Knockdown of K17 in fetal skin suppressed the formation of texture at the developmental stage (embryonic day 15.5 to 17.5). Moreover, when K17 expression was knocked down, the number of PCNA-positive epidermal cells was decreased compared to control.
Discussion: Our results suggest that epithelial cell proliferation via K17 may play an important role in the formation of texture at the developmental stage.

CURRICULUM VITAE

Noriko Aramaki-Hattori

Education

2004-2008	Graduate School of Medicine, Keio University, Department of Plastic and Reconstructive Surgery/Pathology, Tokyo, Japan
1995-2001	Keio University School of Medicine, Tokyo, Japan

Professional Training and Employment:

2013-present	Assistant Professor in Plastic and Reconstructive Surgery, Keio University School of Medicine
2012-2013	Instructor in Plastic and Reconstructive Surgery, Keio University School of Medicine
2009-2011	Post-doctoral fellow in Dr. Apte's lab, Lerner Research Institute, Cleveland Clinic Foundation
2008-2009	Chief resident in Plastic and Reconstructive Surgery, Keio University School of Medicine
2004-2008	Graduate Research, Graduate School of Medicine, Keio University, Department of Pathology
2006-2007	Medical Staff in Plastic and Reconstructive Surgery, National Hospital Organization Tokyo Medical Center
2003-2004	Medical Staff in Surgery, Shizuoka National Red Cross Hospital
2001-2003	Resident in Plastic and Reconstructive Surgery, Keio University School of Medicine

Awards

2012	Prize for young investigators: Future Innovation in Wound Care Award '12: 4th Congress of the World Union of Wound Healing Societies
2011	Travel Award for Trainees: 21st Annual meeting of Wound Healing Society
2009	Young Investigator Award of Japanese Wound Healing Society
2001	Keio Award

Societies
Affiliate, Japanese Society of Plastic and Reconstructive Surgery
Affiliate, Japanese Society of Wound Repair and Regeneration
Affiliate, Japanese Society for Surgical Wound Care

PROINFLAMMATORY CYTOKINES AND CD4+ T CELLS INCREASED THE EXPRESSION OF IL-6 IN KELOID FIBROBLASTS

Naoki Murao[1], Munezumi Fujita[1,2], Toshihiko Hayashi[1], Ken-ichiro Seino[3], Masaaki Murakami[4], Yuhei Yamamoto[1]
1 Department of Plastic and Reconstructive Surgery, Faculty of Medicine, Hokkaido University
2 Department of Plastic and Reconstructive Surgery, Fukushima Medical University
3 Division of Immunobiology, Institute for Genetic Medicine, Hokkaido University
4 Division of Molecular Psychoimmunology, Institute for Genetic Medicine, Hokkaido University
E-mail: mr-n-y-mura@muf.biglobe.ne.jp

Keloid is an inflammatory and fibrotic disease with an unknown pathogenesis. Various inflammatory cells including macrophages and CD4+ T cells are increased in keloid tissue. Moreover, proinflammatory cytokines and chemokines, such as interleukin (IL)-1β, IL-6, tumor necrosis factor-α are overexpressed in keloid fibroblasts and tissues. Therefore, the development of a keloid is often considered the end result of an excessive wound healing response. We investigated the IL-6 expression in keloid fibroblasts after stimulation with proinflammatory cytokinesand examined the interaction between CD4+ T cells and keloid fibroblasts using a coculture system. It was found that the IL-6 expression in keloid fibroblasts was increased after stimulation. In addition, CD4+ T cells increased the IL-6 expression in keloid fibroblasts. Our findings suggest that autocrine and paracrine signaling activate proinflammatory cytokines and chemokines from keloid fibroblasts, and support the idea that a prolonged or abnormal inflammatory response may lead to keloid formation.

CURRICULUM VITAE

Naoki Murao

Specialties
wound healing, keloid, malignant skin tumor, burn, tumor immunity

Education and Academic Qualifications

Mar 2013	PhD Graduate School of Medicine, Hokkaido University, Sapporo, Japan
Mar 1997	MD School of Medicine, Hokkaido University, Sapporo, Japan

Employment

Jan 2019 - Present	Lecturer Department of Plastic and Reconstructive Surgery, Hokkaido University Hospital, Sapporo, Japan
Oct 2013 - Dec 2018	Assistant Professor Department of Plastic and Reconstructive Surgery, Hokkaido University Hospital, Sapporo, Japan

Licensure & Certification

Apr 1997	National Board of Medicine
Apr 2004	Japanese Board of Plastic and Reconstructive Surgery

Publications

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Shioya R, Furukawa H, Murao N, Hayashi T, Oyama A, Funayama E, Yamamoto Y, Saito N: Prevention of lymphedematous change in the mouse hindlimb by nonvascularized Lymph node transplantation. Ann Plast Surg, 76(4):442-445, 2016

HTRA1 STIMULATES KELOIDS DEVELOPMENT

Satoko Yamawaki[1], Motoko Naitoh[2], Rino Aya[3], Yasuhiro Katayama[4], Toshihiro Ishiko[5], Katsuhiro Yoshikawa[6], Mika Ikeda[2], Shigehiko Suzuki[7]
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2 Department of Plastic and Reconstructive Surgery, Kobe City Medical Center General Hospital
3 Department of Plastic and Reconstructive Surgery, Kyoto Katsura Hospital
4 Department of Plastic and Reconstructive Surgery, Graduate School of Medicine, Kyoto University
5 Department of Plastic and Reconstructive Surgery, Japanese Red Cross Otsu Hospital
6 Department of Plastic and Reconstructive Surgery, Shiga General Hospital
7 Department of Plastic and Reconstructive Surgery, Hamamatsu Rosai Hospital
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Keloids occur after failure of the wound healing process; inflammation persists, and various treatments are ineffective. Keloid pathogenesis is still unclear. We have previously analyzed the gene expression profiles in keloid tissue and found that HtrA1 was markedly up-regulated in the keloid lesions. HtrA1 is a serine protease suggested to play a role in the pathogenesis of various diseases, including age-related macular degeneration and osteoarthritis, by modulating extracellular matrix or cell surface proteins. We analyzed HtrA1 localization and its role in keloid pathogenesis. Thirty keloid patients and twelve unrelated patients were enrolled for in situ hybridization, immunohistochemical, western blot, and cell proliferation analyses. Fibroblast-like cells expressed more HtrA1 in active keloid lesions than in surrounding lesions. The proportion of HtrA1-positive cells in keloids was significantly higher than that in normal skin, and HtrA1 protein was up-regulated relative to normal skin. Silencing HtrA1 gene expression significantly suppressed cell proliferation. HtrA1 was highly expressed in keloid tissues, and the suppression of the HtrA1 gene inhibited the proliferation of keloid-derived fibroblasts. HtrA1 may promote keloid development by accelerating cell proliferation and remodeling keloid-specific extracellular matrix or cell surface molecules. HtrA1 is suggested to have an important role in keloid pathogenesis.
Satoko Yamawaki

CURRICULUM VITAE

Satoko Yamawaki

Education

1988-1994	Kochi Medical School
2010-2014-	Department of Plastic and Reconstructive Surgery, Kyoto University Graduate School of Medicine

Employment

1994-1995	Clinical Resident, Department of Plastic and Reconstructive Surgery, Kyoto University Graduate School of Medicine
1995-1997	Clinical Fellow, Dep. of Plastic and Reconstructive Surgery, Kyoto Katsura Hospital
1997-1998	Clinical Fellow, Dep. of Plastic and Reconstructive Surgery, Japanese Red Cross Kyoto Daini Hospital
1999-2001	Research Student, Plastic Surgery Group, Dep. of Otorhinolaryngology, Kochi Medical School, Kochi
2001-2003	Clinical Fellow, Dep. of Plastic Surgery, Takeda General Hospital, Kyoto
2003-2006	Instructor, Dep. of Plastic and Reconstructive Surgery, Kyoto University Graduate School of Medicine
2006-2007	Director, Dep. of Plastic and Reconstructive Surgery, Kusatsu General Hospital, Shiga
2007-2010	Assistant Professor, Dep. of Plastic and Reconstructive Surgery, Kyoto University Graduate School of Medicine
2014-2015	Director, Dep. of Plastic Surgery, Takeda General Hospital, Kyoto
2016-	Director, Dep. of Plastic Surgery, Japanese Red Cross Fukui Hospital, Fukui

COMPLETE REGENERATION OF SKIN

Kazuo Kishi
Department of Plastic and Reconstructive Surgery, Keio University
E-mail: kkishi@sc.itc.keio.ac.jp

Mammalian fetal cutaneous wounds up until the proper developmental stage heal rapidly without scars and the skin is regenerated completely. In the process of fetal wound healing, the inflammatory responses, granulation proliferation and scar formation that are observed in adults are reported to be not observed.

Regarding the causes for fetal scarless cutaneous regeneration, numerous studies have been reported from the aspects of molecular biology and cellular biology, but the mechanisms have not yet been completely understood. Although a variety of substances that inhibit scar formation have been investigated, currently it is almost impossible for adult cutaneous wounds to be regenerated completely without scars, whereas perfect regeneration after wounding can occur only during the gestation period except for specific animals.

By strictly comparing the stages before and after the transition points from the time of regeneration of skin to the time of scarring, it will be possible to investigate the mechanisms of cutaneous regeneration.

CURRICULUM VITAE

Education
1988 MD. Keio University, School of Medicine, Tokyo, Japan
1998 PhD. Keio University, School of Medicine, Tokyo, Japan

Postdoctoral Training

1988-1990	Resident in Keio University Hospital, Tokyo, Japan
1990-1994	Resident in Surgery, Urawa City Hospital, Saitama, Japan
1994-1996	Resident in Plastic and Reconstructive Surgery, Keio University Hospital, Tokyo, Japan
1996-1998	Research fellow in Developmental Biology, School of Biological Sciences, University of Manchester, Manchester, UK (Mark WJ Ferguson's lab)
1998-1999	Medical staff in Plastic and Reconstructive Surgery, Saiseikai Central Hospital, Tokyo, Japan
2000-2004	Medical staff in Department of Plastic and Reconstructive Surgery, Keio University
2004-2010	Assistant Professor in Department of Plastic and Reconstructive Surgery, Keio University
2012-	Professor in Department of Plastic and Reconstructive Surgery, Keio University

Membership of Society:
Japan Society of Plastic and Reconstructive Surgery (Director)
Japan Society for Laser Surgery and Medicine (Director)
Japan Society for Surgical Wound Care (Director)
The Japanese Society for Wound Healing (Chairman)
Japan Society for Innovative Techniques in Plastic Surgery (Director)
Japan Society of Clinical Hair Restoration (Director)
The Japanese Society of Recklinghausen Disease (Director)
The Japan Society for Simulation Surgery (Director)
Japan Society of Cranio-Maxillo-Facial Surgery (Director)
Japanese Society for Anti-Aging Medicine (Councilor)
Japanese Society of Micro Surgery
Japanese Society for Regenerative Medicine
Japan Society of Aesthetic Plastic Surgery
Japan Society for Burn Injuries
Japanese Society for Pressure Ulcers
The Zoological Society of Japan

Editorial Board
Wound Repair and Regeneration
Japanese Journal of Surgical Wound Care

Editorial Advisory Board
International Wound Journal

Subspecialty
Wound healing, Regenerative medicine, Reconstructive surgery, Flap

Various Wounds and Scarring

Chairs:
Josephine Ip
Sadanori Akita

EARLY WOUND INTERVENTION—A NOVEL APPROACH FOR SCAR PREVENTION

Wei Liu
Department of Plastic Surgery, Shanghai 9th People's Hospital, Shanghai, China
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Scar formation after wound healing remains a clinical challenge to physicians and patients due to the undesired appearance that suffers psychologically and functional abnormality. It has been a long time battel to counteract this natural healing consequence. Fetal wound healing process reveals scarless wound healing in animal study, but it is difficult to do in human. Despite tremendous effort made, limited results can be achieved in regard to minimize visible scar. The presenter proposes a novel approach of wound intervention at an early stage including drug injection, silicon gel application, anti-tension device application and most importantly, the wound tissue remodeling using microplasma and laser technology. The clinical practice of treating linear scar has been performed in the past years and the results demonstrate that such a novel approach can significantly change the natural outcome of scar formation by significantly minimizing or removing the gross view of formed scar.

BIOSKETCH

Dr. Liu graduated from Shanghai Second Medical University in 1983 with a MD degree and graduated from University of Arkansas for Medical Science in 1998 with a PhD degree followed by two years postdoctoral training focusing on wound healing and scarring at Institute of Reconstructive Plastic Surgery, New York University Medical School. He returned to China in 2000. Currently, he is a Professor of Plastic Surgery of Shanghai Jiao Tong University School of Medicine, and Adjunct Professor of Biomedical Engineering of Shanghai Jiao Tong University. He currently serves as Associate Directors of National Tissue Engineering Center of China and Shanghai Research Institute of Plastic and Reconstructive Surgery. Dr. Liu is the principle investigator of four national key projects of tissue engineering research sponsored by Chinese Ministry of Science and Technology and the investigator of 3 scar research grants of National Nature Science Foundation. He is a standing committee member of Chinese Society of Biomaterials and Chinese Society of Tissue Engineering, Vice President of Chinese Society of Tissue Engineering and Regenerative Medicine, Vice President of Chinese Society of Scar Medicine. Dr. Liu is the authors of more than 100 original articles published in international journals, the contributor of several international tissue engineering text books. Dr. Liu is an editorial member of Scar, Burns and Healing (SAGE), Biomaterials, Journal of Tissue Engineering and Regenerative Medicine, Biomedical Materials, and Tissue Engineering. He has presented more than 30 invited speeches at various international conferences, including TERMIS-AP and TERMIS-EU chapter meeting and TERMIS-World Congress. Dr. Liu is the organizer of 8th TESI Annual meeting and 2013TERMIS-AP meeting, is a Member-in large of TERMIS-AP, Member of International Union of Societies of Biomaterials Science and Engineering (IUSBSE). Dr. Liu's clinical work specializes in scar treatment with focus on keloid and cosmetic scar revision and laser therapy. He is one of the founding member of Scar Club based on Monpellier, France since 2006 and also the founding member of Global Scar Society (G-ScarS) since 2017. Dr. Liu host the First World Congress of G-ScarS as the congress president.

SURGICAL MANAGEMENT OF PRESSURE SORE

Josephine Ip
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Patients who are prone to pressure sore include paraplegia, tetraplegia, patients with poor mobility like post stroke and chronic ill health. Sensory deficit in paraplegic and tetraplegic patients prevents the usual off- loading of pressure movements in a normal subject.

The bony prominence over sacrum makes pressure occur frequently in this area even after a few hours of pressure by body weight. This part of the body is always moist and easily contaminated by faecal material and urine. After short duration of pressure, full thickness of tissue necrosis can occur and the tissue volume loss is high. Secondary wound healing is difficult and prolonged.

Reconstruction procedures described in the literature include skin grafting, local rotation flap, local flaps like spider flap, thoraco-lumbar flap, Gluteus maximus myocutaneous flap, perforator flap or free flap. A procedure of choice should allow filling of large soft tissue defect with tension free primary wound closure and allow reconstruction in future recurrence of pressure sore.

VY plasty of skin and subcutaneous tissue and skin based on gluteus maximus muscle is a versatile wound coverage method to treat large sacral sore. The Gluteus maximus is preserved so it can be used in ambulatory patient and muscle strength is not affected. Skin can be opposed with minimal tension. The transposed tissue is of good thickness to prevent easy recurrence. Large tissue defect can be covered. Even there is recurrence, the bridge is not burned and the whole muscle can be used for further wound coverage procedure.

CURRICULUM VITAE

Education

1986	Bachelor of Medicine & Surgery, MBBS (HK)
1991	Fellow of Royal College of Surgeons of Edinburgh, FRCS(E)
1993	Fellow of Hong Kong Academy of Medicine in Orthopaedics, FHKAM(ortho)
1993	Fellow of Hong Kong College of Orthopaedics, FRCOS
1997	European Diploma of Hand Surgery
2002	Master of Surgery, MS(HK)

BIOSKETCH

Dr. Josephine Ip is the Chief of Division of Hand & Foot Surgery in Department of Orthopaedics & Traumatology, Queen Mary Hospital, the University of Hong Kong.

She was the past President of Hong Kong Society for Surgery of the Hand, past Secretary of the Asian Pacific Federation for Surgery of the Hand and the past Congress President of the 7th Congress of APFSSH in 2008 and International Tetraplegic Upper limb reconstruction conference 2013.She is also the Congress President of World Symposium of Congenital Malformations of Han and Upper Limb 2018. She is the founder and current Council member of the Hong Kong Society for Diabetic Limb Care.

She is actively involved in clinical work in Hand Surgery, Microvascular reconstructive surgery and Diabetic hand & foot management. She is actively involved in basic research and applied research. She has over 100 publications including book chapters, peer reviewed journals and patents. Her research interest is in Biomaterials and their application in clinical problems including nerve conduit, bone regeneration and hand joint prosthesis and wound management. She is the advisor & reviewer of various journals. She has been invited as key speakers in various conferences & as faculties of various courses in Hand Surgery.

She is a council member of Hong Kong Medical council and Hong Kong Medical Association. She is heavily involved in medical policy in Hong Kong and serves the Hong Kong Medical field.

SURGICAL TECHNIQUE TO REDUCE SCAR AFTER GIANT NEVUS EXCISION

Tae Hyun Choi
Seoul National University Hospital
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Giant hairly nevus are rare disease and have an occurrence of 1 in 1,000 to 20,000 newborns. The incidence of malignant degeneration is controversial, with reports ranging from 2-20%. The larger the nevi, the greater risk for malignant degeneration. So, removal of giant hairly nevus is necessary for preventing malignant degeneration and cosmetic reasons. Among various surgical methods, the tissue expansion method is most promising. I introduce my surgical technique of tissue expansion to remove giant hairly nevus as much as possible and to reduce the deformity and scar after removal. The first one is that amount of expander inflation is as much as possible. Duration of expansion is better to be longer. Expanded flap is 3 dimensional, not 2 dimensional. So we need to use 3 dimensional expanded flap effectively. Effective surgical methods are rotation, back-cut, transposition flap, distant flap, and preconditioning, etc. Here I will show diverse my surgical techniques to reduce scar and deformity when removing giant hairly nevus.

CURRICULUM VITAE

Current Position
Associate Professor,
Department of Plastic and Reconstructive Surgery, Seoul National University College of Medicine
Department of Pediatric Plastic and Reconstructive Surgery, Seoul National University Children Hospital

Professional Qualifications
Board Certified in Plastic surgery, Ministry of Public Health and Social Affairs, Korea (2002)

Education

03/1991-02/1997	Keimyung University, College of Medicine (M.D.)
03/1998-02/2000	Keimyung University, Plastic and Reconstructive Surgery (M.Sc.)
03/2000-02/2002	Keimyung University, Plastic and Reconstructive Surgery (Ph.D.)

