The Global Clinical Reseach In the Perspective of Diabetic Foot

Why does Plastic Surgeon do?

What shall we do?

Dept. of Plastic and Reconstructive Surgery

Saga University Hospital

Saga, Japan

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PRS in Helsinki, Toolo hospital (5th June,2015)

The Thema today

- **Diabetic Foot (10ms)**
- **My Curriculum Vitae. in Plastic Surgery through 28 ys (5ms)**
- **Diabetic Foot: How about the Global Collaboration reseach in Saga university and Helsinki university (5ms)**

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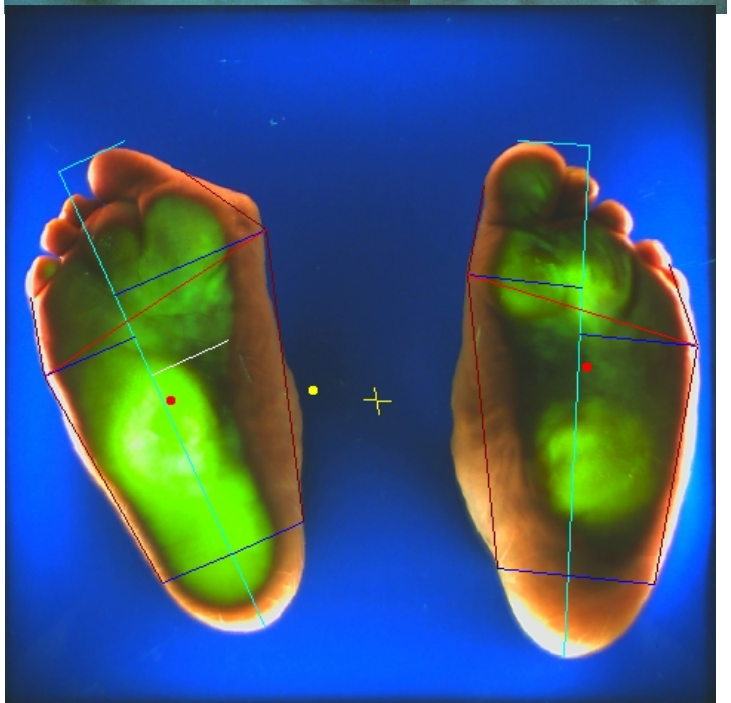
Jean-Martin Charcot（1825 –1893 ）

the Napoleon of the neuroses

http://en.wikipedia.org/wiki/Jean-Martin_Charcot

Charcot Foot:Charcot neuroarthropathy



The pathophysiology of (CN) is still incompletely understood, although main etiological components have been identified. The cornerstone of treatment of acute CN is immediate effective offloading, typically with total contact casting, and reduction in weight-bearing.

The global burden of diabetic foot disease

Andrew J M Boulton, Loretta Vileikyte, Gunnel Ragnarson-Tennvall, Jan Apelqvist

Lancet 2005; 366: 1719–24

	Year	n	Prevalence		Incidence	
			Ulcers	Amputations	Ulcers	Amputations
Population (community) based studies						
UK[15]	2002	9710	1·7	1·3	2·2	..
Greece[16]	2002	821	4·8	..	..	..
Netherlands[17]	2002	665	..	..	2·1	0·6
Slovakia[18]	1997	1205	2·5	..	0·6	0·6
USA[19]	1999	8965	..	..	1·9	0·3
Clinic-based studies						
Algeria[20]	1998	865	11·9	6·7	..	..
India[21]	1998	11300	3·6	..	..	..

Table: **Epidemiology of foot ulceration and amputations by country**

The global burden of diabetic foot disease

Andrew J M Boulton, Loretta Vileikyte, Gunnel Ragnarson-Tennvall, Jan Apelqvist

Lancet 2005; 366: 1719–24

Department of Medicine, University of Manchester, Manchester, UK

Asia

In view of the vast population of this continent, data about diabetic foot problems are sparse. The International Working Group on the diabetic foot has reported that five specialist foot-care clinics exist in China (population 1287 million).[4] There are no podiatry services in China and amputations remain common: interest in the diabetic foot is now increasing and some centres have established multidisciplinary teams.[30] India has more people with diabetes than any other country,[1] and foot problems and amputations remain very common.[4] As in other developing countries, foot ulceration presents late and is most frequently associated with neuropathy and gross infection.[9,21,31] Barefoot gait is common and social and cultural beliefs can lead patients to seek help from traditional healers or village elders.

Other Asian countries with historical links to Europe have benefited from educational and training visits by overseas experts. Thus, for example, teams of podiatrists, surgeons, and diabetologists from the Netherlands have visited Indonesia to assist with diabetic foot care in Jakarta.