Postgraduate Training

04/2005-08/2007	Full-time instructor of Dept. of Plastic and Reconstructive Surgery, Gyeongsang National University Hospital
09/2007-02/2009	Full-time instructor of Dept. of Plastic and Reconstructive Surgery, Keimyung University Dongsan Medical Center
09/2012-present	Associate Professor of Dept. of Plastic and Reconstructive Surgery, Seoul National University School of Medicine, Seoul National University Hospital

Professional Memberships

2008-present	International member, The American Society of Plastic Surgeons
2002-present	Member, The Korean Society for Plastic and Reconstructive Surgeons
-present	Member, The Korean Society for Aesthetic Plastic Surgery
-present	Member, The Korean Society Cleft Palate-Craniofacial Association
-present	Member, The Korean Society for Microsurgery
-present	Member, The Korean Society for Surgery of the Hand

Awards and Honors

2003	Excellence Award of Govern-Servant, the Minister of Health and Social Welfare, Korea
2007	Award of Young Plastic Surgeon of the Korean Society for Plastic and Reconstructive Surgeons
2009	Academic Award of the Korean Society for Plastic and Reconstructive Surgeons
2009	Excellence Award of the Korean Society for Surgery of the Hand
2011	Academic Award of the Korean Burn Society
2015	Excellence Jury Award of the Korean Society for Plastic and Reconstructive Surgeons
2016	Excellence Poster presentation Award of the Tissue Engineering and Regenerative Medicine Society
2017	Grand Award of Research Council of the Korean Society for Plastic and Reconstructive Surgeons
2017	Excellence Poster Award from Ministry of Food and Drug
2017	Participation Award from Ministry of Food and Drug

Editorial Boards

present	Editorial board, Archives of Plastic Surgery
present	Editorial board, The Korean Society for Aesthetic Plastic Surgery
present	Guest reviewer, Korean Cleft Palate-Craniofacial Association

MANAGEMENT OF CHRONIC IRRADIATED SCARS

Eldon Mah
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Methods: Literature review of current approach in management of chronic irradiated scars. Personal experience and approach analysed and discussed. The review focused on use of fat transfer as a treatment modality and compare early and late intervention results. ***Conclusion:*** Surgical resection of chronic irradiated scars and reconstruction produce most reliable and consistent results. Fat transfer is useful in some cases but early intervention appears to be more effective and produce better long term results.

CURRICULUM VITAE

Current position
Plastic and Reconstructive Surgeon, St Vincent Hospital Melbourne

Qualifications

2011	Reconstructive Microsurgery Fellowship Toronto General Hospital, University Health Network Toronto, Ontario, Canada July 2010 ~ June 2011
2010	FRACS Fellowship of Royal Australasian College of Surgeons in Plastic & Reconstructive Surgery, Royal Australian College of Surgeon, Melbourne Australia Feb 2006 ~ Feb 2010
1999	MBBS University of Melbourne Medical School Feb 2000 ~ Dec 1999

Post-graduate Clinical Training

2000	Internship Austin Health
2001~2003	Basic Surgical Training Austin Health
2003	General Surgical Registrar Austin Health
2004	Plastic Surgical Registrar St Vincent's Hospital Melbourne
2005 ~ 2006	Advanced General Surgical Training Austin Health
2006 ~ 2010	Plastic and Reconstructive Surgical Training Melbourne, Australia
July 2010~ June 2011	Reconstructive Microsurgery Clinical Fellowship Toronto General Hospital, University Network Toronto, Canada
July 2011~ Nov 2011	Clinical Observership at MD Anderson Cancer centre, Texas, USA Brigham & Women's Hospital, Boston, USA Guy & St Thomas Hospital, London, UK Chang Gung Memorial Hospital, Taiwan

Professional Membership
Royal Australasian College of Surgeon (RACS)
Australian Society of Plastic Surgeons (ASPS)
World Society of Reconstructive Microsurgery (WSRM)
Asia Pacific Federation of Societies of Reconstructive Microsurgery (APFSRM)
The Asia Pacific Society for Scar Medicine (APSSM)

WOUNDS AND SCARS IN SEAMLESS INTERACTION IN PROCESS AND TARGETING

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Department of Plastic Surgery, Wound Repair and Regeneration, Fukuoka University,
School of Medicine
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Wounds may develop unfavorable scars when wound healing delayed especially after extendedly heavy insults and mobile areas such as in a major joint. Integration of refined surgical, medical and novel technological approaches should be combined to combat the undesirable outcome.

Here are several most impacted modalities including cultured epithelial autografts (CEA) with highly expanded mesh skin grafts were used for extensive adult burns covering more than 30% of the total body surface area A longitudinal analysis of scars may further clarify the molecular changes of scar formation and pathogenesis.

Meticulous thin flap and cell therapy in the neck scar contracture. The thin groin flap is one of the answers and well matches the tissue texture and maintains the flexibility. Even the extensive burns and delayed reconstructions due to the resuscitation first, the groin area is well preserved and can be safely harvested by dual vasculature systems of superficial circumflex iliac artery and superficial epigastric artery, which warrant more reliability compared to the perforator flaps in this area. More demanding and stringent forms of the neck burn scar contracture is the sequelae of the radiation. The radiation burn or radiation injury can be progressing and hard to heal the wound. The adipose-derived stem cells can revert the scar contracture as the surrounding tissue is softened and accelerate wound healing.

CURRICULUM VITAE

Current Position
Professor in chief, Department of Plastic Surgery, Wound Repair and Regeneration, Fukuoka University, School of Medicine

Job History

1989/6/1-1990/1/31	Medical resident in Nagasaki University medical school hospital
1990/2/1-1990/3/31	Medical resident in Sasebo Municipal hospital
1993/2/7-1996/7/31	Research fellow (Dr. Shlomo Melmed), Cedars-Sinai medical center, University of California Los Angeles)
1996/8/1-1999/3/31	Staff surgeon in Nagasaki University medical school hospital
1999/4/1-2007/3/31	Assistant professor in Nagasaki University medical school hospital
2007/4/1-2011/3/31	Senior assistant professor in Nagasaki University medical school hospital
2011/4/1-2016/9/30	Senior assistant professor in Nagasaki University hospital
2010/11	Visiting professor, St. Petersburg post-medical graduate educational academy, Russia
2014/3	Visiting professor, Albert-Einstein college of medicine, USA
2014/7	Visiting professor, Harvard University, USA
2015/11	Visiting professor, Ohio State University, USA

Role and activity in medical societies and society

1989/4/1-now	Active member, Japan Society of Plastic and Reconstructive Surgery
2003/4/1-2014/3/31	Councilor member, Japan Society of Plastic and Reconstructive Surgery
2005/4/1-2009/3/31	Liaison member, Japan Society of Plastic and Reconstructive Surgery
2005/4/1-2009//3/31	Planning committee member, Japan Society of Plastic and Reconstructive Surgery
2009/4/1-2015/3/31	Academic committee, Japan Society of Plastic and Reconstructive Surgery
2009/4/1/-2015/3/31	Guideline committee, Japan Society of Plastic and Reconstructive Surgery
2015/4/1-now	Planning committee, Japan Society of Plastic and Reconstructive Surgery
2002/4/1-now	Councilor member, Japanese Society for Wound Healing
2006/4/1-now	Guideline committee, Japanese Society for Wound Healing
2009/4/1-now	International committee member, Japanese Society for Wound Healing
2013/4/1-now	Councilor committee, Japanese Society of Pressure Ulcers
2015/4/1-now	International committee, Japanese Society of Pressure Ulcers
2007/4/1-now	Active member, Japanese Society for the study of Vascular Anomalies
2007/4/1-now	Board trustee member, Japanese Society for the study of Vascular Anomalies
2001/4/1-now	Plastic Surgery Research Council, active member
2007/4/1-now	ePlasty, editorial board member, section editor
2007/4/1-now	Journal of Wound Technology, editorial board member
2007/4/1-now	Wound Repair and Regeneration editorial board member
2009/4/1-now	WOUNDS, editorial board member
2013/4/1-now	Advances of Wound Care, editorial board member
2014/4/1-now	International Journal of Lower Extremity Wounds, editorial board member
2008/4/1-now	Nagasaki Radiation Emergency Medical Preparedness and Assistance, PREMPAN network committee

PHOTODYNAMIC THERAPY; A NOVEL STRATEGY IN MANAGEMENT OF KELOID SCARS DEVELOPING AFTER ACNE VULGARIS

Mamiko Tosa, Rei Ogawa
Nippon Medical School Hospital
E-mail: mamiko_prs@yahoo.co.jp

Introduction: The prolonged inflammation in acne vulgaris may result in keloid scars characterized by severe pain, itching, unappealing appearance in multiple areas spreading extensively which affects the patient's quality of life. Efficient standard prevention and treatment strategy of keloid scars hasn't been fully established yet. Photodynamic therapy (PDT) has been reported in a few recent studies to have potential role in treatment of keloid scars in vitro, using light and photosensitizers in lesioned areas were found to be an effective in acne scars treatment and has been suggested in keloid scars management.
Method: In this study, we aimed to evaluate the efficiency of PDT in management of keloid scars developing after acne vulgaris. A total of 50 patients were involved who developed keloid on top of acne vulgaris lesions were involved in this study. Patients received PDT treatment 3 times per month and were assessed for pain and itching.
Results: Out of the 50 patients, 30 patients showed improved symptoms including reduced pain and itching scores above 70%. In addition, scar size and redness were found reduced by photography. No cases of recurrence in the improved outcomes nor noticeable side effects were reported.
Conclusion: Our findings suggest a promising effect of PDT treatment for acne vulgaris complicated with keloid scars that are resistant to alternative keloid therapies and do not improve with conventional therapies. Further studies will contribute to developing the optimal PDT treatment strategy in the management of these clinically challenging compound cases.

CURRICULUM VITAE

Current Appointment
Associate Professor,
Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School, Tokyo, Japan
Certified Plastic Surgeon, Japan Society of Plastic and Reconstructive Surgery
Certified Wound Surgeon, Japan Society for Surgical Wound Care

Education

1986-1992	M.D.	Nippon Medical School, Tokyo, Japan
2005	Ph.D.	Nippon Medical School, Graduate School of Medicine, Tokyo, Japan

Professional Positions and Major Visiting Appointments

1999-2007	Instructor, The Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School
2008-2017	Assistant Professor, The Department of Plastic, Reconstructive Surgery, Nippon Medical School Musashi-kosugi Hospital
2018- Present	Associate Professor, The department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School

Professional Society Involvement (selective)

2018-Present	Board member, Japan Scar Workshop (Tokyo)

Number of Operations (General and Local Anesthesia)

2013	503 Cases
2014	519 Cases
2015	471 Cases
2016	456 Cases
2017	433 Cases
2018	412 Cases

Academic Accomplishment (at August, 2019)
Grants: 15
Japanese Chapters of Medical Textbooks: 3
English Papers of Scientific Journals: 15
Japanese Papers of Scientific Journals: 31
Invited Lectures (Japan) : 8
Conference Presentations: 172

Laser and Cell Therapies for Scars

Chairs:
Yixin Zhang
Fiona Wood

3D MESH RELEASING METHOD - A RETROSPECTIVE ANALYSIS OF FRACTIONAL CO_2 TREATMENT ON CONTRACTURE SCARS

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Department of Plastic and Reconstructive Surgery, Shanghai Ninth People's Hospital, China
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Background: There has been reports on fractional CO2 laser successfully improving contracture scars that impair the function of a joint. It seems that certain contracture problems could be solved by laser instead of surgery. However, the clinical application could be difficult when the efficacy of the method remained unknown. The purpose of this article is to report the releasing capacity of the fractional CO2 laser on contracture scars based on a defined treatment method. ***Method:*** We conducted a retrospective study in patients with limited function in joints caused by contracture scars. Fractional CO2 laser and our '3D mesh releasing' protocol was applied. The primary outcome was the range of motion (ROM) of the relevant joint before all intervention and 6 months after the last treatment. ***Result:*** From 2016.11 to 2018.1, 11 joints of 10 cases were treated by the fractional CO2 laser. Patients went through 2.27(SD 1.42,1-5) sessions. The average progress of ROM before and 6 months after all treatments was 19.13°(SD 10.25, $p<0.02$). In 6 cases, we recorded that there was a 8.53°(SD 5.81, $p<0.02$)of increase in ROM immediately after the laser session, and the average improvement reached 13.58°(SD 8.15, $p<0.02$) after 2-3 months during the next follow-up. ***Conclusion:*** The fractional CO2 laser could achieve functional improvement in contracture scars and the effect maintained at least 6 months. The '3D Mesh Releasing' protocol would help to standardize the treatment procedure. This modality is minimal-invasiveness and potentially could become a supplement to the current treatment choices for mild contracture scars.

CURRICULUM VITAE

■Deputy Director, Department of Plastic and Reconstructive Surgery, Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China.
■Director, Division of Reconstructive Microsurgery Center, Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China.
■Director, Scar Comprehensive Therapy Center, Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China.

2006.7 -2007. 8:
Microsurgery Fellow, Division of Plastic and Reconstructive Surgery, Duke University Medical Center, United States.
2015:
Shanghai Municipal Education Commission— "Gaofeng" Clinical Medicine Grant Support—Clinical Medicine (Class I Peak) "Research Doctor" (Double Hundred Talents Program).
2018:
Shanghai Excellent Technology Leader;
"Godina Traveling Fellow Award" - American Society of Reconstructive Microsurgery (ASRM) (One microsurgeon is selected worldwide annually, the first Award Winner in Mainland China).
2019:
" Bethune's Good Doctor " – awarded by the Chinese Medical Doctor Association (3rd Session).
In the past five years, Dr. Yixin Zhang has hosted a number of National (1 sub-project of National Key Basic Research Program of China (973 Program), 3 National Natural Science Foundation of China) and Shanghai Natural Science Foundation & Nano-Special Research (Scar Research Field), the total funding of which has beyond 5 million RMB. As the first/corresponding author, he has published more than 80 SCI articles with impact factor > 250 in sum, and more than 80 Chinese articles.

In 2009, Dr.Yixin Zhang became the Doctoral Supervisor of the Shanghai Jiao Tong University School of Medicine.
In 2014, Dr.Yixin Zhang became the Professor of the Shanghai Jiao Tong University School of Medicine.
To date, Dr. Yixin Zhang has finished training 8 PhD/MD students, 7 Master students and 15 International Clinical Fellows.

Committee & Broad Membership
The 3rd Congress of Asian Pacific Federation of Societies for Reconstructive Microsurgery (APFSRM), Vice Chairman
Asian Wound Care Association (AWCA), Scientific Committee
"Wound Management and Reconstruction Course" authorized by European Wound Management Association (EWMA), Chinese Society for Scar Medicine , Chairman
Chinese Anti-Cancer Association-Oncology Plastic & Reconstructive Society, Vice Chairman
Chinese Association of Rehabilitation Medicine-Reconstructive Microsurgery Society, Vice President & Secretary-General
Chinese Medical Doctor Association-Microsurgery Society: Chronic Wound & Reconstructive Microsurgery Specialized Committee, Chairman
Shanghai Medical Association-Microsurgery Society, Vice Chair

THE USE OF CELL BASED THERAPIES TO MODULATE SCARRING

Fiona Wood
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The capacity for skin to regenerate is limited to minor injuries such that the repair process results in the development of scar tissue. The time to healing is a key factor in the control of the fibrotic process, the talk will explore the use of cell therapies to facilitate healing in a rapid time frame to avoid scarring. Further, the initial repair then goes through a maturation phase with the deposition of scar. The use of cell based therapies will be explored with respect to the scar assessment and understanding of the symptoms and tailoring the intervention to deal with issue such as the pigment, thickness, pliability and vascularity.

CURRICULUM VITAE

Current Position
University Of Western Australia
Professor Fracs Am

Education and Training

1978	St Thomas' Medical School, London, Anatomy, BSc (1st Class Honours)
1978	St Thomas' Medical School, London, Anatomy, Anatomy Prize
1981	St Thomas' Medical School, London, Anatomy, MBBS
1983	The Royal College of Surgeons of England, Higher Degree, Primary FRCS
1985	The Royal College of Surgeons of England, Higher Degree, FRCS (London)
1985	The Royal College of Surgeons of Edinburgh, Higher Degree, FRCS (Ed)
1990	Royal Australasian College of Surgeons, Higher Degree, FRACS Plastic & Reconstructive Surgery
1981-1982	St Thomas' Hospital, London, UK, General & Vascular Surgery, House Officer
1981-1982	St Thomas' Hospital, London, UK, Endocrinology, House Officer
1981-1982	St Thomas' Hospital, London, UK, General & Vascular Surgery, House Officer
1982-1983	St Thomas' Hospital, London, UK, Paediatric Plastic &Ophthalmic Surgery, Senior House Officer
1983-1984	St Thomas' Hospital, London, UK, Casualty, Senior House Officer

Professional Appointments

1984-1984	Registrar in General Surgery, University College Hospital, London, UK
1984-1985	Senior House Officer Orthopaedic, Surgery, Derby Royal Infirmary, UK
1984-1985	Registrar in General Surgery, Royal Hallamshire Hospital, Sheffield, UK
1985-1986	Senior House Officer in Plastic and Reconstructive Surgery, Queen Victoria Hospital, East Grinstead, UK
1986-1987	Lecturer in Plastic and Reconstructive Surgery, St Thomas' Hospital, London, UK
1987-1988	Locum Registrar in Plastic and Reconstructive Surgery, Sir Charles Gairdner Hospital, Perth, WA
1988-1988	General Surgical Registrar, Repatriation Hospital, Perth, WA
1988-1989	General Surgical Registrar, Sir Charles Gairdner Hospital, Perth, WA
1989-1990	Trainee Registrar in Plastic and Reconstructive Surgery, Sir Charles Gairdner Hospital, Perth, WA
1990-1991	Trainee Registrar in Plastic and Reconstructive Surgery, Royal Perth Hospital, Perth, WA.
1991-1991	Locum Consultant Plastic and Reconstructive Surgeon, Fremantle, Princess Margaret and Repatriation General Hospitals, Perth, WA
1991-1996	Senior Lecturer in Plastic and Reconstructive Surgery, Department of Surgery, University of Western Australia
2004-2008	Clinical Professor, School of Paediatrics and Child Health University of Western Australia
2006-2014	Clinical Lead of Injury &Trauma Health Network, Department of Health WA
1991-2015	Consultant Plastic and Reconstructive Surgeon, Royal Perth Hospital, Perth WA
1991-Current	Director of Burn Service of Western Australia, Department of Health WA
1991-Current	Consultant Plastic and Reconstructive Surgeon Australia, Princess Margaret Hospital, Perth WA now PCH
2008-Current	Winthrop Professor, Department of Surgery, University of Western Australia
2015-Current	Consultant Plastic and Reconstructive Surgeon Australia, Fiona Stanley Hospital, Perth WA

Pharmacological Treatment of Scars

Chairs:
Hajime Matsumura
Yasuyoshi Tosa

A NEW UNIFORM PROTOCOL OF COMBINED CORTICOSTEROID INJECTIONS AND OINTMENT APPLICATION REDUCES RECURRENCE RATES AFTER SURGICAL KELOID/HYPERTROPHIC SCAR EXCISION

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Background: Published reports indicate that corticosteroid injections can prevent recurrence after keloid excision. However, the side effects of repetitive intralesional steroid injections may preclude treatment maintenance. Additionally, few of these studies employed a standardized treatment protocol.
Objectives: This report analyzes the results of a new uniform treatment protocol combining corticosteroid injections and ointment application, designed to reduce recurrence rates following excisional surgery on keloid/hypertrophic scar patients.
Methods: As a standard procedure, the first corticosteroid injection took place after the removal of the suturesand then once every two weeks after that until it has been done five times. In addition, all postsurgical wounds received a self-administered steroid ointment application twice daily for six months after suture removal as well.
Results: Postoperative follow-up in this series ranged from 24 to 57 months, with a median follow-up period of 32 months and a mean follow-up time of 32.5 months.Recurrence occurred in 3 of the 21 keloid cases (14.3%) and there was one recurrence among the six hypertrophic scar cases (16.7%).
Conclusion: We evaluated a new standardized adjuvant corticosteroid therapy to prevent recurrence following surgical keloid/hypertrophic scar excision. Using this method, we achieved low recurrence rates in these patients.

CURRICULUM VITAE

Toshihiko Hayashi

Current Position
Guest Professor
Department of Plastic and Reconstructive Surgery, Graduate School of Medicine, Hokkaido University
Associate Professor
Department of Oral and Maxillofacial Surgery, Graduate School of Dental Medicine, Hokkaido University

Education and Academic Appointments:

1989	D.D.S	Hokkaido University School of Dentistry, Sapporo, Japan
1996	M.D.	Hokkaido University School of Medicine, Sapporo, Japan
2006	Ph.D.	Hokkaido University School of Medicine, Sapporo, Japan
2009 -		Assistant Professor Department of Plastic and Reconstructive Surgery Graduate School of Medicine, Hokkaido University, Sapporo, Japan
2013 -		Guest Associate professor Department of Plastic and Reconstructive Surgery, Graduate School of Medicine, Hokkaido University Associate professor Department of Oral and Maxillofacial Surgery Graduate School of Dental Medicine, Hokkaido University
2018 -		Guest professor Department of Plastic and Reconstructive Surgery, Graduate School of Medicine, Hokkaido University Associate professor Department of Oral and Maxillofacial Surgery Graduate School of Dental Medicine, Hokkaido University

PERSPECTIVE ON PHARMACEUTICAL TREATMENT OF HYPERTROPHIC SCAR AND KELOID

Hajime Matsumura[1], Munenori Sato[1], Hirotsugu Suwanai[1], Ryo Watanabe[2]
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2 Kanagawa University of Human Services
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Patients with hypertension are reported to have a higher incidence of hypertrophic scar and keloid development after highly invasive surgeries. Drugs that act on arteriosclerosis and vascular inflammation, such as angiotensin-converting enzyme inhibitors and calcium blockers, have been reported to be associated with the development of hypertrophic scars. The authors previously reported a relationship between chymase and hypertrophic scarring. Chymase is an enzyme that, in addition to ACE, is capable of producing angiotensin II in human vascular tissue, However, chymase antagonists are not used clinically because they are in the drug development phase. Dipeptidyl peptidase-4 (DPP-4) inhibitors are also known as antidiabetic agents, but also agents that affect vascular inflammation. The administration of DPP-4 inhibitors to humans is expected to suppress fibrosis in wounds and minimize hypertrophic scar and keloid formation. We verified the suppressive effect of DPP-4 inhibitors on the formation of hypertrophic scars or keloids using real world data from the National Database of Health Insurance Claims and Specific Health Checkups of Japan (NDB). Patients who underwent median sternotomy in April 2014 were included in the study based on their claimed surgical codes. This study revealed that DPP-4 inhibitors suppress the onset of hypertrophic scars or keloids after surgery in humans.

CURRICULUM VITAE

Education

M.D.	Tokyo Medical University, Tokyo, Japan
Ph.D.	Tokyo Medical University #1291

Postgraduate Education

1987-89	Surgery Residency	National Hospital Tokyo Medical Center, Tokyo, Japan
1989-93	Plastic Surgery	Tokyo Medical University Hospital, Tokyo, Japan

Faculty Position

2008-2014	Professor	Department of Plastic Surgery, Tokyo Medical University, Tokyo, Japan
2014-Present	Professor and Chair	Department of Plastic Surgery, Tokyo Medical University, Tokyo, Japan

Hospital Position

1993-Present	Staff Surgeon	Tokyo Medical University Hospital
2014-Present	Chief of Plastic Surgeon	Tokyo Medical University Hospital

Board Certifications
Japan Society of Plastic and Reconstructive Surgery
Japan Society for Surgical Wound Care
Japanese Society for Burn Injuries
Japanese Society for Surgery of the Hand
Japan Society of Cranio-Maxillo-Facial Surgery
Fellow of American College of Surgeons

Licensure

1987	Medical License of Japan No. 304413
1995	Limited Medical License, State of Washington

Organizations
American College of Surgeons (FACS)
American Burn Association
International Society for Burn Injuries
International Confederation for Plastic, Reconstructive and Aesthetic Surgery
Japan Society of Plastic and Reconstructive Surgery (board of trustees)
Japanese Society for Burn Injuries (executive board members)
Japanese Society for Surgery of the Hand (board of trustees)
Japanese Society of Cranio Maxillofacial Surgery (board of trustees)
Japanese Society of Limb Salvage & Podiatric Medicine (board of trustees)
Japan Society for Surgical Wound Care (executive board members)
The Japanese Society of Pressure Ulcers (board of trustees)

THERAPEUTIC EFFECTS OF SILICONE CUSHION ON HYPERTROPHIC SCARS AND KELOIDS IN ORIENTAL

Yasuyoshi Tosa, Koichi Kadomatsu
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Hypertrophic scars and keloids are elevated lesions which are caused in human skin by trauma, burns or surgery, although the details are still unknown. Complete response with a single therapy is difficult, and treatment depends on combinations of multiple therapies, including oral or topical steroids, silicone patches, oral tranilast, compression therapy, surgical treatment, and electron beam radiation therapy. We mainly describe treatment with silicone cushions for patients with hypertrophic scars and keloids. The structure of silicone cushion is such that a closed sheet package made by bonding two 0.75 mm thick silicone sheets is filled with a silicone oil having a polymerization degree of 30,000 cP. As a method of use, good contact with the affected area is important, and a silicone cushion is applied to the affected area for as long as possible. Therapeutic effects of silicone cushion on hypertrophic scars and keloidswere observed with improvement in all cases. In 1982, Perkins et al. reported a case of hypertrophic scar improvement after burn injury using a silicone gel sheet. Regarding silicone cushions, Hirshowitz et al. showed effective improvement of clinical symptoms by applying them to hypertrophic scars and keloids in 1998, and mentioned the involvement of negative charges in the mechanism of action. The author measured the value of the negative charge generated in the silicone material and supported the suggestion of the involvement of the negative charge from the change in the value due to the difference in the form.
We show representative cases.

CURRICULUM VITAE

Yasuyoshi Tosa

Education

1986	MD	Showa University School of Medicine
1992	Ph.D.	Showa University Graduate School of Medicine (Department of Plastic and Reconstructive Surgery)

Postdoctoral Training

■Internship and Residency
1986-1993 Resident, Showa University Hospital, Tokyo, Japan
■Fellowship
1986-1993 Clinical Fellow in Plastic and Reconstructive Surgery, Showa University School of Medicine, Tokyo, Japan
1993-1995 Postdoctoral Research Fellow in Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA
Postdoctoral Research Fellow in Shriners Burn Institute Boston, Boston, MA, USA

Academic Appointments

1990-1991 Chief Instructor in Plastic and Reconstructive Surgery, Teikyo University School of Medicine, Tokyo, Japan
1993 Instructor in Plastic and Reconstructive Surgery, Showa University School of Medicine, Tokyo, Japan
2001-2009 Assistant Professor in Plastic and Reconstructive Surgery, Showa University School of Medicine, Tokyo, Japan
2009- Associate Professor in Plastic and Reconstructive Surgery, Showa University School of Medicine, Tokyo, Japan
2015- Visiting Professor in Plastic and Reconstructive Surgery, Ohio State University School of Medicine, OH, USA

Licensure and Certification

1986 National Medical License of Japan, Certification No.300149
1993 Special Board of Japanese Society of Plastic Surgery, Certification No. 92-0805
2011 Certified special skin tumor surgeon of Japanese Society of Plastic Surgery
2018 Certified special pediatrician of Japanese Society of Plastic Surgery

Awards and Honors

1995 Winner of Sumner L. Koch Award 1995 (Best Scientific Paper) (Principal Investigator)
#50 annual meeting of American Society for Surgery of the Hand, 9/13-16/95 (San Francisco, CA)
2006 Winner of Showa Medical Society Scholarship Award (Supervisor)
2017 Winner of Madagascar Chevalier (Knight) Medal Award

President of the Conference

2018 The 13th Annual Meeting of the Japan Scar Workshop (Tokyo, Japan)
2019 The 34th Pan-Pacific Surgical Association-Japan Chapter (Hawaii, USA)

Overseas medical cooperation

2000 ADRA cleft lip and palate medical cooperation in Nepal
2010- Showa University Madagascar cleft lip and palate medical cooperation

TREATMENT OF KELOIDS AND HYPERTROPHIC SCARS WITH TRIPLE COMBINATION INJECTION OF BLEOMYCIN, TRIAMCINOLONE AND VERAPAMIL

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Introduction: Hypertrophic scars and keloids remain difficult problems, the treatment of which is both challenging and controversial. Treatment modalities include therapies like surgery, intra-lesional steroids, compression silicon gel sheet; as well as more experimental therapies like interferon, bleomycin and 5-FU. In this study we identified efficacy and safety of cocktail therapy including intra-lesional bleomycin in the treatment of keloids and hypertrophic scars.
Patients and methods: Total of 24 patients diagnosed as hypertrophic scar and keloid were treated with cocktail treatment. Hypertrophic scars and keloids which recurred after surgical excision, unacceptable condition for radiotherapy, without open wound and huge size which may not benefit from excision were included. Cocktail treatment regime consists of 0.1cc of bleomycin mixed in 20cc normal saline, 0.3cc of 1% lidocaine, 0.1cc of isoptin and 0.4cc of triamcinolone acetonide. It was injected to hypertrophic or keloid scars with 30 gauze needle intra-dermally. If the effect was not sufficient and no minor complication was observed, double dosage of bleomycin was used with the dosages of the other agents remain same.
Results: 87% of Patients treated with cocktail therapy showed favorable therapeutic responses. Pruritis was relieved completely in 24 patients (100%) and no major complication was observed. Minor complications were presented as ulcer, pain and hyperpigmentation, which were recovered in a few weeks.
Conclusion: Cocktail therapy including bleomycin showed high regression rate and had minimum complication (with no major complication) and recurrences. Thus, it can be used as the first-line treatment modality for management of keloids and hypertrophic scars.

CURRICULUM VITAE

Education

1989	Graduated from College of Medicine, Seoul National University, Seoul, Korea
2001	M.D. from Department of Plastic and Reconstructive Surgery, Keio University, Tokyo, Japan

Professional Background

1990 May - 1998 May	Resident training, Keio University Hospital Plastic and Reconstructive Surgery, Tokyo, Japan
1998 Jul - 2000 May	Research Fellow, Microsurgery Laboratory, Institute of Reconstructive Plastic Surgery, New York University, New York, USA
2000 Jun - 2001 Aug	Clinical Fellow, Kyorin University Plastic Surgery Tokyo, Japan
2001 Sep - 2002 Feb	Research Fellow, Seoul National University Hospital Clinical Research Institute
2002 Mar - 2005 Feb	Assistant Professor, Department of Plastic Surgery Ulsan University School of Medicine, Asan Medical Center
2005 Mar – 2010 Sep	Associate Professor, Department of Plastic and Reconstructive Surgery Seoul National University College of Medicine
2010 Oct – 2015 Aug	Professor (hospital), Department of Plastic and Reconstructive Surgery Seoul National University College of Medicine
2015 Sep – present	Professor (university), Department of Plastic and Reconstructive Surgery Seoul National University College of Medicine

License and Certification

1989 Feb	Korean medical practitioner license (#37755)
1990 Jun	Japanese medical practitioner license (#5126)
1998 Apr	Japanese Plastic Surgery Board (#97-1189)
2002 Feb	Korean Plastic Surgery Board (#1108)

Societies

1991	Member of Japanese Society of Plastic and Reconstructive Surgery
2002	Member of Japanese Society of Plastic and Aesthetic Surgery
2002	Member of Korean Society of Plastic and Reconstructive Surgery
	Member of Korean Society of Aesthetic Plastic Surgery,
	Member of Korean Society of Microsurgery,
	Member of Korean Cleft palate–Craniofacial Association,
2005	Member of Korean Society of Head and Neck Oncology
	Member of Korean Wound Healing Society
2007	Member of Japanese Society of Wound Healing Society
	Member of Korean Skull Base Society
2015	Members of Japan Society of Facial Nerve Research

Diagnosis and Clinical Features of Keloids

Chairs:

Fumiaki Shimizu

Munetomo Nagao

HOW DO MECHANICS AND GENETICS CONTRIBUTE TO KELOID FORMATION?

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2 International Research Center of Wound Repair and Regeneration (iWRR) National Cheng Kung University, Tainan, Taiwan
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The pathogenesis of keloids is very complex. The proposed mechanisms of keloid formation include: (1) mechanical force (2) genetic susceptibility (3) dysregulation of various cytokines/growth factors (4) aberrant collagen turnover. There is no single unifying hypothesis that can adequately explain the formation of keloids. In this presentation, I will review the contribution of mechanics and genetics to the pathobiology of keloids. For mechanics, I will introduce how does caveolin-1 contribute to the softness of keloid fibroblasts and their hyperresponsiveness to mechanical stimulation. For genetics, I will focus on keloid-related syndromes, genetic linkage analyses, genome-wide association studies, individual fibrosis-related genes, and ongoing insights from genomic medicine. Despite a strong body of evidence or phenomena suggesting a genetic component in keloid formation, there is still a significant amount of work that needs to be done to increase our current understanding of the genetic basis of keloid formation. It is hoped that such work will help elucidate the molecular basis of keloid formation, and provide new strategies for prevention, diagnosis, and treatment.

CURRICULUM VITAE

Education
Department of Medicine, Medical College of Medicine, National Cheng Kung University, MD
Institute of Clinical Medicine, College of Medicine, National Cheng Kung University, PhD

Affiliation & Working Experience

Aug 2018 to present	Associate Professor, Department of Dermatology, College of Medicine, National Cheng Kung University, Taiwan
Aug 2018 to present	Associate Professor, Institute of Clinical Medicine, College of Medicine, National Cheng Kung University, Taiwan (Joint Appointment)
Aug 2014 to Aug 2018	Assistant Professor, Department of Dermatology, National Cheng Kung University Hospital, Taiwan
Dec 2014 to Dec 2016	Research fellow, St John's Institute of Dermatology, Department of Dermatopathology & Department of Genetics and Molecular Medicine King's College London, UK
Aug 2009 to Jul 2014	Instructor, Department of Dermatology, National Cheng Kung University Hospital, Taiwan
Feb 2008 to Apr 2008	Research fellow, Department of Dermatology Hokkaido University Graduate School of Medicine, Japan

Award
1. Best Poster of the 40th Society for Cutaneous Ultrastructure Research, Salzburg, Austria, 2013
2. Best Posters of the 40th, 42nd & 43rd Annual Meeting of Taiwanese Dermatological Association Meeting, 2014, 2016, 2017
3. SkinPact Award winner, Community Leadership Category (International League of Dermatological Societies) in 23rd World Congress of Dermatology, Vancouver, Canada, 2015
4. Presentation Award (First Prize) of Royal Society of Medicine, London, UK, 2015
5. Distinguished Contribution Award in National Cheng Kung University, 2018
6. Diploma in Dermatopathology, issued by the International Committee for Dermatopathology, 2018

Selected Publication In Recent 5 Years
1. Guevara BEK, Hou PC, Huang HY, Chen WR, Wen YK, Chen WC, Lee JY, Hsu CK. Late-onset comedonal Darier's disease caused by a recurrent ATP2A2 mutation. J Dermatol. 2019. [Epub ahead of print]
2. Onoufriadis A, Hsu CK, Ainali C, Ung CY, Rashidghamat E, Yang HS, et al. Time Series Integrative Analysis of RNA Sequencing and MicroRNA Expression Data Reveals Key Biologic Wound Healing Pathways in Keloid-Prone Individuals. J Invest Dermatol. 2018. (#Co-first author)
3. Hsu CK, Lin HH, Harn HI, Ogawa R, Wang YK, Ho YT, et al. Caveolin-1 Controls Hyperresponsiveness to Mechanical Stimuli and Fibrogenesis-Associated RUNX2 Activation in Keloid Fibroblasts. J Invest Dermatol. 2018;138(1):208-18. (#Co-first author)
4. Hsu CK, Lin HH, Harn HI, Hughes MW, Tang MJ, Yang CC. Mechanical forces in skin disorders. J Dermatol Sci. 2018;90(3):232-40.
5. Lee JYW, Hsu CK, Michael M, Nanda A, Liu L, McMillan JR, et al. Large Intragenic Deletion in DSTYK Underlies Autosomal-Recessive Complicated Spastic Paraparesis, SPG23. Am J Hum Genet. 2017;100:364-70.

ASSESSMENT OF ACTIVITY IN KELOIDS USING ARTIFICIAL INTELLIGENCE

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Objective: The aim of this study is to investigate the use of artificial intelligence to evaluate the condition of scar on the skin.
Methods: The scars were evaluated using JSW scar scale. The JSW scar scale was scored by assessing five factors of the scar, redness, hypertrophy, invasion, itchy and pain. The artificial intelligence was developed by deep learning using more than 300 pictures of the scars. The developed artificial intelligence software evaluated the pictures of keloid patient using JSW scar scale. On the same time, the pictures were evaluated by human using JSW scar scale. These results of evaluation by artificial intelligence and human were compared and assessed their difference.
Results: The artificial intelligence developed by deep learning of patient's pictures could score the severity of keloids from picture data. The were not significant difference between the results made by artificial intelligence and human.
Discussion: From this study, some possibility was shown that artificial intelligence could evaluate the severity of keloid using picture data.