How is Diabetic foot disease in Japan !!

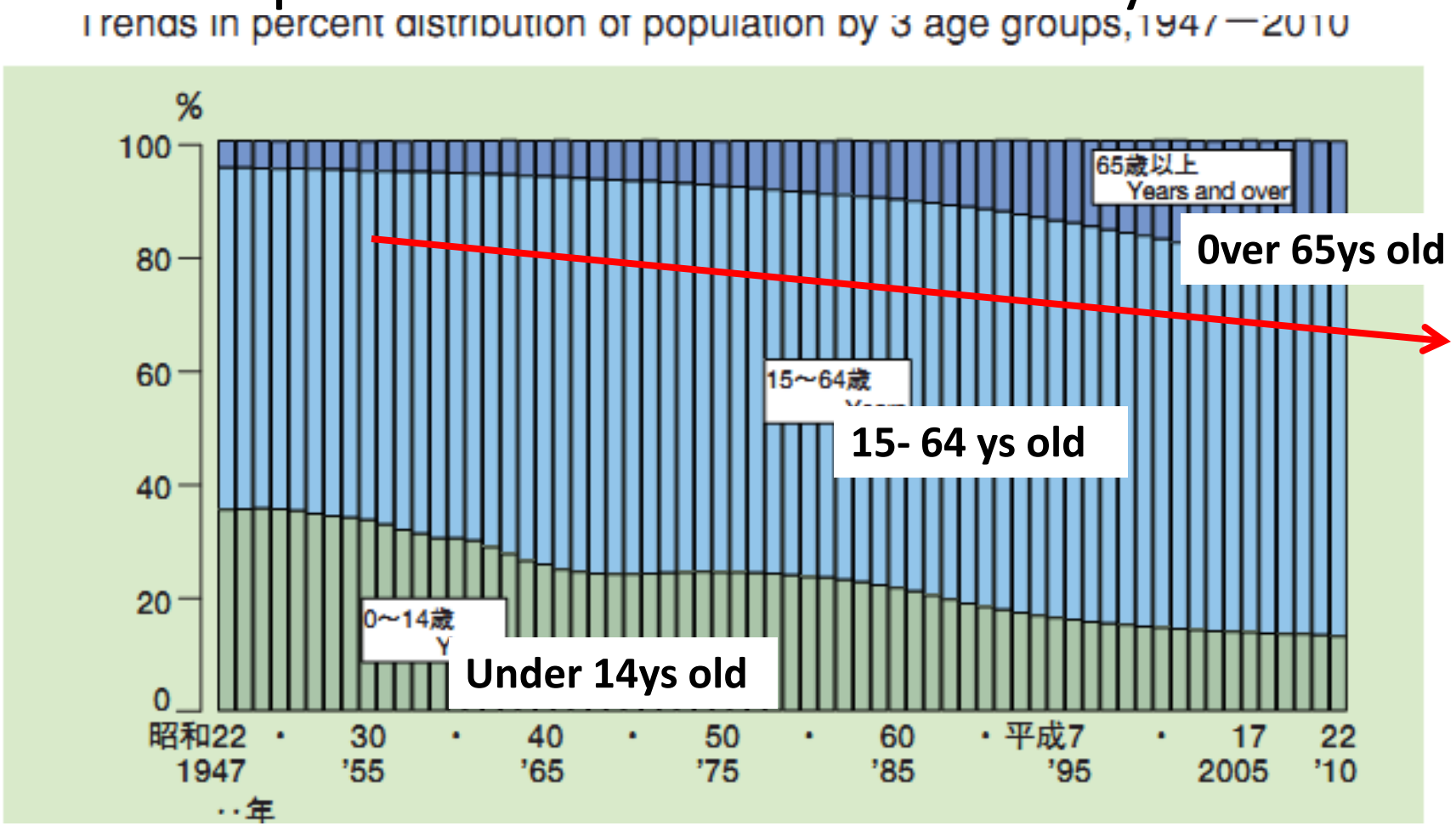
Very famous singer (Saga in Japan)who affected by diabetic foot disease

And he miss his legs , dead due to affected cardiac infarction in 2002.

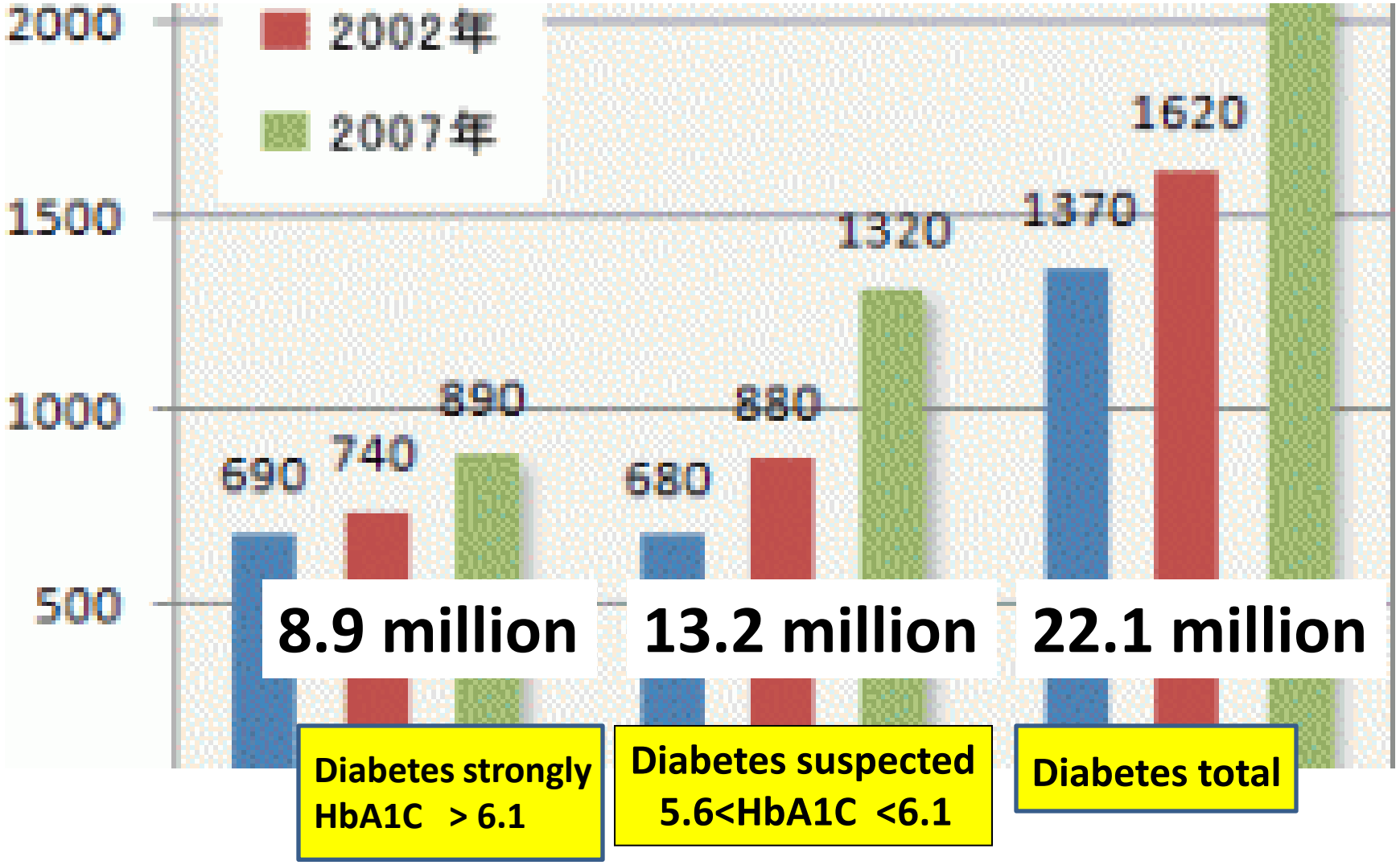
Japan (2010)