CURRICULUM VITAE

Current Position
Professor, Department: Department of Plastic Surgery, Oita University

Education
1999 Graduated from Kumamoto University, School of Medicine

Professional Affiliations
1999 Resident of Plastic Surgery Unit, Department of Dermatology, Oita Medical University
2000 Resident of Department of Plastic Surgery in Kenwakai Otemachi Hospital
2001 Resident of Department of Plastic Surgery in Kobe Children's Hospital
2003 Assistant professor Department of Plastic Surgery, Oita University
2005 Research Fellow Department of Plastic Surgery, Chung Gung Memorial Hospital, Taiwan
2006 Assistant professor Department of Plastic Surgery, Oita University
2012 Associate professor Department of Plastic Surgery, Oita University Hospital
2017 Professor Department of plastic surgery, Oita University Hospital

Academic Interests
Head and neck reconstruction**,** Treatment of facial Palsy**,** Treatment of Keloid**,** Reconstruction of Upper and Lower extremity**,** Research for Composite Tissue Allo-Transplantation

Publications (first author: selective)
1. Shimizu F, Wei FC, Sassu P, et al. Multiple toe transplantation to reconstruct three amputated neighboring distal fingers by heat press injury-a case report. J Plast Reconstr Aesthetic Surg 62(9): e309-313, 2009.
2. Shimizu F, Lin MP, Ellabban M, et al. Superficial temporal vessels as a reserved recipient site for microvascular head and neck reconstruction in vessel-depleted neck. Ann Plast Surg 62(2): 134-138, 2009.
3. Shimizu F, Okamoto O, Katagiri K, Fujiwara S, Wei FC. Plolonged ischemia increases severity of rejection in skin flap allotransplantation in rats. Microsrug 30: 132-137, 2010.
4. Shimizu F, Yutaka Hatano, Osamu Okamoto, Kazumoto Katagiri, Sakuhei Fujiwara, Seiichi Sato, Aiko Kato. Mycobacterium smegmatis soft tissue infection. Int J Dermatol 51(12): 1518-1520, 2012.
5. Shimizu F, Kato A, Taneda H, Masuda D, Sato S, Uehara M, Matsuda K, Kawano K, Takahashi Y, Yamaguchi K, Fujiwara S. Asynchronous osteoradionecrosis of the mandible treated with sequential fibula osteoseptocutaneous flaps: a report of two cases. Ann Plast Surg 69(3): 283-7, 2012.
6. Shimizu F, Oatari M, Matsuda K, Uehara M, Sato S, Kato A. Algorithm for reconstruction of composite cranial defects using the fascial component of free anterolateral thigh flaps. J Craniofac Surg 24(5):1631-5, 2013.
7. Shimizu F, Oatari M, Uehara M. Choice of recipient vessels for nasal ala reconstruction using a free auricular flap. J Plast Reconstr Aesthet Surg 68(7):907-13, 2015.
8. Shimizu F, Ooatari M, Uehara M, et al. Effect of concurrent mental nerve reconstruction at the same time as mandibular reconstruction using a fibula osteoseptocutaneous flap. JPRAS 68(9): 1228-1234, 2015.
9. Shimizu F, Kusatsu M, Uehara M, Oatari M. Successful reconstruction after radical resection of arteriovenous malformation of the finger and toe using microsurgery. JPRAS 5: 34-40, 2015.
10. Shimizu F, Uehara M, Oatari M, Kusatsu M. Three-dimensional visualization of the human face using DICOM data and its application to facial contouring surgery using free anterolateral thigh flap transfer. J Plastt Reconstr Aesthet Surg 69(1):e1-4., 2016

THE MORPHOLOGICAL CHANGES OF KELOID FOMATION ASSOCIATED WITH THE TRANSITION OF THE SURGICAL PROCEDURE

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In general, surgery rarely causes the formtion of abnormal scars like keloids and hypertrophic scars. Here we report the changes in surgical procedures in our hospital over the past decade associated with morphological changes in the keloid formation.

Thus, previously, abdominal surgery usually involved a midline abdominal incision. These wounds sometimes turned into severe keloids that are dificult to treat.This problem has improved recently with the development of laparoscopic surgical techniques for various surgical fields. Nevertheless, we still see patients who developed mushroom-like scarring in the umbilicus after abdominal surgery in particular. Since these keloids generally form a localized mass, plastic surgeons can treat them with umbilical plastic surgery. The frequency of surgical treatment of umbilical keloids is expected to increase in the future. Surgically treated umbilical keloids should be treated carefully to avoid recurrence.

CURRICULUM VITAE

Munetomo Nagao

Current Position
Assistant Professor, Department of Plastic and Reconstructive Surgery, School of Medicine, Tohoku University

Academic Career

2006-2010	Ph.D.	Graduate school of Medicine, Hokkaido University
1994-2001	M.D.	School of Medicine, Iwate Medical University

Professional Career

2017-present	Assistant Professor, Department of Plastic and Reconstructive Surgery, School of Medicine, Tohoku University
2010-2016	Assistant Professor, Department of Plastic and Reconstructive Surgery, School of Medicine, Iwate Medical University
2009-2010	The head doctor, Department of Plastic and Reconstructive Surgery, KKR Tonan Hospital
2005-2010	Instructor, Department of Plastic and Reconstructive Surgery, School of Medicine, Hokkaido University
2001-2005	Resident, Department of Plastic and Reconstructive Surgery, School of Medicine, Iwate Medical University

Society Memberships
The Japanese Society of Plastic and Reconstructive Surgery (Medical Specialist)
The Japan Society for Surgical Wound Care (Medical Specialist)
The Japan Scar Workshop (Trustee)
The Japan Society of Reconstructive Microsurgery
The Japanese Society for Cranio-Maxillo-Facial Surgery
The Japan Society for Innovative Techniques in Plastic Surgery
The Japanese Society for Foot Care and Podiatric Medicine

Award
HUS Hokusei Award2008 Young Investigator Award ”La Primavera”(2008)
HUS Pathology Research Encouragement Award (2009)

DOES SCAR GROW?

Sung Tack Kwon, Tae Hyun Choi, Jin Hyun Kim
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We have observed many factors which affect the natural course of scar. Among them, the biological age and location of scar have been got the main attention. The elongation and or widening may be considered as a physical consequence related to the location, however, as proved in tissue expander experiences and theories, the physical expansion itself stimulate cell synthesis resulted in actual gain of tissue. The scar, once formed, is to be enrolled into the genuine part of the whole body. In growing children, along with the physical stimuli, the natural growth potential, e.g. apposition of new cells, scar cells themselves, which enrolled into adjacent tissues, would proliferate as a part of growth phenomenon.

We have focused to the location of scars as well as the remained amount of growth. Ordinary incisional scars which run across two anatomical regions usually become bigger than actual whole body does. When this growth cannot accommodate the normal one, this phenomenon evokes contracture as seen frequently in the hands. We can neither promote growth of scar nor suppress it but to moderate its direction to stay away to the growth center as far as possible and to relieve any deficiencies for preparing on coming contraction. Surgeons always have stood between primary closure and staged solution. We would like discuss about growth of scar with our clinical experiences which reflect the outcomes of our efforts.

CURRICULUM VITAE

Sung-Tack Kwon

Medical School
College of Medicine, Seoul National University, Seoul, Korea.
Graduated - February 26, 1984

Postdoctoral Training
■Internship
Seoul National University Hospital, Seoul, Korea
March 1, 1984 through February 29, 1985
■Residency
Plastic Surgery Residency, Seoul National University Hospital, Seoul, Korea:
March 1, 1985 through February 29, 1989

Fellowship
Full-time Research and Clinical Fellow, Department of Plastic Surgery,
Seoul National University Hospital, Seoul, Korea: March 1, 1989 through February 28, 1990

Visiting Fellow, Philadelphia Hand Center
Department of Orthopedics, Thomas Jefferson University, PA, USA: March,1995 through February,1996

Professional Appointment
Full-time Staff as a Chairman, Department of Plastic Surgery.
Eul-ji General Hospital, Seoul, Korea : March 1,1990 through February 28,1993

Full-time Instructor, Department of Plastic Surgery,
College of Medicine, Seoul National University , Seoul, Korea from March 1, 1993 to 1994
Full-time Professor, Department of Plastic Surgery,
College of Medicine, Seoul National University , Seoul, Korea from March 1, 1996 to present

Qualification
Korean Medical License, February 1984 (No. 27039)
Korean Plastic Surgery Board Certification, April 1989 (No. 266)
Korean Society for Surgery of the Hand Sub-special Board Certification, February 2005

Membership in Societies
Korean Society of Plastic and Reconstructive Surgeons
IFSSH(International Federation for Society of Surgery of the Hand)
Co-chairman of scientific committee, 11th IFSSH(International Federation for Society of Surgery of the Hand)
President, Korean Society of Microsurgery (2014-5)
President, Korean Society of Hand Surgery (2015-6)
President elected, Korean Society of Aesthetic Plastic Surgery(2019~20)

Scar Surgery

Chairs:

Teddy O.H. Prasetyono

Rajeev B Ahuja

SELECTING THE IDEAL DONOR-SITE: CURRENT CONCEPTS IN FACIAL SOFT TISSUE RESURFACING

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Background: Various techniques such as free tissue transfer, flap prefabrication, and tissue expansion have been combined in order to achieve the best aesthetic results for facial soft tissue resurfacing. However, the search for the ideal donor-site having similar characteristics in terms of texture, pliability and colour with the skin of the recipient area still remains a great challenge. ***Methods:*** 67patients presenting head and neck defects with different size were treated with flaps harvested from the neck, supraclavicular, anterior chest, lateral chest and scapular areas. The aesthetic and functional post-operative outcomes were analysed and compared. ***Results:*** 38male and 29female patients underwent successful facial soft tissue resurfacing with different surgical techniques including free or pedicled tissue transfer, pre-expansion, prefabrication or a combination of these three methods. The mean age was 23 years, the mean follow-up of 1.5 years. All flaps survived completely after transfer, and no major complication was observed. ***Conclusions:*** We hereby present our current concept of "S & S" (similarity & subunits) principle for facial soft tissue resurfacing that takes into account the skin *similarity* of the donor -site to the defect area and the *subunits* of the face for the plan of the reconstruction.

CURRICULUM VITAE

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2006.7 -2007. 8:
Microsurgery Fellow, Division of Plastic and Reconstructive Surgery, Duke University Medical Center, United States.
2015:
Shanghai Municipal Education Commission— "Gaofeng" Clinical Medicine Grant Support—Clinical Medicine (Class I Peak) "Research Doctor" (Double Hundred Talents Program).
2018:
Shanghai Excellent Technology Leader;
"Godina Traveling Fellow Award" - American Society of Reconstructive Microsurgery (ASRM) (One microsurgeon is selected worldwide annually, the first Award Winner in Mainland China).
2019:
" Bethune's Good Doctor " – awarded by the Chinese Medical Doctor Association (3rd Session).

In the past five years, Dr. Yixin Zhang has hosted a number of National (1 sub-project of National Key Basic Research Program of China (973 Program), 3 National Natural Science Foundation of China) and Shanghai Natural Science Foundation & Nano-Special Research (Scar Research Field), the total funding of which has beyond 5 million RMB. As the first/corresponding author, he has published more than 80 SCI articles with impact factor > 250 in sum, and more than 80 Chinese articles.

In 2009, Dr.Yixin Zhang became the Doctoral Supervisor of the Shanghai Jiao Tong University School of Medicine.
In 2014, Dr.Yixin Zhang became the Professor of the Shanghai Jiao Tong University School of Medicine.
To date, Dr. Yixin Zhang has finished training 8 PhD/MD students, 7 Master students and 15 International Clinical Fellows.

Committee & Broad Membership:
Asia Pacific Society of Scar Medicine (APSSM), President
World Society of Reconstructive Microsurgery (WSRM), Membership Council -Member
The 3rd Congress of Asian Pacific Federation of Societies for Reconstructive Microsurgery (APFSRM), Vice Chairman
Asian Wound Care Association (AWCA), Scientific Committee
"Wound Management and Reconstruction Course" authorized by European Wound Management Association (EWMA), Chairman
Chinese Society for Scar Medicine , Chairman
Chinese Anti-Cancer Association-Oncology Plastic & Reconstructive Society, Vice Chairman
Chinese Association of Rehabilitation Medicine-Reconstructive Microsurgery Society, Vice President & Secretary-General
Chinese Medical Doctor Association-Microsurgery Society: Chronic Wound & Reconstructive Microsurgery Specialized Committee, Chairman
Shanghai Medical Association-Microsurgery Society, Vice Chair

THE USE OF SCAR SKIN GRAFT AFTER CORE EXCISION OF HYPERTROPHIC SCAR AND KELOID

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Pathologic scars are notorious to cause functional and aesthetic disturbances. Clinicians and researchers dealing with hypertrophic scars and keloid have been working to delineate all the problems to treat those scars; however, hypotheses still come in many numbers without universally accepted definitive stem of explanations for doctors to use the perfect theorems in clinical practices. Amongst the plethora, treatments for pathologic scars still vary with different clinical outcomes; not excluding surgery. It is generally accepted that surgery should never come as single treatment modality. At certain points as indicated by clinical assessment, surgery might play as key component of many modalities to treat cases of hypertrophic scars and selected keloids; combined with radiation therapy, topical agent, mechanical application, systemic medication, and the future cells therapy to reverse back the exaggerative wound healing process.

While linear hypertrophic scar may be treated surgically by distributing the tension across the line, diffuse hypertrophic scars are dogmatically need excision and skin resurfacing. Skin graft and flap are the focus to resurface the wound after scar excision. Some of pathological cases with reasonably large dimension may even contribute to donor morbidities; not only of the creation of sizeable donor scar, but also the development of new hypertrophic scar. Here comes the potential morbidities targeting the donor area, while it comes also with the never completely cessation of recurrence. The clinical study aims to observe the outcome of the use of the thin scar skin to resurface the area after core excision of scar tissue. The surgical principle covers tumescent injection to curb bleeding, tangential excision of thin scar skin while maintaining one-third to half of the circle at its periphery to ease the resurfacing procedure. The excision of scar tissue could then be performed completely. All the necessary combined modalities accompanied the surgery, whatsoever. The scar skin seems to be promising to reduce or eliminate the potential donor site morbidities.

BIOSKETCH

Theddeus O.H. Prasetyono, M.D., PhD. is a Hand and Microsurgery Consultant in Plastic Surgery, Cipto Mangunkusumo Hospital/ Universitas Indonesia. He is also the chairman of ICTEC (Indonesian Clinical Training and Education Center) in the same hospital and university. Dr. Prasetyono did his training in plastic surgery at the Universitas Indonesia. He took his fellowship training in Reconstructive Microsurgery and Hand and Microsurgery in the United States. His main area of interest and research are in the field of non-tourniquet technique of hand surgery and flap surgery, besides vascular anomaly, aesthetic surgery, and training & education.

Currently, he is an active member and official bearer of several national and international organizations, such as Indonesian Society for Surgery of the Hand, OSAPS (Oriental Society of Aesthetic Plastic Surgery), and ISAPS (International Society of Aesthetic Plastic Surgery). He is the founding member of ASBPRS (Asian Society of Breast Plastic Reconstructive Surgeons). Just recently he joined the Board of Directors of Rhinoplasty Society of Asia. He has published numerous papers in scientific journals, mostly in hand surgery; and also written books. In addition, he is also listed as an editor and reviewer for several national and international journals, including Hand Surgery, APS (Archives of Plastic Surgery), Aesthetic Plastic Surgery, Arch Craniofacial Surgery, Journal of Surgical Research, etc.

He actively participates in various seminars, trainings, and scientific meetings, both as participants and speakers. He also has long years of experiences in organizing international events as well. Among those academic trips, they include visiting professorship to Asan Medical Center (Department of Orthopedic), Korea, 2012; twice to Kaohsiung Medical University (Department of Plastic Surgery, 2011 & 2013); Soonchunhyang University (Department of Plastic Surgery, College of Medicine), Korea 2015; Department of Surgery (Division of Plastic Surgery), College of Medicine, Philippine General Hospital, Manila, Philippine, 2019; Grigori T. Popa University (Department of Plastic Surgery)/ Institul Regional de Oncologie, Iaśi, Romania, 2019; Department of Orthopaedics Saiseikai Otaru Hospital/ Sapporo Medical University, Japan. Being an External Examiner at the MS (Plastic Surgery) Program Reconstructive Sciences Unit USM, Malaysia was part of his passion in training & education.
Dr. Prasetyono has published 69 papers (41 in international journals indexed by Pubmed and Scopus) and 22 books and chapters.

PROPER DIGITAL ARTERY PERFORATOR PROPELLER (PDAPP) FLAP TO RESURFACE BURN SCARRED FINGER JOINT

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IPJ (interphalangeal joint) contractures are commonly caused by burn besides trauma and degenerative diseases. In regards of burn contracture, dermogenic contracture is undoubtedly the main type, besides deeper joint and tendon structures involvement to cause desmogenic and arthrogenic contracture. Whatsoever, it is likely that skin related problem accompany the last 2 contracture types. In regards of reconstructive surgery to gain back the joint and overall finger and hand functions, re-contracture is not rare. When skin graft is used to resurface the joint; combined with poor rehabilitation program, the finger is unlikely to be far from re-contracture. When tendons and joint structures are exposed, flap is the ultimate choice. Overall, a robust skin flap should be a better choice than skin graft.

Loco-regional area might be the best donor sites for skin resurfacing to get matched functional and aesthetic outcome. However, burn scar might be a drawback for using a locally available tissue to resurface the joint area after contracture release. Scar limits the loco-regional skin flap donor availability. Fortunately, the dogma about the vascularity of the skin with scar has come up with better understanding. When the burn injury involves skin while preserving the fascia, it is most likely that fascio-cutaneous flap could still survived when elevated from the scarred tissue. Thus, this kind of flap could meet the need to resurface a non-graftable raw surface after contracture release. Even though the number of vessels in the scar tissue decreases by time, the diameter of those vessels enlarge; making the scar tissue reliable as skin flap donor.

Local flaps were designed on either radial or ulnar side of the digit by centering the pivot point of flap rotation at the IPJ level. Although the dimension of the flap is limited by the width of finger, it may include scar tissue in most of selected cases. The incision and dissection were made cautiously to preserve the perforator artery containing subcutaneous tissue stalk using loupe magnification. The flap was then rotated for 80°-90° to cover the defect area at the interphalangeal joint level, either volar or dorsal side. The donor site was sutured primarily, while any remaining raw surface would be covered with split thickness skin graft. All surgery was conducted without tourniquet using the one-per-mil tumescent injection to provide bleeding control and adequate anaesthesia. The flap, which is named as proper digital artery perforator propeller flap, is safe to resurface the IPJ area. It may help prevent finger joint re-contracture with satisfactory functional and cosmetic outcome. However, the author has not included the preoperative study to diagnose the scar thickness and perforator vessels.

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Theddeus O.H. Prasetyono, M.D., PhD. is a Hand and Microsurgery Consultant in Plastic Surgery, Cipto Mangunkusumo Hospital/ Universitas Indonesia. He is also the chairman of ICTEC (Indonesian Clinical Training and Education Center) in the same hospital and university. Dr. Prasetyono did his training in plastic surgery at the Universitas Indonesia. He took his fellowship training in Reconstructive Microsurgery and Hand and Microsurgery in the United States. His main area of interest and research are in the field of non-tourniquet technique of hand surgery and flap surgery, besides vascular anomaly, aesthetic surgery, and training & education.

Currently, he is an active member and official bearer of several national and international organizations, such as Indonesian Society for Surgery of the Hand, OSAPS (Oriental Society of Aesthetic Plastic Surgery), and ISAPS (International Society of Aesthetic Plastic Surgery). He is the founding member of ASBPRS (Asian Society of Breast Plastic Reconstructive Surgeons). Just recently he joined the Board of Directors of Rhinoplasty Society of Asia. He has published numerous papers in scientific journals, mostly in hand surgery; and also written books. In addition, he is also listed as an editor and reviewer for several national and international journals, including Hand Surgery, APS (Archives of Plastic Surgery), Aesthetic Plastic Surgery, Arch Craniofacial Surgery, Journal of Surgical Research, etc.

He actively participates in various seminars, trainings, and scientific meetings, both as participants and speakers. He also has long years of experiences in organizing international events as well. Among those academic trips, they include visiting professorship to Asan Medical Center (Department of Orthopedic), Korea, 2012; twice to Kaohsiung Medical University (Department of Plastic Surgery, 2011 & 2013); Soonchunhyang University (Department of Plastic Surgery, College of Medicine), Korea 2015; Department of Surgery (Division of Plastic Surgery), College of Medicine, Philippine General Hospital, Manila, Philippine, 2019; Grigori T. Popa University (Department of Plastic Surgery)/ Institul Regional de Oncologie, Iaśi, Romania, 2019; Department of Orthopaedics Saiseikai Otaru Hospital/ Sapporo Medical University, Japan. Being an External Examiner at the MS (Plastic Surgery) Program Reconstructive Sciences Unit USM, Malaysia was part of his passion in training & education.
Dr. Prasetyono has published 69 papers (41 in international journals indexed by Pubmed and Scopus) and 22 books and chapters.