Population **128 milion**

Population ratio :older than 65 years **23%**



Diabetes report of the Ministry of Health, Labour and Welfare in Japan , 2007



In Japan : developed country in Asia

- Population 128 million (2010)
- Diabetes

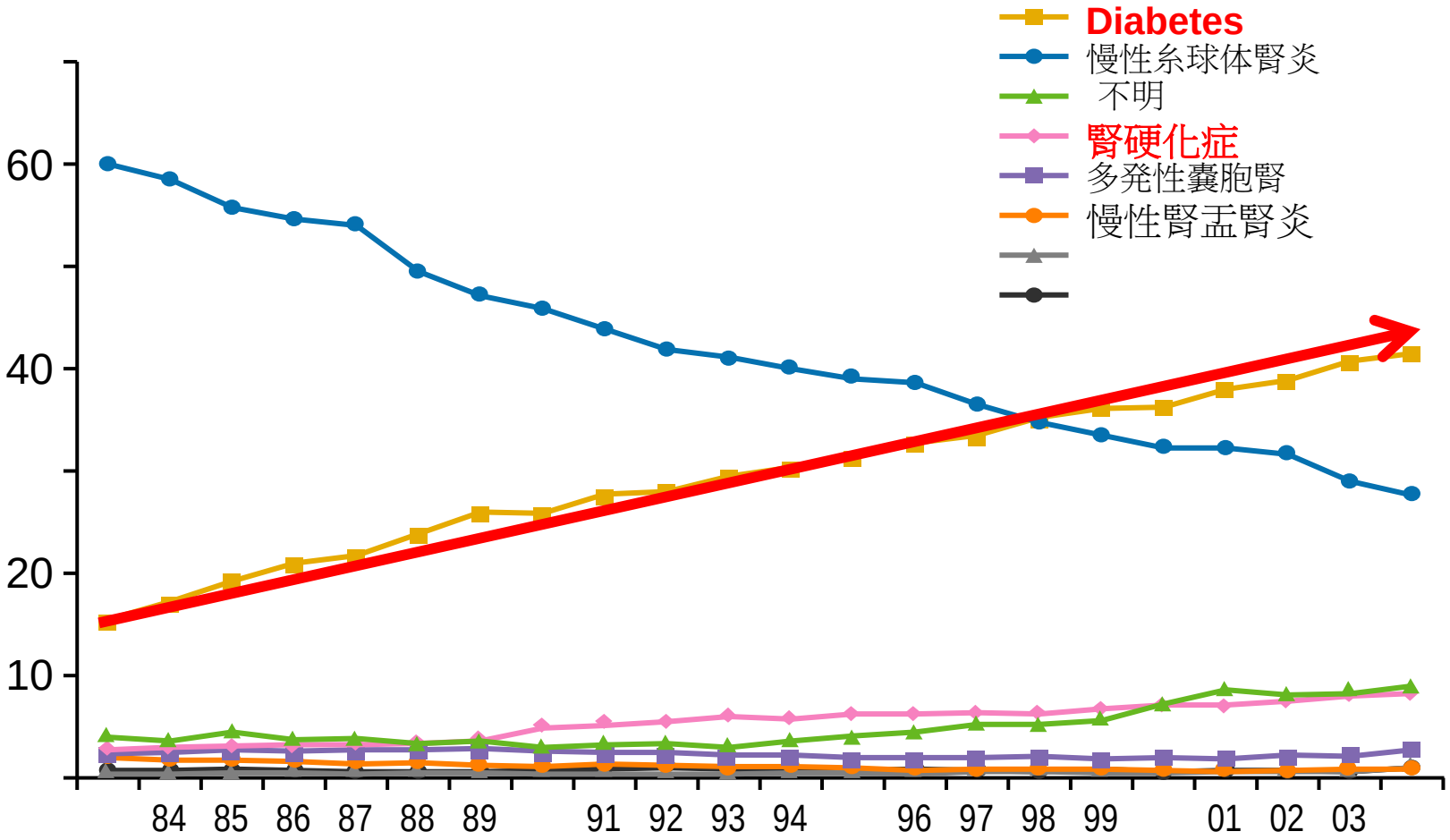
patients 22.1 million (22.1/128=17%)

8.9milliom (strongly)＋ 13.2million (suspected)

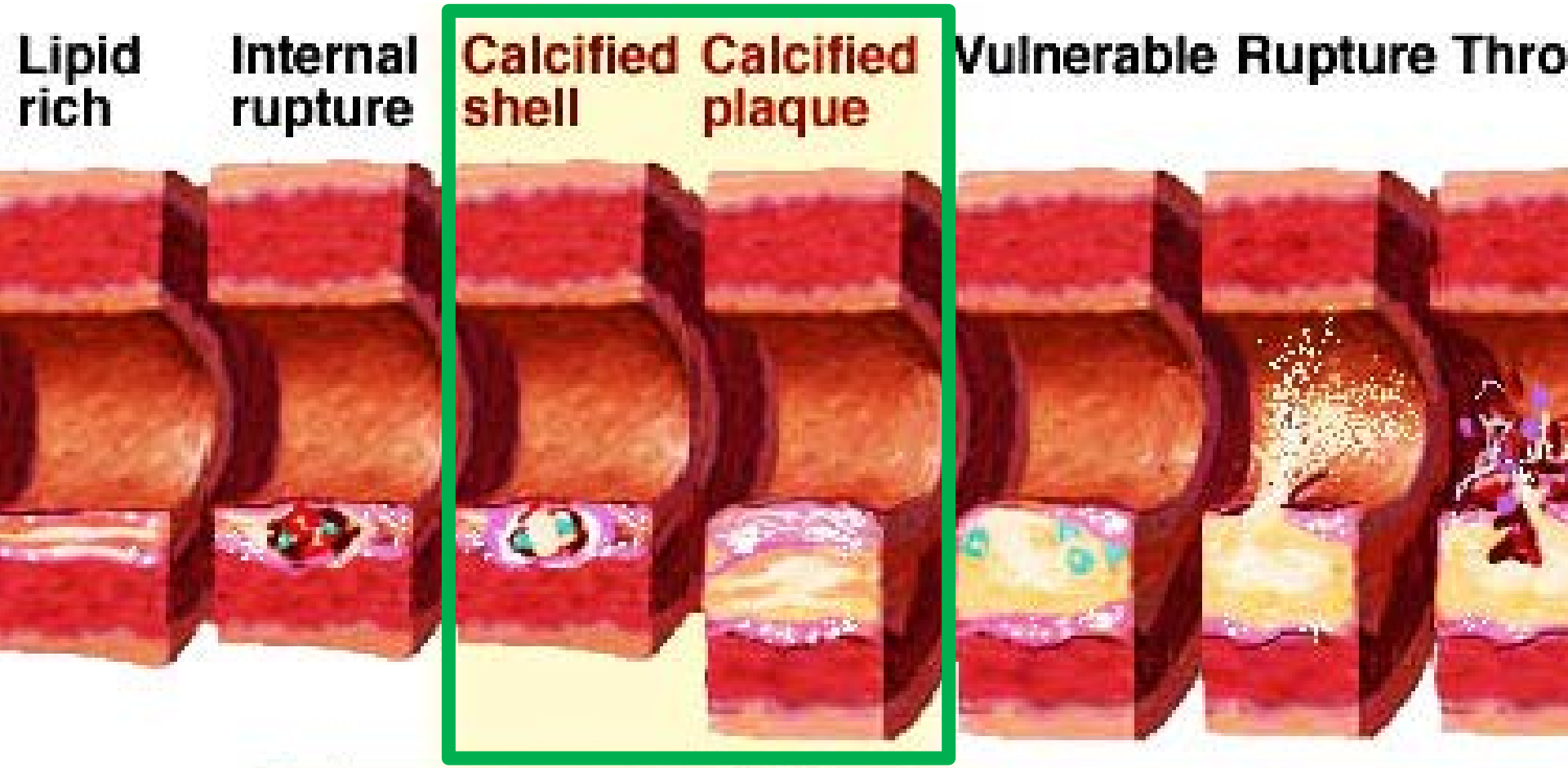
33% over 40years old

The population ratio of patients on hemodialysis with diabetes is increasing more every year.

Over 45%



The arteries in such patients are changed to Moenckeberg arteriosclerosis and calcification due to hemodialysis.