SURGICAL REVISION OF SCARS-OPTIMISING THE RESULTS

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Scar revision surgery is often perceived as a frustrating experience because surgically we replace one scar with another. If scar revision is being visualised as a scar elimination procedure, the results are bound to be disappointing, rendering the surgery 'useless'. Improvement after scar revision surgery can be realistic, but achieving satisfying results can still be challenging. We discuss the methods and strategies to optimise results following surgical revision of scars.

It is of paramount importance that the type of scar be properly 'classified' on initial examination so that the most appropriate method(s) of treatment can be chosen. Scars present with a spectrum in relation to their number, size, shape, location, orientation, quality, texture, age at presentation, and their relation to each other. Whereas it is fairly easy to learn the surgical principles and the procedures with respect to scar revision, the underlying 'Art' is difficult to teach. In a nutshell, like for all 'Art forms', it requires some talent and honing of skills.

While there can be no 'cook book' approach to scar revision, the general principles require diligence for optimising the surgical results. When should a scar be revised, the choice of a surgical procedure for a linear or circular, or an irregular scar on the face, its pros and cons; the need for local flaps and the type of suture material are discussed. Further improvements may be possible by laser resurfacing but these are not discussed in this talk.

This text is from an article published by the author on the same topic.

Ahuja RB. Scar revision is a useless operation (Opposing the statement). Indian J Plast Surg, 2004 [cited 2019 Jul 22];37:25-7.

CURRICULUM VITAE

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Senior Plastic Surgeon

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35 years of experience in Burns & Plastic Surgery. Ex Head, Department of Burns, Plastic, Maxillofacial & Microvascular Surgery, Lok Nayak Hospital and Maulana Azad Medical College, New Delhi, India.
Founder President, Asia Pacific Burns Association & President, International Society For Burn Injuries (2014-16).
Past President, Assoc. of Plastic Surgeons of India (2005) & National Academy of Burns- India (2004).
Chairman, IPRAS 2009 World Congress and 2018 World Congress of ISBI.
Published extensively in peer reviewed indexed journals and contributed Chapters in reputed textbooks.

Lunchon Seminor 1

Chair:
Noriko Aramaki-Hattori

OPTIMAL INCISION, SUTURE METHODS AND POST-OPERATIVE WOUND STABILIZATION MAKE SCARS LESS VISIBLE

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It is important to ensure that wound healing proceeds smoothly, because this prevents complications such as surgical site infection (SSI) and hypertrophic scar and keloid development. Proper wound healing is achieved by orienting the incision line appropriately, employing the correct suture depth, applying suture methods that do not cause ischemia, and administering postoperative wound management. Specifically, if the direction of the incision line matches the direction in which the skin is pulled in daily body movements, the entire scar will be placed under strain. This will delay scar maturation and promote the persistence of inflammation. This greatly increases the risk of hypertrophic scar and keloid development. Moreover, suturing should not involve tugging on the skin to close the wound: rather, the subcutaneous and soft tissue should be firmly sutured with an absorbable thread such that the wound edges contact each other naturally before the dermal suturing is performed. It is essential that general surgeons are aware that wounds should not be closed with dermal sutures alone. Finally, after the sutures are removed, the wound should be stabilized by fixation with surgical or silicone tape. Starting 1 month after surgery, steroid tape/plaster application should be started immediately if there are signs that hypertrophic scars or keloids are forming. This long-term follow-up plays a key role in making the scar less visible.

CURRICULUM VITAE

Current Appointment
Professor and Chief,
Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School, Tokyo, Japan

Title
M.D., Ph.D., F.A.C.S.
MHLW Certified Instructor of Post Graduate Clinical Practice
MHLW Certified Instructor of Advanced Clinical Training for Foreign Doctors
Certified Plastic Surgeon, Japan Society of Plastic and Reconstructive Surgery
Certified Burn Surgeon, Japanese Society for Burn Injuries
Certified Wound Surgeon, Japan Society for Surgical Wound Care

Professional Positions and Major Visiting Appointments

2002-2005	Instructor, The Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School
2007-2009	Research fellow, The Division of Plastic Surgery, Department of Surgery, Brigham and Women's Hospital, Harverd Medical School, Boston, USA
2009-2015	Associate Professor, The department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School
2015-Present	Professor and Chief, The Department of Plastic, Reconstructive and Aesthetic Surgery, Nippon Medical School

Visiting Professor (selective)

2017.1	Sinapore HMDP Visiting Experts Program (Singapore General Hospital, Singapore National University Hospital, KK Women's and Children's Hospital, Tan Tock Seng Hospital)
2017.3	Harvard Medical School (US)
2017.10	Padova University (Italy)
2018.4	Stanford University (US)
2019.6	Keelung Chang Gung Memorial Hospital (Taiwan)

Academic Accomplishment (at November, 2019)
International Patents: 3 (Stem cells, Mechanobiology – related patents)
Awards: 25
Grants: 19 (Total approx. 4,500,000 US$)
English Chapters of Medical Textbooks: 53
Japanese Chapters of Medical Textbooks: 49
English Papers of Scientific Journals: 251
Japanease Papers of Scientific Journals: 245
Invited Lectures (International) : 147
Invited Lectures (Japan) : 142
Conference Presentations: 1512

Lunchon Seminor 2

Chair:
Rei Ogawa

THE ROLE OF RECELL POINT OF CARE AUTOLOGOUS SKIN CELL HARVESTING DEVICE IN CUTANEOUS SCAR TREATMENTS

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The restorations of cell phenotype is central to scar reduction. In the process of injury, healing. and scarring, the inflammatory triggers when prolonged result in a change to a fibrotic phenotype. The resulting scar can be modulated to reduce symptoms but will remain for life as the specific skin site grows and responds to environmental and systemic stressors.

The use of autologous skin cells harvested from a non involved site mated donor site gives an alternative therapeutic opportunity. By modulating the cell population the scar is modulated. The use of a point of care device with minimal cell manipulation provides a flexible alternative. Therapeutic opportunities for scar treatment will be demonstrated and discussed.

CURRICULUM VITAE

Current Position
University Of Western Australia
Professor Fracs Am

Education and Training

1978	St Thomas' Medical School, London, Anatomy, BSc (1st Class Honours)
1978	St Thomas' Medical School, London, Anatomy, Anatomy Prize
1981	St Thomas' Medical School, London, Anatomy, MBBS
1983	The Royal College of Surgeons of England, Higher Degree, Primary FRCS
1985	The Royal College of Surgeons of England, Higher Degree, FRCS (London)
1985	The Royal College of Surgeons of Edinburgh, Higher Degree, FRCS (Ed)
1990	Royal Australasian College of Surgeons, Higher Degree, FRACS Plastic & Reconstructive Surgery
1981-1982	St Thomas' Hospital, London, UK, General & Vascular Surgery, House Officer
1981-1982	St Thomas' Hospital, London, UK, Endocrinology, House Officer
1981-1982	St Thomas' Hospital, London, UK, General & Vascular Surgery, House Officer
1982-1983	St Thomas' Hospital, London, UK, Paediatric Plastic &Ophthalmic Surgery, Senior House Officer
1983-1984	St Thomas' Hospital, London, UK, Casualty, Senior House Officer

Professional Appointments

1984-1984	Registrar in General Surgery, University College Hospital, London, UK
1984-1985	Senior House Officer Orthopaedic, Surgery, Derby Royal Infirmary, UK
1984-1985	Registrar in General Surgery, Royal Hallamshire Hospital, Sheffield, UK
1985-1986	Senior House Officer in Plastic and Reconstructive Surgery, Queen Victoria Hospital, East Grinstead, UK
1986-1987	Lecturer in Plastic and Reconstructive Surgery, St Thomas' Hospital, London, UK
1987-1988	Locum Registrar in Plastic and Reconstructive Surgery, Sir Charles Gairdner Hospital, Perth, WA
1988-1988	General Surgical Registrar, Repatriation Hospital, Perth, WA
1988-1989	General Surgical Registrar, Sir Charles Gairdner Hospital, Perth, WA
1989-1990	Trainee Registrar in Plastic and Reconstructive Surgery, Sir Charles Gairdner Hospital, Perth, WA
1990-1991	Trainee Registrar in Plastic and Reconstructive Surgery, Royal Perth Hospital, Perth, WA.
1991-1991	Locum Consultant Plastic and Reconstructive Surgeon, Fremantle, Princess Margaret and Repatriation General Hospitals, Perth, WA
1991-1996	Senior Lecturer in Plastic and Reconstructive Surgery, Department of Surgery, University of Western Australia
2004-2008	Clinical Professor, School of Paediatrics and Child Health University of Western Australia
2006-2014	Clinical Lead of Injury &Trauma Health Network, Department of Health WA
1991-2015	Consultant Plastic and Reconstructive Surgeon, Royal Perth Hospital, Perth WA
1991-Current	Director of Burn Service of Western Australia, Department of Health WA
1991-Current	Consultant Plastic and Reconstructive Surgeon Australia, Princess Margaret Hospital, Perth WA now PCH
2008-Current	Winthrop Professor, Department of Surgery, University of Western Australia
2015-Current	Consultant Plastic and Reconstructive Surgeon Australia, Fiona Stanley Hospital, Perth WA

Oral Presentation 1

Chair:
Toshihiko Hayashi
Mamiko Tosa

O1-01

MODIFICATION OF THE VANCOUVER SCAR SCALE (VSS) SCORE FOR SCARRING ASSESSMENT USING *RATTUS NOVERGICUS* ABNORMAL SCARRING MODEL

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Objective: The assessment of scar in the animal has been no standard method used for research. Vancouver Scar Scale modification is one of the methods used to measure wound scar formed in the experimental animal. Determine the Vancouver Scar Scale score modification used to assess the scar in the experimental animal.
Methods: The study was carried out using a cross-sectional analytical survey method. The *Rattus novergicus* used as an experimental animal. The results of normal and abnormal scar assessed using the Vancouver Scar Scale score and modified by adding and comparing with the results of collagen obtained from scarring excision result. The collagen density examined using Trichrome Masson staining. The results were analyzed using t-test and correlation test.
Results: This t-test result of collagen density and Vancouver Scar Scale had a significantly different value ($p < 0.05$). The control (K) and treatment (I) also had different vaoues. The correlation analysis result had positive coefficient value, of 0.722. This result indicated that the collagen density increased, as the Vancouver Scar Scale score was high. Furthermore, more value also shows that the score had a significantly different result ($p < 0.05$). However, the final results of the Vancouver Scar Scale modification score calculation are: Good 0 -1; Medium 2 - 4; Adverse 5 – 6.
Conclusion: Modification of the can be Vancouver Scar Scale score used to assess the scar in the *Rattus novergicus* abnormal scarring model.

Keywords*:* Abnormal scarring, collagen density, *Rattus novergicus*, Vancouver scar scale score

O1-02

NASOLABIAL FOLD CORRECTION USING INTERNAL SCAR

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Deepening of the nasolabial crease is an esthetically unpleasing aging phenomenon occurring in the midface. Various treatment modalities have been introduced to improve the appearance of prominent nasolabial folds, all of which have pros and cons. Currently, a minimally invasive technique using synthetic dermal fillers is most commonly used. A simple and easy subcision procedure using a wire scalpel has also been used and reported to be effective for prominent nasolabial fold correction, with minimal complications. As an alternative to the wire scalpel, we used a 20-gauge metal type spinal needle cannula (Hakko Co.) and 4-0 Vicryl suture (Ethicon Inc.) for subcision of nasolabial folds. This technique is less expensive than the use of a wire scalpel and easily available when needed. Therefore, on the basis of favorable results, our modified subcision technique may be considered effective for prominent nasolabial fold correction.

O1-03

THE EFFECT OF PAPAIN ENZYME AGAINST COLLAGEN DENSITY IN KELOID TISSUE CULTURE

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Objective: Papain enzyme in Papaya sap has the ability to increase collagen degradation, thus, it can be used for the treatment of keloid. Therefore, the aim of this study was to determine the effect of this enzyme on keloid tissue.
Methods: Randomized Controlled Trial Post-Test Only Design using ten human keloid tissues was applied in this research. Each of the tissue was divided into four treatment groups. The histological preparation was conducted by Masson's trichrome staining. All of the samples were
observed using a microscope. The collagen density was determined through the use of Olyvia software. The hydroxyproline level was measured by total collagen kit assay using a spectrophotometer. All the results were analyzed using a one-way ANOVA test.
Result and Discussion: The mean value of collagen density in group K = 193,273+4,099; P1 = 188,765±3,598; P2 = 187,217±2,839; and P3 = 185.143±2.871. The results of statistical tests ($p < 0.05$) on collagen density mean value showed that there is a significant difference between groups K, P1, P2, and P3. The mean value of hydroxyproline levels in group K = 268.5±69.43; P1 = 389, 1±43, 58; P2 = 454.8±85.81; and P3 = 559.8±167.57.The results of statistical tests ($p<0.05$) on hydroxyproline groups also showed a significantly difference in the groups.
Conclusion: The papain enzyme can decrease the collagen density in keloid tissue culture.

Keywords: Collagen density, Hydroxyproline, Keloid, Papain enzyme.

O1-04

THE APPLICATION OF ^{90}SR ISOTOPE IRRADIATION TO REDUCE THE RECURRENCE RATE OF KELOID INJECTION

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Background: Keloid is a clinically intractable disease, characterized by a progressive extension of scars beyond the original damage area. The clinical therapeutic effect of the existed method was unsatisfactory.
Methods: *A*ccording to the principle of random distribution, 34 patients with keloid were divided into experimental group and control group. After three injections to make the keloids atrophied and flattened, the experimental group received a course of ^{90}Sr radiation therapy with the control group receiving no special treatment. The two groups of patients were followed up regularly. The thickness, hardness and blood flow of keloid were evaluated by VSS and ultrasound Doppler respectively. The therapeutic effect was observed. The recurrence rates between the two groups were compared.
Results: After 6-12 months of follow-up, an average of 9.5 months, there was no recurrence in the experimental group, and the recurrence rate in the control group was 85.7%. Six months after radiotherapy, the thickness, hardness, and blood vessel distribution of the keloid in the experimental group were not statistically different from those before radiotherapy; The pigment became lighter and statistically different from prior radiotherapy. The control group showed an increase in thickness and hardness.
Conclusions: The application of ^{90}Sr isotope irradiation is useful to reduce the recurrence rate of keloid injection.

O1-05

CASE REPORT : A CHILD WITH KELOID AND CEREBRAL PALSY

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Keloid is a cutaneous scar mass characterized by nodular fibroblastic proliferation of dermis and overgrowth from the original wound edges. Keloids caused by cutaneous injury and irritation involving dermis layer including trauma, surgery, vaccination, acne, skin piercing and chicken pox. Most often occur on the chest, shoulders, upper back, neck, and earlobes. Mechanical stress such as skin repetitive stretch force will aggravate keloids. They have rarely been reported especially related to dystonic cerebral palsy. Herein we report a 14-year-old Indonesian child with cerebral palsy presented extensive keloid on left pre-auricular, post-auricular and lateral neck area. Seven years before, he had chicken pox that resulted numerous raised skin lesions on left pre-auricular area. The patient underwent non-medical excision to remove the skin lesion and had chronic infection. Since the lesions become bigger and expanded to left post-auricular and lateral neck area, he went to general surgeon. He underwent serial excision and full thickness skin graft (donor from bilateral inguinal regions) but unfortunately new keloid on inguinal area appeared. He referred to Plastic Surgery division, then we removed the mass surgically followed by triamicinolone injection, but the keloid still recurrence. Finally, after on third excision and second serial radiotherapy, recurrence of keloid was minimal even on spastic area such as neck due to dystonic cerebral palsy without any radiotherapy complication after 1 year observation.

Keywords : keloid, children, cerebral palsy, chicken pox, radiotherapy

O1-06

NEW DEFINITION OF KELOID

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Background: By closely observing while treating many keloid patients, I discovered that we need the new definition of keloid because the development and progression of keloids can't be explained by the current one.
Methods: I reviewed 1644 keloid patients (766 male, 878 female) who visited my clinic from January 2008 to December 2017.
Results: A keloid is a result of a decrease in the body's immune response when a micro-infection occurs in a region where blood flow is reduced. It begins with cat's eye sign and go through the peanut sign, a crab's claws sign, and a map sign. The micro-infection invades the surrounding normal skin, leading to the development of keloids.
Conclusion: Keloid is a disease in which abnormal skin tissue develops as a result of long-term micro-infection of skin and immune response to the area where blood flow is reduced and invades normal skin.

Keywords: New definition of keloid, pathology of Keloid

O1-07

THE EFFECT OF INTRADERMAL SUTURE ADDITION USING POLYPROPYLENE THREAD ON SCAR AFTER SURGERY

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Objective: Hypertrophic scarring is a complication that occurs in the wound after surgery. A good suturing is a technique used to prevent the hypertrophic scar. There are no research studies that investigate the effectiveness of intradermal sutures. The aim of this study is to prove the effect of intradermal sutures using polypropylene thread in the surgery scar quality.
Methods: The study was conducted using a randomized controlled trial post-test only design using 20 Rattus norvegicus rats as an animal subject. The rats were divided into two groups: the addition of intradermal sutures was used as the treatment group (I) and without the addition of intradermal sutures was used as the control group (K). The fibroblast of the wound was counted on the 21st day, while the clinical assessment and the number of fibrocytes were counted on the 12th week. The clinical assessment was processed using the Vancouver Scar Scale. All of the data were analyzed using the statistical t-test ($p<0.05$).
Results: The result of this research obtaining the number of fibroblasts in the control group (K) was significantly greater ($p=0.001$) on the 21st day. Meanwhile, the fibrocytes value was significantly smaller ($p = 0.00$). The Vancouver Scar Scale value was significantly greater ($p = 0.00$) than the treatment group (I).
Conclusion: The intradermal sutures using polypropylene thread produced a better quality of scar after surgery than the wound without the addition of intradermal sutures using polypropylene thread

Keywords: Fibroblasts, hypertrophic scars, intradermal sutures, polypropylene, vancouver scar scale

O1-08

SPONTANEOUS HIP JOINT DISLOCATION IN BURN SCAR CONTRACTURE: A CASE REPORT

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Introduction: Burn scar contractures are ordinarily defined as shortening and loss of elasticity of skin and surrounding soft tissue following burn wound healing. Contractures involving major joints may give rise to disability and reduction of mobility. We present a rare case of burn contracture complicated by spontaneous and unilateral hip joint dislocation.
Case Report: A 7-year-old girl was diagnosed with right hip dislocation 7 months after the onset of scald burn. Burn wound healing was lengthy and the child was constantly in flexion posture while at home and outpatient clinics. After the burn wound healed completely, there was a diffuse flexion contracture of the hip joint, and the right leg was shorter and rotated internally while standing and her gait was unstable. Finally, the contracture was released and closed with full thickness skin graft, while the hip joint was reduced with adjusted anterior approach due to given scar formation, followed by extracapsular release, and pinning fixation.
Conclusion: Spontaneous dislocation following burn scar contracture has never been reported before. Flexion posture in pediatric burn may pose difficulty in diagnosis. In this patient we were late in diagnosing the contracture, making it more difficult to manage. Early screening and management may minimize disability and prevent future ambulatory problems.

Keywords: Burn, scar, contracture, hip, joint, dislocation, pediatric, spontaneous.