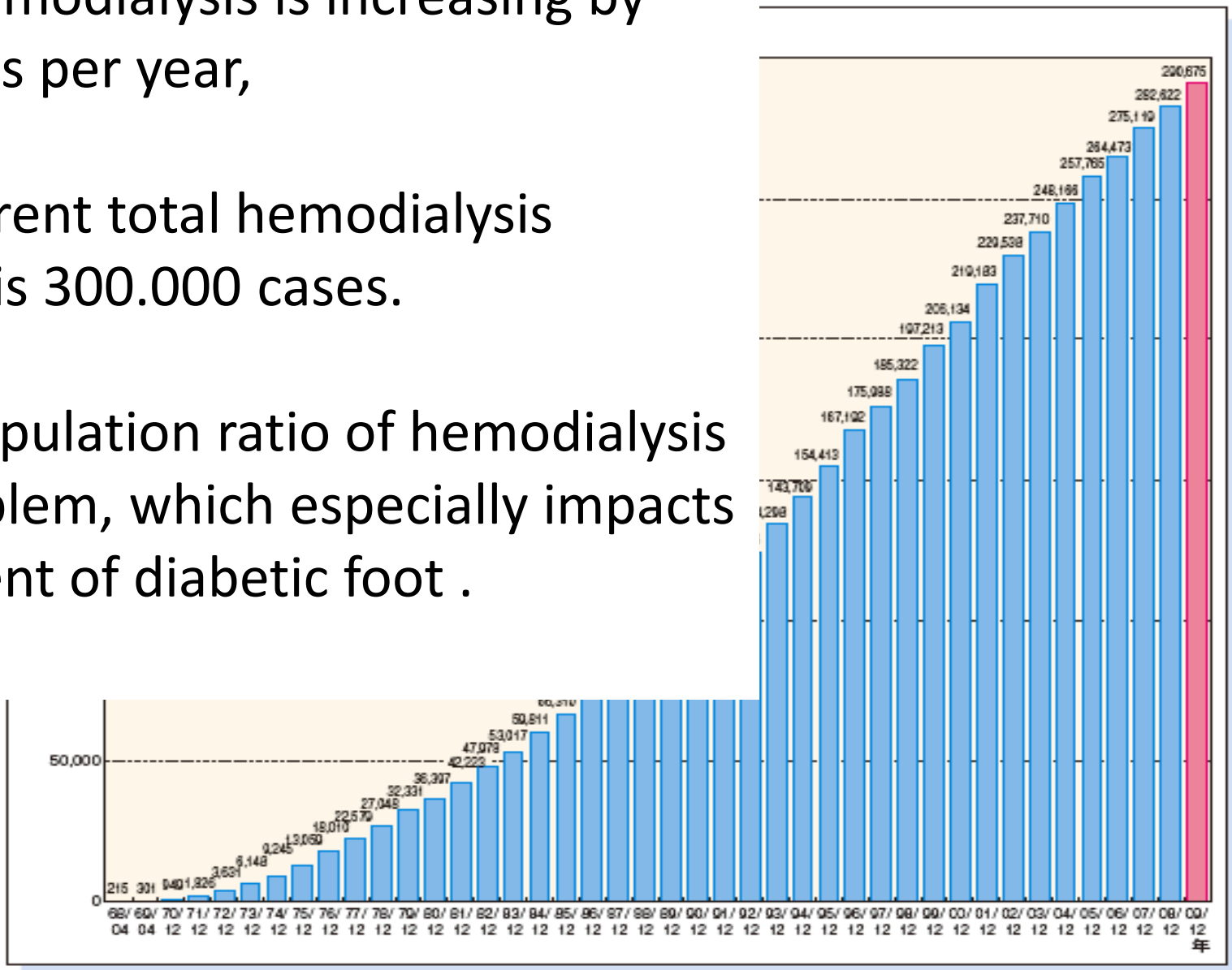


Transitional change of hemodialysis cases

In Japan, hemodialysis is increasing by 10.000 cases per year,

and the current total hemodialysis population is 300.000 cases.

The high population ratio of hemodialysis is a big problem, which especially impacts the treatment of diabetic foot .



In Japan : developed country in Asia

- Complication rate in diabetes patients (1996)

  Cardiac C.R 6.8% (Cardiac infarction 2.1% Angina Pectoris 4.7%)

  Cerebral C.R 5.7%

  gangrene and/or ulcer 2% Amputation 0.6%

Kuzuya T,Akanuma Y,Akazawa Y et al:Prevalence of chronic complication in Japanese diabetic patients. Diabet Res Clin Prac 24 suppl,s159-164,**1996**

Now in Japan

Complication Rate(in diabetes) &No.