O1-09

DOUBLE ORBICULARIS OCULI MYOCUTANEOUS ADVANCEMENT FLAPS FOR SEVERE LEFT UPPER EYELID CONTRACTURE DUE TO FRONTAL SINUSITIS: A CASE REPORT

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Background: As orbital complications of sinusitis, lid edema, redness, displacement of globe and decreased visual acuity following to infections are well known. But there have been no reports that frontal sinusitis causes upper eyelid contracture and subsequent severe adhesion with the superior orbital margin. Herein, we report our experience of the surgical treatment for rare upper eyelid contracture following frontal sinusitis.
Case presentation: 52-year-old man with severe upper eyelid contracture, which resulted in corneal ulcer and infection, was presented our department. Increasing left upper eyelid contracture was noticed since contusion of the left orbital region 5 years ago. He also had a history of brain contusion surgery 30 years ago and suspected to have long-term frontal sinusitis. His left upper eye was completely adhered with superior orbital margin, and he couldn't close left eye. He had almost lost his vision due to his corneal ulcer and infection. Surgical treatment of contracture release and reconstruction was performed under local anesthesia. The upper eyelid defect of 35×33mm was observed after contracture release. Subsequently, orbicularis oculi myocutaneous flap was raised from the both side of the defect. These two flaps were transposed and covered the defect. The flap survived without any complications. At 4 months follow up, corneal tissue was re-epithelialized and there is no recurrence of corneal infection.
Rare case of upper eyelid contracture was experienced.
Acceptable result was obtained with double orbicularis oculi myocutaneous flaps.

O1-10

FUNCTIONAL INFLUENCE OF NANOTEXTURED SILICONE BREAST IMPLANT ON CAPSULAR CONTRACTURE

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Background: The nanoscale surface topography of silicone breast implant closer to cellular dimensions are known to exhibit profound effects on cells and also produce a reduced foreign body response. The objective of this study was to characterize differences of a novel nano textured surfaces with commercial available implant surfaces in terms of texture, topography, and wettability as well as the behavior of capsular contracture.
Methods: The shell texture of four distinct implants were characterized using a scanning electron microscopy, three dimensional confocal laser scanning microscope, and contact angle goniometer. Silicone breast implants were emplaced beneath the panniculus carnosus muscle on the dorsum of Sprague Dawley rats and observed for up to 8 weeks postoperative days. The fibrous capsule around silicone implants were explanted for histological examination.
Results: The nanotextured silicone breast implant exhibits a relatively flat, with little or no depth in the texturing, 2.44 ± 0.18 μm surface roughness, and a contact angle of 103.1 ± 2.06 ° In the rat model, the nanotextured implants resulted in significant decreases in capsule thickness ($P < 0.05$) and collagen production ($P < 0.05$) at 8 weeks with respect to the smooth-surfaced implant or textured implant groups. Significant ($P < 0.05$) decreases in inducible nitric oxide synthase, an inflammation marker, were observed in the nanotextured surface implants. In addition, fibrous tissue formation markers (Vimentin, alpha-smooth muscle actin) were significantly reduced in nanotextured surface implants versus smooth-surfaced implant ($P < 0.05$) or textured implant groups ($P < 0.05$).
Conclusions: Overall, these findings suggest that the nanotextured implant are associated with fewer capsular contracture rate than other implant surfaces.

Oral Presentation 2

Chair:

Tae Hyun Choi

Eldon Mah

O2-01

EFFICACY OF PLATELET RICH PLASMA ON MICROGRAFTING TOWARDS EPITHELIZATION PROCCESS

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***Objectives**:* Wound healing process especially for burn injury had been talked about recently, pain burden and disability of burn injury encouraged for an effective treatment, one of the treatments includes micrografting. The application of Platelet Rich Plasma on micrografting is able to speed up wound healing in burn injury.
***Methods**:* This study is a clinical experimental study, posttest only control group. Nine patients with burn injury who underwent micrografting are treated in two different manner, first half of total area covered with micrografting are given platelet rich plasma, while the other half are left as it is. Epithelization are measured histologically by the appearance of macrophage, fibroblast and collagen; clinically and graft take.
Results: Significant increased $p<0,05$ on histology appearance; macrophage in platelet rich plasma group are 11.222 and 4,111 in non platelet rich plasma group; fibroblast in platelet rich plasma group are 16,444 and 6,556 in non platelet rich plasma group respectively; and collagen in platelet rich plasma group account for 6,778 and 1,994 in non platelet rich plasma group. The result on clinical evaluation on the 5^{th} and 10^{th} days are -2,236 (p=0,025) and-2,000 (p=0,046) respectively. Graft take are also increasing significantly in platelet rich plasma group with 82,222 and non-platelet rich plasma group 72,778 (p=0.001).
Conclusion: Platelet rich plasma are efficacious towards wound healing process through increasing of macrophage, fibroblast and collagen that can speed up epithelization.

Keywords: *micrografting, platelet rich plasma, macrophage, fibroblast, collagen, epithelization, graft take*

O2-02

THE ABILITY OF B1 REPETITIVE SEQUENCES METHYLATION IN IMPROVING RAT SECOND DEGREE BURN WOUND HEALING

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Background: The maintenance of genome stability is crucial for survival and proper functions of cells. If we can decrease genomic instability by adding B1 siRNA to increase global methylation, this can promote cell proliferation and burn wound healing.
Aim: To invent biotechnology that can promote global methylation, reduce genomic instability and improve burn wound healing.
Method: Three groups of 8 rats per group were burned with hot 10 millimeter-width-aluminum rods. The rats were divided into the control(normal saline), Calcium-phosphate nanoparticle and B1siRNA groups. B1 siRNA was applied to direct B1 interspersed repetitive sequences methylation. Wound contraction rates, histology, immunohistochemistry and levels of B1 methylation were evaluated.
Results: There were significantly different among groups after 7^{th} day post-burn injuries. B1 siRNA group show better wound contraction rates than the control and nanoparticle groups on days 7,10,14,21 and 28. The B1siRNA shows higher pathologic scores than the control and nanoparticle groups. There are no significant differences in wound contraction rates in the control and calcium-phosphate nanoparticle groups. We observed a positive correlation between B1 element methylation, wound contraction rates, pathologic scores and immunohistochemistry results. The results of histology exhibited well-formed horizontally oriented collagen fibers in the B1siRNA treatment groups.
Conclusion: B1 methylation stabilizes the genome by preventing accumulation of DNA damage, B1 siRNA could be useful to improve the wound healing and genomic stability in rat burn wounds. Moreover, humans have these short repetitive sequences called ALU sequences. Therefore, it can be used as a topical treatment agent for burn wounds.

O2-03

THE USE OF SILICONE GEL AND PRESSURE GARMENT FOR TREATING CHILDREN'S BURN SCARS IN INDONESIA: A CASE REPORT

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Background: Treatment of burn scar is very important in Indonesia given the high incidence of burn injuries in children. Moreover, scars may be associated with several physical and functional comorbidities and cosmetic disfigurement which affect the child development and quality of life.
Method: This case report is presented to illustrate the effectiveness of silicone gel and pressure garment as an important option in burn scar treatment in children. The report involves a 9-month-old child whose burn scar was treated for a period of 2 years with combination of silicone gel and pressure garment. Strategies for problem solving and addressing needs unique to the environment of Indonesia were developed over the treatment period.
Result: Illustration and photo documentation were recorded and using The Vancouver Burn Scar to evaluate the improvement of the scar.
Conclusion: The findings of this case study indicate that silicone gel and pressure garment were a good option for burn scar treatment in children under certain circumstances. Further research with a wider sample is indicated, given the high incidence of childhood burn injuries in Indonesia.

Keywords: burn, scar, children, outcomes, silicone gel, pressure garments, Indonesia

O2-04

WHOLE SCAR ABLATIVE FRACTIONAL CARBON DIOXIDE LASER SURGERY IMPROVING SLEEP QUALITY IN ADULT HYPERTROPHIC SCAR PATIENTS: A PROSPECTIVE COHORT STUDY

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Objective: Poor sleep quality is associated with decrement of life quality of patients with major burn scar, which also combined with pruritus and pain. Few interventions have been reported to improve the sleep quality of patients with scars. In the current prospective cohort study, we investigated the efficacy of CO_2-AFL surgery *versus* conventional surgery in post-burn patients with hypertrophic scars with sleep quality as the primary study outcome.
Methods: This prospective study enrolled burn scar patients who received treatment at our hospital between May, 2016 and April, 2018. Patients were assigned to undergo CO_2-AFL surgery or conventional surgery according to scar severity and patient intents. Sleep quality was evaluated using the Pittsburgh Sleep Quality Index (PSQI) preoperatively and/or 4 to 6 weeks postoperatively and further monitored using an ECG recorder by cardiopulmonary coupling. Pain was evaluated using the visual analog scale (VAS) and Brief Pain Inventory (BPI). Pruritus was evaluated using the VAS for pruritus, the 5-D itch scale and the four-item itch questionnaire (FIIQ).
Results: Totally 68 patients were eligible for analysis, including 35 patients receiving CO_2-AFL surgery and 33 patients undergoing conventional surgery. Four to six weeks postoperatively, patients receiving CO_2-AFL surgery had significantly lower PSQI global scores than patients receiving conventional surgery (P <0.001). In the subgroup of patients who underwent sleep monitoring by cardiopulmonary coupling before and after CO_2-AFL surgery, CO_2-AFL markedly reduced deep sleep time (P = 0.017), deep sleep efficiency and initial sleep latency (P = 0.03). Compared to patients undergoing conventional surgery, patients receiving CO_2-AFL had significantly lower VAS pain scores and lower VAS pruritus scores.
Conclusion: CO_2-AFL surgery significantly improved sleep quality and reduces pain and pruritus of hypertrophic scar patients *versus* baseline and was more effective than conventional surgery in increasing sleep quality especially deep sleep quality and decrease pain and pruritus of these patients.

O2-05

CHONDROCUTANEOUS BILATERAL ADVANCEMENT FLAP WITH POSTOPERATIVE RADIATION THERAPY FOR AHELICAL RIM KELOID

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Keloids can be recalcitrant and a well-planned treatment strategy is essential. Multiple ear piercings have recently become popular, particularly among in the younger age groups. Management of keloids that develop after piercing of the ear cartilage may be particularly problematic.
Helical rim keloids are difficult to excisebecause of the complex, three-dimensional, cartilaginous structure of the helix and the thin and tightly adherent covering layer of skin. The chondrocutaneous advancement flap introduced by Antia and Buch may be a useful reconstructive option for a helical rim keloid after marginal loss of a segment of the helix as a result of trauma, a burn, or excision of a malignant tumor. However, this technique is limited to wounds that involve only the helix.
In this presentation, we describe the use of a chondrocutaneous bilateral advancement flap with postoperative radiation therapy to treat a more invasive and relatively large keloid on the scapha. This technique is straightforward and safe in terms of preserving the blood supply. Addition of adjuvant radiation therapy can help to decrease the risk of recurrence and preserve the morphological structure of the ear and patient satisfaction.

O2-06

NEW RELAXING SUTURE TECHNIQUE USING ABSORBABLE SYMMETRIC BARBED SUTURE TO CLOSE LARGE SCALP DEFECTS

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Introduction: Closing scalp wounds with skin defects is often challenging because scalp skin lacks extensibility and it tends to result in a remarkable, widespread, hairless scar. STRATAFIX Symmetric PDS plus (Ethicon) is an absorbable barbed suture material, which allows wound closure using only a pulling motion and provides strong and secure closure. We used this device in our original way to close wide scalp defects easily without tension and minimize sequential scar alopecia.
Patients and Methods: Our relaxing suture technique was performed in seven patients with scalp alopecia ranging from 5 to 30 mm in diameter because of various lesions. After resecting the lesion, we undermined the galea around the wound by 20–30 mm. The galea was sutured using 3-0 STRATAFIX according to the continuous subcutaneous suture method. Widespread wound edges were approximated by pulling the suture device. After approximation, wound closure was completed with ordinal galeal suture using 3-0 PROLENE (Ethicon) and superficial suture using 5-0 PROLENE. The width of the postoperative scar was evaluated.
Results: Widespread wound edges could be approximated by only pulling. After approximating the edges, the originally wide wounds could be closed without any tension or difficulty. The width of each postoperative hairless scar area was not remarkable. There were no complications during the follow-up period.
Conclusion: Our new relaxing suture technique using absorbable symmetric barbed sutures is a useful way to support approximation of the wound edges in cases of scalp defects.

O2-07

90-DEGREE-ROTATED-AND-RETURN SPLIT-THICKNESS SKIN GRAFT FOR RESURFACING OF DELIBERATE SELF-HARM SCARS ON THE UPPER EXTREMITY

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Purpose: Deliberate self-harm scars are easy to recognize and difficult to hide. Most patients are females who do not wish to have scars. We present our experience with 12 patients who underwent 90-degree-rotated-and-return split-thickness skin graft.
Patients and Methods: The study focused on 12 female patients who underwent 90-degree-rotated-and-return split-thickness skin graft at the Wound and Scar Clinic (Tokyo, Japan). The average age of surgery was 30.6 years (24 to 44). Surgery was performed under local anesthesia in all cases. The average skin graft area was 56.7 cm2. A split-thickness skin graft (10/1000 inch) was harvested from the affected area using an electric dermatome, and the dermis scars were excised and flattened with a knife and scissors. The harvested skin graft was then rotated 90 degrees, reapplied to the same site, and sutured.
Results: Most patients were satisfied with the results. The scars were successfully camouflaged and given an acceptable appearance, similar to a burn scar.
Conclusion: 90-Degree-rotated-and-return split-thickness skin graft may be used to improve the appearance of deliberate self-harm scars.

O2-08

SURGICAL HANDLING OF WOUNDS TO DECREASE SCARING BY TENSION REGULATION ; NOVEL TECHNIQUES

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Handling of wounds to decrease cutaneous scaring means dealing efficiently with every item intermingling with the healing process .The characteristic variation of the wounds morphology and depth make the process of handling unique for every wound .Analysis of the wound wither post traumatic or post surgical is mandatory to handle the present change in the geometry of the surrounding area due to wounding .This change is affected by surrounding ligaments, adhesions ,fascial thickenings, septi as well as the contraction of the surrounding muscles and joint movements. Tension regulation still the cornerstone for nice scaring .So , tension analysis should be done to determine the required repair .The proposed technique is depending on a key element of dealing with the zone surrounding the wound and deep to it .It is based on ; Separation of deep fascial or fibrofatty layers ,Lamillation of the surrounding deep areas after release of all connections , Performing a persistent repair (as draping with tight closure , double breasting , excision & shortening) .This will produce transmission of the highest tension points deeply and leaving a superficial flabby cutaneous layer with maintained tension free for enough period to accomplish complete healing with less scaring .One hundred and fifteen cases were done with post traumatic and post surgical defects & scar revisions .The results demonstrated a nice healing and limited widening of resultant linear scar width .

O2-09

APPLICATION OF DEEP TRANSVERSING SUSPENSION SUTURES FOR LOW TENSION WOUND CLOSURE : A PRELIMINARY REPORT

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Background: Proper closure of cutaneous wounds is performed by deep as well as superficial sutures .Tension on the wound has a marked effects on the resultant scaring process .A balance between good coappitation and tension regulation is needed . Application of deep suspension sutures transversing the wound was done to eliminate the gapping and provide proper closure .
Patients & methods: Twenty one patients with post traumatic and post surgical cutaneous wounds were included ;sex (9 m & 12 f) ,age (2y-37y) mean 6 y ,wound length (1- 5 cm) with mild to moderate depth .Straight needles were used on Polyglycolic acid or polydioxanone threads.The needle passed from the depth of the wound perpendicular to the wound axis and parallel to skin surface and peneterating it (1-3 cm) away from the wound adge .It was reintroduced to appear in the wound depth and repeat the same on the otherside.The knot was performed after pulling on the thread to produce and deepen a skin dimple away from the wound by (1-3 cm)
Results: All wounds were closed efficiently ,the skin surrounding the wounds was elevated with less tension and skin dimples were present away from the wound to decrease tension along the edge and disperse it deeply .The skin elevation showed gradual decrease and dimpling disappeared in (2 – 4 weeks).
Conclusion: Using deep transversing suspension sutures provided rapid proper wound closure with superficial tension regulation .

Oral Presentation 3

Chair:
Naoki Murao
Satoshi Akaishi

O3-01

THE OUTCOME OF EARLY ABLATIVE FRACTIONAL LASER TREATMENT FOR THYROIDECTOMY SCARS

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Ablative fractional laser (AFL) systems are commonly used to treat various scars, and recent research has indicated that early treatment with AFL may have a preventive effect on scars. This prospective split-scar study was designed to evaluate the efficacy of early treatment with AFL on thyroidectomy scars and compare it to late(convenational) treatment for the same and untreated controls. Scars were divided into two equal portions. Early AFL treatment was begun one month after surgery; five sessions on the right half of the scar was performed at one-month intervals. Late AFL treatment followed for one month after the final early treatment session on the left half of the scar at the same interval. The primary outcome measure was the change in the Vancouver Scar Scale(VSS) score from baseline to 6 months and 11 months follow-up. Twenty-four out of 43 patients completed the study, with a mean age of 43.3 years. The mean decrease in VSS scores was significantly higher for the early treated left halves of the scars both at the 6th month (early treated side: 6.08±2.06 vs. untreated control: 3.96±1.65, $p< 0.05$) and ath the 11th month (early treated side: 8.38±2.16 vs. late treated control: 6.29±2.03, $p<0.05$). The VSS subset analysis showed that the early treated sides had significantly greater improvement in pliability and height than the control sides at each point of evaluation. The experimental arms showed superior results in secondary outcome measures, including the mean physician global assessment(PGA) score and the results of the patient-reported outcomes, when compared to the control arms. Early AFL treatment is the single most effective way to improve linear surgical scars such as thyroidectomy scars.

O3-02

HEAD AND NECK SCAR MANAGEMENT

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Scars are undesired manifestation of the normal healing process. Scarring usually occurs following surgery or by traumatic injury. Some scars heal well, leading to an unnoticeable fine line, whereas others are prone to develop scar hypertrophy or keloids. Various treatment methods have been used over the past century for the treatment of scars. Management of scars with laser modalities have been acknowledged as a well-tolerated procedure with favorable clinical results. Until recently, lasers have traditionally been used to treat mature scars, initiating treatment several months after trauma or surgery. The concept of using lasers as prophylaxis against scarring in the early stage is relatively new.
Recent reports have indicated fractional lasers to be one of the most effective treatment options for head and neck scars. Fractional lasers are divided into either non-ablative or ablative fractional lasers. While the former are claimed to be the safer of the two types, the latter have been shown to be more effective in treating facial head and neck imperfections with better patient satisfaction.

O3-03

INTERACTIONS OF KERATINOCYTES IN MULTILAYER HAIR SPHERE ASSEMBLY

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Epithelium-mesenchyme interactions trigger epidermal keratinocytes (KCs) to participate with dermal papilla (DP) cells for hair induction. The dynamics of cell-cell interactions in the microenvironment of hair follicle (HF), especially for the induction of hair neogenesis, is poorly understood. Our previous study demonstrated that a chitosan-coated surface could promote the formation of DP sphere and maintain the DP characteristics in culture. The addition of adipose-derived stem cells (ASCs) to form a core-shell structure induced hair induction. In this study, we further investigated the role of KCs during assembly of multi-layer spheres. DP, KCs, and ASCs are isolated from C57BL/6 mice and combined sequentially to form spheres. This multi-layer sphere increased DP signature relative to ASCs and DP alone. Furthermore, adding mixed conditioned media isolated from the KCs and ASCs cultures, DP marker expressions were further enhanced in DP spheres indicating the contribution of secreted factors. Different multi-layer arrangement of KCs and ASCs were tested by sequential seeding of core, first, and second layer of cells (core/1st/2nd), including DP/KC/ASC, DP/ASC/KC, or DP/KC+ASC spheres. Significant increases of DP markers, Versican and Hey 1, were observed in DP/KC/ASC multi-layer spheres. The close contact between DP core and the KC middle layer showed increased effects to induce DP features. Increased hair neogenesis was also found after injecting DP/KC/ASC spheres into the nude mice by patch assay. Therefore, this study demonstrates the possibility to create artificial multi-layer cell arrangements for cell therapies.