gangrene and/or ulcer 2%

> 178,000 cases

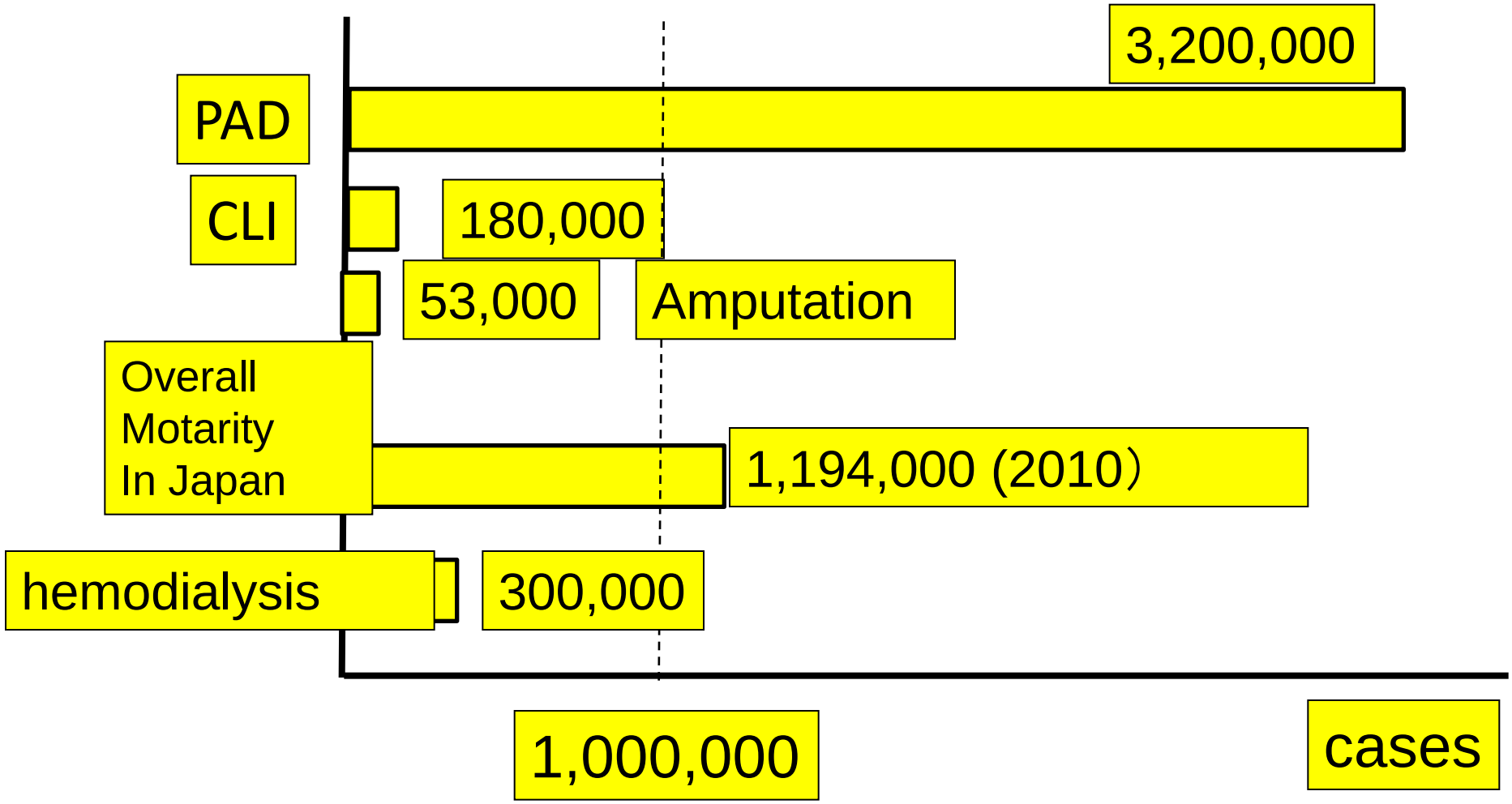
Amputation 0.6 %

> 53,400 cases

Summary

Estimation of CLI and PAD populations in Japan

This slide was provided from Professor Ichioka

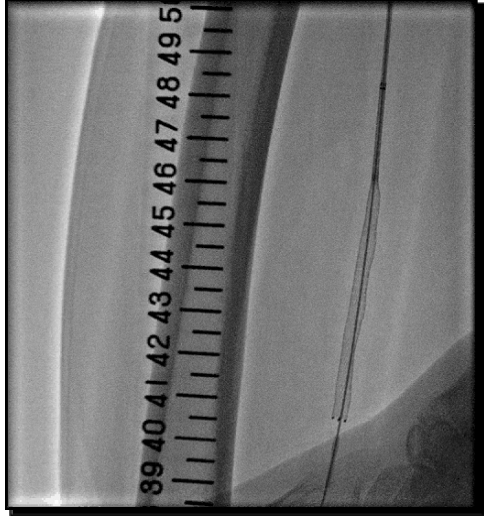


Summary

The number of CLI patients is increasing every year. There are two main reasons for this:

1.In 2011, the population ratio older than 65 years was about 25% of the total Japanese population, making Japan a “super-aging” society.

2.The population of patients with diabetes and end stage renal disease (ESRD) is increasing every year.



As a result,
the stenotic area of the artery is difficult to treat by re-vascularization procedures, such as endovascular treatment and bypass surgery.

Japanese CLI cases tend to tougher and more severe than CLI cases in Western countries.

Japanese body style

Difference body style in European and East-asian.