O3-04

COMPARISON OF KEYSTONE AND ROTATIONAL FLAPS FOR BREAST RECONSTRUCTIVE SURGERY IN SCAR FORMATION AND MICRO RNA 29A PATTERN

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Breast cancer is the leading cause of cancer death among females. Based on the cancer registry data in Dharmais National Cancer Hospital from 2011 to 2013, 70% of new breast cancer patients are already in stage III-IV. The treatment of late-stage breast cancers typically involves a combination of medication and surgery, leaving a chest wall defect. There are several methods for closing this chest wall defect, depending on its size and depth, such as free flap, local flap, and skin graft. In this case series, we followed 10 patients who underwent chest wall reconstruction using keystone flaps and rotational flaps. The presence of scars was observed and Mircro RNA 29a levels were measured on day 3 and day 21. Keystone flap was associated with better results in terms of the clinical appearance of the scar compared to rotational flaps, but no noticeable pattern for Micro RNA 29a was seen in our patients. Keystone flaps may be superior to rotational flaps to close extensive chest wall defects.

O3-05

NUCLEAR FLASH BURNS AND ASSOCIATING KELOIDS (HYPERTROPHIC SCARS)

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Introduction: In past nuclear attacks, many victims suffered flash burns. Although many eyewitness testimonies exist, they were still treated as anecdotal because of limited scientific records or explanations.
Methods: A few scientific records and > 20,000 pages of documents and drawings by hibakusha had been investigated.
Results: Although flash burns may be due to a strong flashlight, those observed in the atomic attacks are largely different from ordinary flash burns. The symptoms can be divided into three groups, depending on the wavelength differences of flashlight, infrared ray (IRR, 750 nm <), visual light with long wavelengths (VLL, approximately 600-750 nm), and visual light with short wavelengths (VLS, approximately 400-600 nm). IRR is colorless and superficially absorbed, the skin and hair were scorched, and clothes crumbled. VLL selectively damages the pigments in the skin and the dyes of colored clothes. Melanin is a major pigment in the skin at the basal layer of the epidermis and the hair follicles in the dermis. Where no hair follicles, the wounds tend to have a prolonged healing process and form keloids. VLS penetrates deep into the skin and damages not only the pigmented tissues but also the hemoglobin in erythrocytes, resulting in rupture of the blood vessels. The people around ground zero would suffer flash burns at various rates from these three types.

O3-06

STEPPED CARE FOR APPEARANCE MATTERS AS AN ALTERNATIVE INTERVENTION

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People with appearance matters (problems) are vulnerable to self-esteem and are consequently prone to adaptation disorders. Tools and skills as preventive and therapeutic interventions are called Appearance Matters Intervention. In general adaptation disorder research, coping skill training (CST) and cognitive behavioral therapy (CBT) for depression and anxiety disorder have been established.
The appearance matters occur in association with disfigurement due to scarring and diseases, mental disease due to cognitive distortion, and aesthetic obsession in the general public. Assessment and evaluation are important. Revel 1-2, early intervention, are permissive counselling and providing appropriate information materials. Revel 3-4 are CST and CBT provided by “medical staff + liaison psychiatry, including psychological intervention therapy”. Stepped care (comprehensive care) is now widely spreading in EU and gradually in Japan.

O3-07

COMPARISON OF NEVUS AND SCAR GROWTH IN STAGED EXCISION OF PEDIATRIC PATIENTS

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Congenital melanocytic nevus is a very common form of nevus which many pediatric patients receive surgical excision operations for aesthetic reasons as well as to avoid its malignant transformation. Some nevi are too large to excise in a single operation and therefore a staged excision is performed. Scar formation is inevitable after an excision surgery and as children grow both the remnant nevus and the newly formed scar may increase in size. This is thought to be affected by the growth of nevi and scar themselves as well as the growth of an individual. In this study, we tried to compare the increase in size of the nevi and scars between each excision operations and also tried to determine how much impact the individual's growth had on them.

In staged excision operations, the growth of both nevus and scar between operations exceed the normal growth rate of pediatric patients themselves. Also, the growth rate of scar was greater than that of the melanocytic nevus, but decreased as operations followed.

Oral Presentation 4

Chair:

Chenyu Huang

Chao-Kai Hsu

O4-01

EXPLORING THE HETEROGENEITY OF KELOID FIBROBLASTS

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Keloid scarring is a fibroproliferative disorder of the skin of unknown pathophysiology, characterised by fibrotic tissue that extends beyond the boundaries of the original wound. The main cell type that produces extracellular matrix (ECM) proteins during the healing process is the fibroblast, and a dysregulation of these cells during wound healing is what leads to the excessive collagen deposition in keloids. Fibroblasts have been poorly characterised until recently and were once thought to be relatively homogenous (Hu et al., 2018).
Fibroblast heterogeneity has recently been explored using single cell RNA-seq (scRNA-seq) which sequences RNA from individual cells, differentiating cells by their transcriptome. scRNA-seq has been used to identify sub-populations of cells in many tissues, including skin (Tirosh et al., 2016; Tabib et al., 2018; Philippeos et al., 2018). However, there has been little phenotypic characterisation and to date there has been no published data on keloid fibroblasts.
We have performed scRNA-seq to identify subpopulations of fibroblasts using keloid tissue isolated from elective surgery patients, with preliminary analysis identifying 5 distinct fibroblast populations, confirming that keloids are heterogeneous and suggesting that subpopulations within the keloid are driving scar progression. This work has implications for not only keloids but broader treatment of scars, demonstrating that not all scar cells are alike. Future work will involve phenotypic characterisation of cell subtypes in order to devise more precise, tailored treatment for keloid scars

O4-02

ENZYME ACTIVITY OF LYSYL OXIDASE IN *FBLN4* DEFICIENCY

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Keloid or hypertrophic scar is a dermal fibrotic disease. The study of organ fibrosis using animal model revealed that inhibition of lysyl oxidase (LOX), a crosslinking enzyme of collagen and elastin, reduces fibrosis. However, inhibitor of LOX has not been clinically used to treat fibrosis. Although enzyme activity of LOX is known to be derived from intramolecular crosslink between lysin and tyrosin, the mechanisms of formation of intramolecular crosslink are not fully elucidated. We have reported that fibulin-4, a matricellular protein, interacts with LOX and is essential for elastogenesis. Because not only elastogenesis but also collagen fibrillogenesis is defective in *Fbln4*$^{-/-}$ mice, fibulin-4 may be essential for the activation of LOX.
To evaluate the enzymatic activity of LOX under the condition of *Fbln4* deficiency, we purified endogenously expressed LOX from the conditioned media of wild type and *Fbln4-/-* cells, and measured the LOX activity using tritiated tropoelastin as a substrate. LOX from *Fbln4-/-* cell had largely abrogated activity compared to that from wild type cell. In support of this finding, aortae from both *Fbln4-/-* mice and *Lox-/-* mice contained greatly reduced amount of desmosine, a crosslinked amino acid from elastin, as well as of pyridinoline, a crosslinked amino acid from collagen, compared to those from wild type mouse aortae. These results suggest that fibulin-4 is essential for the enzymatic activity of LOX in vitro and in vivo.
Fibulin-4 might be a molecular target to prevent fibrosis via inhibition of LOX.

O4-03

THE MECHANISM OF WNT/B-CATENIN SIGNAL TRANSDUCTION PATHWAY IN KELOID DEVELOPING

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Objects: To investigate the role of Wnt/beta-catenin signal transduction pathway in keloid developing.
Methods: Primary fibroblasts were cultured by tissue culture method. The levels of Wnt/beta-catenin signal transduction pathway related signal molecules Wnt5a, beta-catenin, GSK-3beta, p-GSK-3beta protein and Wnt5a, beta-catenin, GSK-3beta mRNA in normal skin and keloid fibroblasts were detected by Western Blot and RT-PCR, respectively. Data were analyzed by SPSS18.0 software.
Results: Compared with normal skin, the levels of Wnt5a, beta-catenin, p-GSK-3 beta protein and Wnt5a, beta-catenin mRAN in keloid fibroblasts increased significantly ($P < 0.05$), while the expression levels of GSK-3 beta protein and mRNA are not significantly different.
Conclusion: Wnt5a and beta-catenin mRNA may play an important role in the formation of keloid by up-regulating Wnt5a and beta-catenin protein levels and phosphorylation of GSK-3 beta protein.

O4-04

CHONDROITIN SULFATE PROMOTES PROLIFERATION OF KELOID-DERIVED FIBROBLASTS THROUGH ACTIVATING AKT PATHWAY

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Background: We have previously reported over-accumulation of chondroitin sulfate (CS), a major component of cartilage, in keloid lesions. However, roles of CS in keloid pathogenesis remain unknown.
Methods: To elucidate roles of CS in keloid pathogenesis, we evaluated proliferation rate of fibroblasts obtained from keloid (KF) and normal skin tissues (NF). KF and NF were cultured with CS or without CS, and proliferation rate was analyzed using WST-8 (tetrazolium salt colorimetric) assay. Activation of intracellular signaling pathway was analyzed by western blotting.
Results: CS stimulated KF proliferation, but not NF proliferation. Analysis of intracellular signal transduction pathway revealed that the stimulation effect of CS on KF proliferation was due to activation of AKT (protein kinase B) pathway.
Conclusions: We revealed that CS activates AKT pathway probably through integrins and plays important roles in keloid pathogenesis. CS may be a therapeutic target of keloids.

O4-05

DYNAMIC MULTI-PHOTON IMAGING SHOWS DIFFERENCES IN COLLAGEN FIBER DEFORMABILITY BETWEEN HUMAN SKIN AND KELOIDS

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The micro-mechanical mechanism responsible for the variation in the compliancy of human skin and keloids remains unclear. The aim of this study is to show the deformation of collagen fibers in a deforming skin three-dimensionally using dynamic multi-photon imaging and characterize differences in collagen fiber deformability between non-pathological skin and keloids. Eleven fresh, skin samples and three keloid samples were used. The epidermis and the papillary dermis were removed surgically and then dermal sheets measuring 12 mm in width and 0.8 mm in thickness were prepared. A dermal sheet was inserted in an extension instrument and placed on the stage of an inverted microscope in a multi-photon microscopy system. Collagen and elastic fibers were imaged using second harmonic generation and two-photon-excited autofluorescence, respectively. Multiple scans were performed under incremental extension, followed by sequential relaxation. The extension of the elastic network required for straitening of a collagen fiber was measured to evaluate the deformability of the fiber. Anatomical factors that impact on the deformability of collagen fibers were assessed by observing contracting processes of the fibers. In healthy skins, there was a wide range of variability in collagen fiber deformability. Collagen fibers deformed three-dimensionally, except for the fibers at the intersections, where the motion of the fibers was constrained each other. Collagen fibers in keloids did not show substantial morphological changes. Abnormal interconnections were observed between neighboring collagen fibers. Dynamic multi-photon imaging would allow better understanding of abnormalities in the extracellular matrix of keloids.

O4-06

COMPARISON BETWEEN TGF-B, COLLAGEN, AND VIMENTIN PATTERN ON SINGLE AND MULTIPLE FULL THICKNESS WOUND ON ABNORMAL SCAR OCCURRENCE

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Objectives: Multiple wounds have different wound healing process than single wound. Full thickness wound or deeper will left scar. There is no data about abnormal scar occurrence on multiple full thickness wound.
Materials and methods: True experimental research, randomized post test only control group design. The subject is the 2x2 cm wound size of single wound, and multiple wounds with a distance of 5 cm. Carried out on 56 Oryctolagus cuniculus healthy male rabbits 12 weeks, weighing 3000-3500 grams. Four groups(A) serve as the single wound while the other four groups(B) serve as the multiple wounds (B1 and B2). Histopathology examination for TGF-β, collagen, and vimentin held for each groups on day 5, 14, 21, and 30.
Results: TGF-β pattern was different between group (A) and group (B) on the 5^{th} day, $p = 0.002$. Collagen pattern was different between group (A) and group (B) on the 5th day, $p = 0.002$.
(A) and (B1) groups in the 5^{th} day have significant difference, $p = 0.034$.
(A) and (B1) groups in the 30^{th} day have significant difference, $p = 0.020$.
(A) and (B2) groups in the 30^{th} day have significant difference, $p = 0.020$.
Group (B) consist of thicker epithelial than group (A). A similar increased trend of increasing epithelial thickness was also observed on abnormal scar, hypertrophic scar and keloid.
Conclusion: There are differences of wound healing process between single and multiple full thickness wound based the epithelia thickness, collagen density, TGF-β and vimentin expressions. Abnormality of Epithelial thickness can lead to occurrence of abnormal scar.

Keyword: scar, full thickness wound, TGF- β, Kolagen, Vimentin

O4-07

EFFECT OF THE FIRST EPIDERMAL GROWTH FACTOR MOTIF OF COAGULATION FACTOR IX ON FIBROPROLIFERATIVE DISEASE

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Purpose: Capsule contracture shows abnormal growth of collagenous fiber around the implant and is classified as a fibroproliferative disease such as keloid and hypertrophic scar. We have found that coagulation factor IX derived epidermal growth factor (EGF-F9) has antifibrotic effect, among other functions. This study aimed to investigate the effect of EGF-F9 on capsular formation in a rat model of implant insertion.
Methods: Two 2 × 2-cm implants were inserted into the subcutaneous pockets in rats. Preventive administration groups administrating either phosphate buffered saline (PBS) or EGF-F9 from the time of implant insertion and treatment administration groups beginning either PBS or EGF-F9 administration four weeks after implant insertion were created. In every group, PBS or EGF-F9 was injected into the subcutaneous tissue overlying the implant thrice a week for four weeks. Then, tissues were collected and examined histologically.
Results: The mean capsular thickness in the preventive administration PBS (n=8) and EGF-F9 (n=8) groups was 95.3±47.8 μm and 48.1±12.8 μm, respectively. The mean capsular thickness in the treatment administration PBS (n=8) and EGF-F9 (n=8) groups was 246.1±64.4 μm and 229.7±68.8 μm, respectively. The capsule was significantly thinner in the EGF-F9 group than in the PBS group of preventive administration. However, there was no significant difference between the treatment administration groups.
Conclusions: Despite a certain preventive effect on fibroproliferative diseases, our data suggested a poor therapeutic effect of EGF-F9 on the completed disease state.

Poster Presentations

P-01

EFFICACY OF PULSED-DYE LASER COMBINED WITH LOW-DOSE INTRALESIONAL STEROID INJECTION IN THE PREVENTION OF RECURRENCE OF HYPERTROPHIC SCAR AFTER CESAREAN SECTION

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Background: Postoperative hypertrophic scars following cesarean section (CS) can be problematic to many female patients because they commonly cause discomfort such as itching and pain, as well as cosmetic disfigurement. Although some of these patients undergo scar revision surgery at the next CS delivery, it is associated with a high recurrence rate.
Objectives: To evaluate the efficacy of pulsed-dye laser(PDL) and low-dose intralesional steroid injection in recurrence of hypertrophic scar after CS
Methods: A retrospective review was performed of female patients who had developed hypertrophic CS scar and underwent scar prevention procedures with PDL combined with low-dose intralesional steroid injection after surgical scar removal from 2013 to 2018. Vancouver Scar Scale (VSS) and patients' objective symptoms were assessed for previous CS scar and after the surgical excision followed by scar prevention procedures.
Results: A total of 32 patients (mean age 38.9±5.4 years) were included in this study. The mean VSSs for the previous CS scar was 8.4±1.5. After surgical scar removal followed by 4 sessions of scar prevention procedures, the mean VSSs for scar was 2.9±1.7 ($P < 0.05$). The percentage of the patients who has objective symptoms including itching or pain was 65.6 % before the surgery and 15.6% after the surgery ($P < 0.01$). The factors affecting final outcome was previous VSS, existence of keloid elsewhere in the body, and body weight.
Conclusions: PDL and low-dose intralesional steroid injection can be an effective choice for the prevention of hypertrophic scar after CS.

P-02

AUTOLOGOUS PLATELET-RICH PLASMA FOR SURGICAL SCAR: A SYSTEMATIC REVIEW

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Post-surgical care generally emphasizes more on wound closure than scar formation. The management might end after suture removal, leaving post-surgical scar management as a lesser concern. Additional scar management is necessary to improve surgical scar. The use of platelet-rich plasma (PRP) has gained interest for its simple preparation and promising effect on wound healing and scar. This review aims to evaluate current evidence on the use of PRP in minimizing post-surgical scar. A systematic search was conducted on Pubmed, Cochrane Library and ScienceDirect databases for clinical trial published over the last 10 years using keywords of *platelet-rich plasma* and *scar*. Eligible studies were randomized controlled trials, presented in English, comparing standard post-surgical care with or without PRP application. The search discovered 595 citations but only three papers were selected after removing duplicates and screening for eligibility criteria. All these studies reported significant improvement of scar quality by utilizing various subjective scar assessment tools. Limitations include small sample size, variable PRP preparation and delivery technique, and no objective scar assessment. Autologous PRP provides beneficial effect in minimizing surgical scar and may be considered as additional post-surgical care.

P-03

THE TERUDERMIS ONLY TREATMENT OF SMALL FACIAL SKIN DEFECT

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Purpose: When skin defect occurs, it should be restored to similar quality of original skin as quickly as possible. Artificial dermis can supplement the defected wound and prevent severe scar contracture. Terudermis is an artificial dermis made of atelocollagen from calf dermal collagen. Terudermis graft usually need secondary STSG, but some small skin defects can be treated by terudermis graft only. In this study, the authors used Terudermis for treating small facial skin defect and evaluated the outcomes of scar.
Methods: This research is a retrospective chart review of 120 patients who had been treated by using Terudermis without secondary STSG from 2016 to 2018. The skin defect smaller than 15 mm were treated by surgical method of this study. Necrotized tissues were debrided and Terudermis was fixated on the skin defect. Dressing was done for 2-3 weeks after operation. The scar was evaluated according to modified Vancouver Scar Scale and prepared questionnaire.
Results: The scores for the components of VSS (vascularization, pliability, height and pigmentation) were 0.52, 1.3, 1.01 and 1.16. The average scores for aesthetic outcome given by experts and patient satisfaction, were within the "satisfied" to "very satisfied" range. There are no complications and nobody took secondary scar revision operation after 6 months.
Conclusion: The authors obtained satisfactory results through the Terudermis only treatment. There is no need to carry out secondary STSG after Terudermis graft in terms of small skin defect. Fot treating small facial skin defect, Terudermis graft without secondary STSG is an easy and simple surgical method to obtain good quality of scar.

P-04

COMBINED THERAPEUTIC STRATEGIES FOR KELOID TREATMENT

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Introduction: Recent advances in keloid management favor the administration of combination therapy over monotherapy.
Objective: We evaluated the safety and efficacy of combination therapy to treat keloids using fractional lasers, superficial cryotherapy, and intralesional triamcinolone injections.
Methods and Materials: We performed a retrospective observational study involving 35 Koreans with keloids. Each patient underwent treatment using the 1550 nm non-ablative fractional erbium-glass laser, followed by the 10,600 nm ablative fractional carbon dioxide laser. Laser treatment was immediately followed by the administration of superficial cryotherapy and intralesional triamcinolone injections (10–20 mg/mL). Scar improvement and patient satisfaction were assessed using the Vancouver Scar Scale (VSS) score and the 7-point patient self-assessment score.
Results: The mean total and subcategory VSS scores (pigmentation, vascularity, pliability, and height) showed statistically significant improvement. The height and pliability subcategories showed the most significant improvement, as well as the quickest response to the combination therapy. The patients reported remarkable improvement in itching, pain, and limitations of motion after a single combination therapy session. Twenty patients were followed up for 1 year after the discontinuation of the combination treatment, and the recurrence was observed only in one patient. No significant adverse effects were observed throughout the follow-up periods.
Conclusion: Combination keloid therapy using fractional lasers, superficial cryotherapy, and intralesional triamcinolone injections is safe and more effective than individual monotherapies.

P-05

THE INDICATION OF RADIATION THERAPY AFTER KELOID EXCISION BY USING JSW SCAR SCALE

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The radiation therapy after keloid excision can reduce the recurrence risk of keloid scar. However, radiation therapy has several risks itself, the indication of radiation therapy is depends on each physician.
In 2015, Japan Scar Workshop (JSW) has provided JSW Scar Scale (JSS).To investigate whether JSS can be an indicator of radiation therapy, we tried to score the past cases of keloid excision by using JSS.
We divided them into 2 groups: those who received radiation therapy or those who did not, and compared postoperative scores. As a result, a score of 7-14 showed that 69% of patients who did not receive radiation therapy experienced a recurrence.
We concluded that JSS can be a useful tool for predicting postoperative recurrence risk.

P-06

COMBINATION THERAPY COMPOSED OF 1064-NM ND:YAG LASER AND STEROID TAPE DECREASES THE TOTAL TREATMENT TIME OF HYPERTROPHIC SCARS: AN ANALYSIS OF 40 CASES OF CAESAREAN-SECTION SCARS

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Background: The 1064-nm Nd:YAG laser (Cutera Inc., Brisbane, CA, USA) and steroid tape (fludroxycortide tape: Dorenison® tape) have been used to treat keloids and hypertrophic scars.
Objective: To evaluate the efficacy of contact mode 1064-nm Nd:YAG laser therapy and steroid tape for hypertrophic Caesarean-section scars relative to conservative therapy (steroid tape only).
Methods and Materials: A medical-record review identified 40 consecutive Japanese patients who had hypertrophic scars [total Japan Scar Workshop Scar Scale (JSS) 2015 evaluation scores of 9–12] more than one year after vertical Caesarean section and were treated at our scar-specialist clinic from Jul. 2015 to Dec. 2017. All 40 patients continued treatment until total JSS score dropped below 3. Recurrence was defined as a ≥1-point increase in total JSW score 6 months after achieving total JSS score <3.
Results: The patients had a mean age of 34.2 years. The test (n=25) and control (n=15) groups took on average 16.9 and 24.3 months to achieve total JSS score <3, respectively ($p<0.01$). In the following 6 months, none of the scars recurred.
Conclusions: Nd:YAG laser treatment effectively decreased the total treatment time of hypertrophic Caesarean- section scars. An algorithm for treating mild and severe hypertrophic Caesarean-section scars is proposed.

P-07

EFFICACY OF THE COMBINATION OF PULSED-DYE LASER AND CO2 FRACTIONAL LASER ON HYPERTROPHIC/KELOID SCARS IN PAEDIATRIC PATIENTS – A SINGLE-CENTRE CASE SERIES

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Hypertrophic scars and keloids are pathological scars result from abnormal responses to trauma. They can be itchy, painful, and cause serious functional disabilities. In recent years, studies have indicated that a combination of pulsed dye laser and fractional CO2 laser may have a role in the treatment of hypertrophic scars/keloids. This is the first study to report its use in a paediatric population in Singapore.
We identified a series of patients of ages 3 to 14 years old who underwent pulsed-dye laser, fractional CO2 and intralesional steroid injections for treatment of their hypertrophic scars/keloid post burns injury over a 3-year period (from January 2016 to December 2018). We identified the date treatment was initiated post burns injury, number of sessions of therapy and follow-ups. Scars were evaluated through serial photographic records and objectively by the Vancouver Scar Scale (VSS).
13 patients with hypertrophic/keloid scars were identified over the study period. The majority of the patients suffered from scald burns (62%). The patients were followed up over a period of 2 years and they had an average VSS score of 5. 12 out of 13 patients underwent steroid injection sessions and a total of 18 pulsed dye laser sessions, 25 sessions of CO2 laser sessions and 35 steroid injection sessions were carried out. There were no complications or adverse events.
The use of fractional carbon dioxide and pulsed dye laser combination on hypertrophic scars/keloids is a safe and effective in the paediatric population and significantly reduces scar contraction; it appears to be effective in reducing erythema, scar texture and size.

P-08

SURGICAL STRATEGY FOR CONTRACTURE AFTER CERVICAL BURN USING EXPANDED FLAP

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The expander has been used in the reconstruction surgery of burn contracture due to donor site limitation. However, the expander has not only the purpose of obtaining large flaps, but also primary closure of the donor site. We performed expanded flap for cervical burn contracture in 8 cases. The type of flaps were Groin flap 2cases, OCD flap 2cases, Parascapular flap 1case, DIEP and SIEA flap 1case, DP flap 1case, and Rectus abdominis flap 1 case. The expander was inserted into the superficial subcutaneous layer for the creation of thin and large flaps, and the expander was inserted into the deep subcutaneous layer for primary closure of the donor site. It is important to consider the layer to be inserted in the use of the expander.

P-09

TWO CASES OF FREE FLAP RECONSTRUCTION FOR BURN SCAR CONTRACTURE

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Introduction: Burn scar contracture (BSC) of the extremity joints can result in severe functional impairment. Furthermore, aesthetic considerations are important for exposed parts of the human body. In this study, our experience of free flap reconstruction for BSC was reported.
Case 1: A 71-year-old woman was presented with BSC of the left axilla and elbow joint after 18% BSA Ⅲ-degree burn treatment in another hospital. After the contractures were released, the right latissimus dorsi free flap was transferred to the left axilla, and a split thickness skin graft was performed on the elbow joint. Fourteen months after surgery, the range of motion was improved.
Case 2: A 41-year-old man was presented with dorsiflexion contracture of the right Ⅱ-Ⅴ toes after extremity burn treatment. The right foot dorsiflexion contracture was released and reconstructed with a left anterolateral thigh free flap. Twelve months after surgery, dorsiflexion of the toes was satisfactorily released without recontracture.
Discussion: Several surgical techniques including a skin graft, local flap, and free flap can be chosen for BSC treatment. Free flap reconstruction is useful for widespread BSC of an extremity joint, especially in patients with axillary contracture or a defect with bone exposure.

P-10

COMPARISON OF THE SCAR OUTCOMES OF CULTURED EPITHELIAL AUTOGRAFTS (CEA) WITH EXPANDED MESHED GRAFT VERSUS INTEGRA AND CONVENTIONAL SPLIT SKIN GRAFTING IN A 1YEAR OLD INFANT

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Extensive resurfacing of wounds in paediatric burns presents a unique challenge to the reconstructive surgeon due to lack of planar donor sites and limitations to graft thickness. We report a case of successful resurfacing on an infant full thickness wounds secondary to purpura fulminans using a combination of negative pressure wound therapy (NPWT) dressing over CEA applied with extended mesh grafts and Integra with split skin grafting. Scar outcomes were assessed 1 year post-operatively in terms of scarring and donor site morbidity.
A 1-year-old infant developed purpura fulminans after an endorectal pull-through procedure for Hirschsprung's disease. He developed 30% Total Body Surface Area, homogenous, full-thickness patches of necrosis over the anterior abdomen, right flank, right thigh and back. These required multiple debridement over a 3-week period. Resurfacing of the anterior abdomen wound was done with 6/1000th inch extended (1:6) meshed graft and CEA, while the right flank and back wounds were resurfaced with Integra, and skin graft was applied 3 weeks later. Scar outcome was assessed 1 year later using the Vancouver scar scale (VSS).
Recipient site scars were stable, soft and pliable and had a VSS score of 5 1 year post-operatively.
CEA with extended mesh graft is as effective as dermal substitute integra in the management of full thickness wounds in the paediatric population. NPWT can be safely applied to CEA and extended mesh graft. Long term outcomes of CEA and extended mesh grafts are similar to scar outcomes from the use of dermal substitute and split skin grafts.

P-11

THE CONDITIONED MEDIUM OF ADIPOSE-DERIVED STEM CELLS CAN SUPPRESS BIOACTIVITY OF KELOID FIBROBLAST BY ANOTHER MECHANISM FROM EXISTING TREATMENT

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Recently, it has been reported that mesenchymal stem cells (MSC) can inhibit bioactivity of keloid fibroblasts. However, no study has investigated the influence of MSCs on the interaction between keloid fibroblasts and extracellular matrix.
We made collagen lattice model (i.e. collagen gel populated with keloid fibroblasts) to examine the interaction of the fibroblasts and extracellular matrix, and cultured them with normal medium, medium supplemented with Tranilast or conditioned medium of adipose derived MSC (MSC-CM). As a result, the shrinkage was significantly suppressed in the MSC-CM cultured group compared to the other two groups.
From the results, we conclude that MSC-CM includes some substance that can suppress bioactivity of keloid fibroblast by different mechanism from existing treatment.

P-12

UPREGULATION OF AUTOPHAGY AND GLYCOLYSIS MARKERS IN KELOID HYPOXIC-ZONE FIBROBLASTS: MORPHOLOGICAL CHARACTERISTICS AND IMPLICATIONS

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Keloid is a fibro-proliferative skin disorder with tumor-like behavior. The Warburg effect is a well-known feature of cancer cells, cancer cells tend to favor metabolism via anaerobic glycolysis even in aerobic conditions. it is also occurring in keloid. However, the pathogenesis is unknown. There are very few studies of the involvement of autophagy and related glycolytic effectors in keloidogenesis.
We examined the expression and cellular localization of autophagy proteins (LC3, pan-cathepsin), glycolytic markers (LDH, MCT1, MCT4) and the transcription factor HIF isoforms in human keloid samples using immunohistochemically analysis and double-labeling immunofluorescence methods. Based on H&E staining and expression of CD31, keloids were compartmentalized into hypoxic central and normoxic marginal zones. In central zone Vimentin-expressing fibroblasts exhibited greater autophagy than their marginal- zone counterparts, as evidenced by increased LC3 and pan-cathepsin.
LDH, MCT4 and HIF-1α were also higher in central-zone fibroblasts. Conversely, HIF-2α expression was upregulated in fibroblasts and endothelial cells of the peripheral zone, while MCT1 was expressed in both zones. In conclusion, these glycolysis markers in keloid hypoxic-zone fibroblasts may indicate a prosurvival mechanism allowing the extrusion of lactate to marginal-zone fibroblasts via metabolic coupling. This study results indicate that autophagy inhibitors and MCT4 blockers may have therapeutic implications in keloid treatment.

P-13

EFFECT OF KERATINOCYTES ON MYOFIBROBLASTS IN HYPERTROPHIC SCARS

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Purpose: During wound healing, myofibroblasts play a central role in matrix formation and wound contraction and, at the end of the healing, undergo apoptosis. Hypertrophic scarring is a pathologic condition in which myofibroblasts persist in the tissue. It has been hypothesized that abnormalities in epidermal-dermal crosstalk cause this pathology.
Methods: Therefore, in this study, we investigated whether myofibroblasts are affected by keratinocytes. Transforming growth factor beta-induced myofibroblasts (Imyo) and myofibroblasts from hypertrophic scar tissue (Hmyo) were characterized by microarray. Keratinocytes were co-cultured with myofibroblasts and quantitative PCR analysis was performed.
Results: We found that many extracellular matrix and smooth muscle cell-associated genes were up-regulated in Imyo and Hmyo respectively, suggesting that Hmyo are fully differentiated myofibroblasts and Imyo are less differentiated compared to Hmyo. Decreased collagen type 1 gene expression as shown in keratinocytes co-cultured Imyo and Hmyo and -smooth muscle actin expression in Imyo increased in the presence of keratinocytes.
Conclusion: These observations strongly suggest that keratinocytes play a role in the development of pathological fibrosis in hypertrophic scar by influencing the behavior of dermal fibroblasts and myofibroblasts. We believe that his study provides the basis for understanding the pathophysiology of hypertrophic scarring and uncover new therapeutic approaches for this dysfunction.
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P-14

CLINICAL FACTORS DETERMINING SCAR TYPE AFTER THYROIDECTOMY: A RETROSPECTIVE REVIEW OF 4202 CASES

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Cosmetically unfavorable post-thyroidectomy scar is a major concern for patients who undergo traditional thyroidectomy. Many patients question before surgery whether a personal history of keloid or hypertrophic scars (HS) may result in cosmetically unfavorable scars. However, the relationship between these clinical characteristics and scarring characteristics has not been studied yet. This study aimed to find out whether history of keloid or HS affect the outcome of post-thyroidectomy scar.
We retrospectively reviewed 4202 patients with post-thyroidectomy scar from 2009 to 2019 at Gangnam Severance Hospital. Cosmetically unfavorable post-thyroidectomy scars include bulging scars (BS) and HS and they were separately classified according to medical records and photographs. Past history of keloids and cesarean section HS along with baseline clinical characteristics were analyzed to find the causal relationship.
Among the 4202 patients, 1594 (37.9%) initially presented with HS and 665 (15.83%) with BS. The mean age of BS was 43.90 years while HS was 35.99 years (Mean age of total patients: 38.01 years). In male, 60.9% presented with HS which was significantly higher than female (36.09%) ($p < 0.05$). HS were significantly more likely to occur in patients with previous keloids ($p < 0.05$), however, there was no significant correlation between cesarean section HS and post-thyroidectomy HS.
The morphology of post-thyroidectomy scar may differ according to age and sex of the patients. Patients with previous keloids tend to develop HS, but not patients with previous cesarean section HS. Therefore, baseline clinical characteristics and history of keloid should be considered when planning thyroidectomy.

P-15

SCAR FORMATION AND PATIENT SATISFACTION AFTER THYROIDECTOMY WITH AND WITHOUT SURGICAL DRAINS

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Background: Several comparative studies have documented the outcomes of negative pressure drain use after thyroidectomy. However, these previous studies did not focus on scar formation. The aim of this study was to compare thyroidectomy outcomes with and without negative pressure drain use in terms of scar formation.
Methods: Nine hundred seventy-five patients who underwent thyroidectomy between January 2012 and December 2013, at Kosin University Gospel Hospital were enrolled in this study. Patients were assigned to one of two groups at the surgeon's discretion: the negative pressure drain group (n=515) or the no drain group (n=460). Medical records were reviewed, and the incidence and severity of scar formation were compared. We estimated patient satisfaction seven months postoperatively based on aesthetic and functional outcomes using the Patient and Observer Scar Assessment Scale.
Results: The incidence of mild scarring was higher in the no drain group, but this difference was not statistically significant (P=0.069). The incidence of severe scarring was significantly higher in the negative pressure drain group (5.83%, P<0.001). Based on the Patient and Observer Scar Assessment Scale data from 205 patients, patient satisfaction was significantly higher in the no drain group (P=0.006). Itching was reported significantly less frequently in the no drain group (P=0.034). There were no significant differences between groups with respect to pain or observer scar scale score.
Conclusions: This study suggests that not using a drain after thyroidectomy leads to high patient satisfaction and reduces the likelihood of severe scar formation.

P-16

ROLE OF CARBONIC ANHYDRASE 9 (CA9) IN KELOID PATHOGENESIS: MODULATION OF INFLAMMATION VIA HYPOXIA

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Relatively hypoxic microenvironment may generate various responses during keloid pathogenesis, such as collagen production, fibrosis, as well as migration and invasion of keloid fibroblasts. During keloid metabolism, a lot of energy or adenosine triphosphate (ATP) is needed. The energy or ATP may be produced by anaerobic glycolysis metabolism and hypoxia inducible factor (HIF)-1α and its related proteins such as glucose transporter (Glut) and carbonic anhydrase (CA) 9 are key mediators of anaerobic glycolysis. In this study, we aimed to investigate implication of HIF-1α, Glut-2 and CA9 expression in keloid pathogenesis. High expression of HIF-1α, Glut-2 and CA9 were significantly shown in keloid but not in normal skin (p<0.001, p<0.001, and p<0.001, respectively). Moreover, CA9 expression more frequently detected in keloids in proliferative phase than in stable phase (p=0.008), increased in keloids with symptoms than those without symptoms (p<0.005). The influence of CA9 expression on the biological behavior of the keloid fibroblasts (KFs) was investigated using CA9 overexpressed KFs in vitro. The proliferative and invasion abilities of CA9 overexpressed KFs were significantly lower than those control cells (p<0.001). There was no significant difference in collagen I and III production (p<0.001). Microarray and quantitative real time PCR analysis showed that CA9 overexpressed KFs showed increased expression of various inflammatory cytokines and chemokines, such as interleukin (IL)-6, CXCL-8, CXCL-10 and CXCL-11. As an endpoint of hypoxia-glycolysis-acidosis system in keloid, CA9 expression may be involved in keloid pathogenesis via control of inflammatory cytokines and chemokines, therefore, can be a possible target in keloid therapy.

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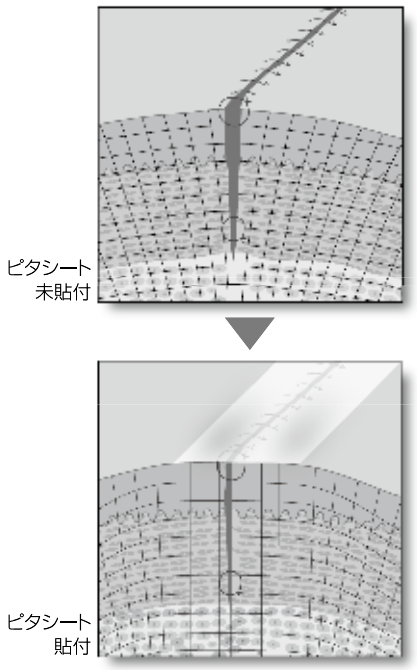

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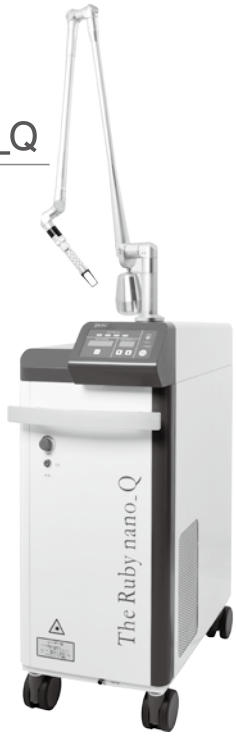

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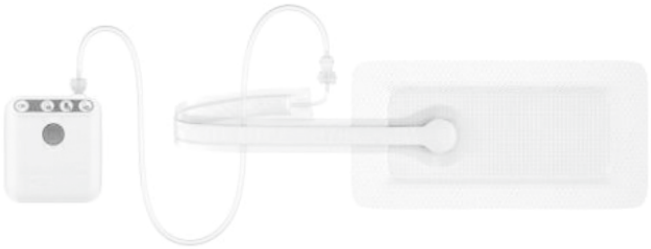

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