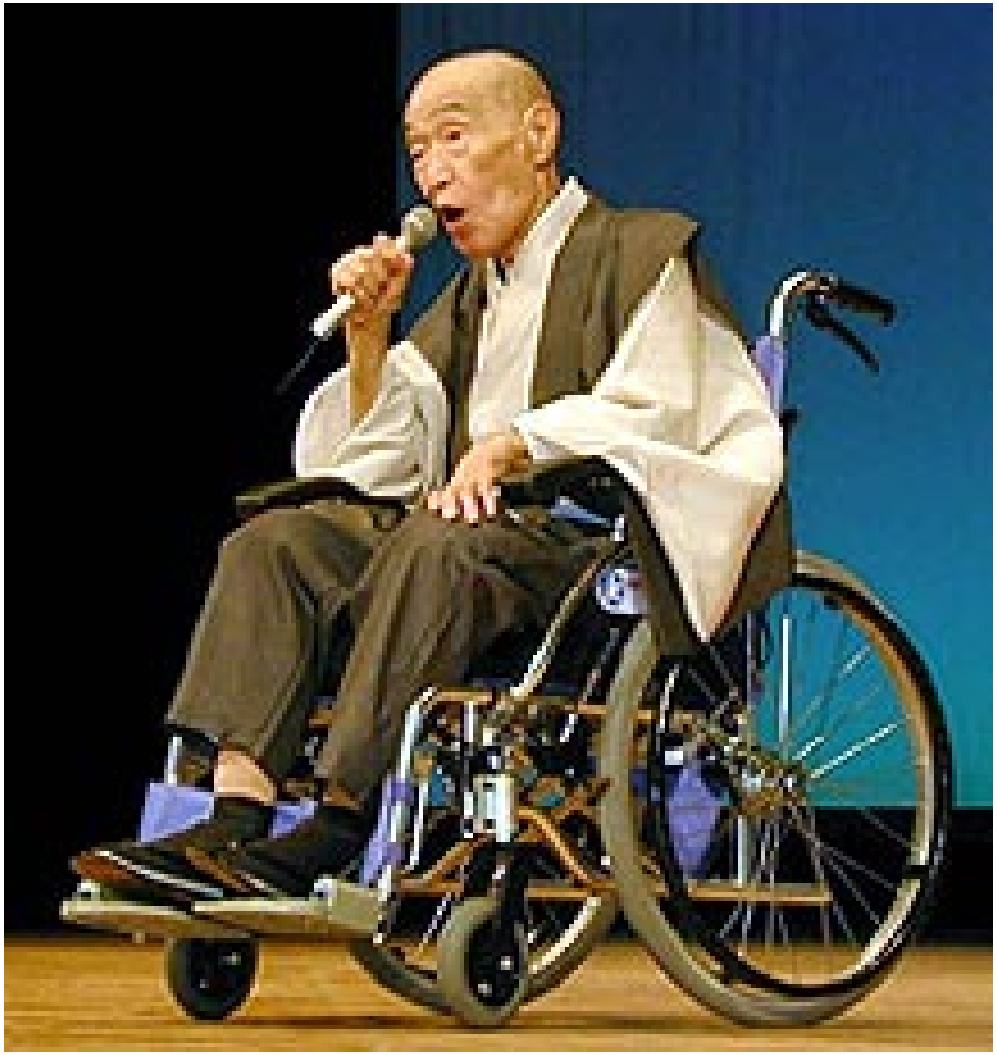
Meta-analysis of genome-wide association studies identifies eight new loci for type 2 diabetes in east Asians

Yoon Shin Cho et al

NATURE GENETICS VOLUME 44 | NUMBER 1 | JANUARY 2012

and east Asian populations. In east Asians, the rates of diabetes are often higher at lower average body mass indices (BMIs)[18], suggesting that some different pathways may be involved in pathogenesis of T2D in east Asians and Europeans.

We conducted a three-stage genetic study to identify susceptibility loci for type 2 diabetes (T2D) in east Asian populations. We followed our stage 1 meta-analysis of eight T2D genome-wide association studies (6,952 cases with T2D and 11,865 controls) with a stage 2 *in silico* replication analysis (5,843 cases and 4,574 controls) and a stage 3 *de novo* replication analysis (12,284 cases and 13,172 controls).



Very famous DM foot Singer was also skinny , and lost his legs dead due to affected cardiac infarction in 2002.

Multi-disciplinary treatment for CLI and Diabetic foot started from 2003
in Japan.

Limb salvage team is
getting more
anywhere in Japan.

Now

My team from 2006

A SHE: Alliance For Salvaging and Healing Extremities in Saga, Japan

Kyushu island

Head of ASHE project: Uemura T

Limb Salvage Team :ASHE Conference started in Saga from 2010.

- 8:15-9:00 morning Every Thursday
- Attending person

Plastic Surgeon

Cardio-vascular surgeon

Vascular physician

Diabetic physician

Radiologist

and Shoe fitter

Our limb preserving clinic

Orthopedic technician makes therapeutic sandals and two type of shoes; inner and outer shoe in Japanese life style.

We record the standing condition ; static and dynamic condition . And we have organize **Diabetic foot shoe project in the Japanese life style** with shoe Japanese company ;Asahi corporation, Japan from 2012.

The Thema today

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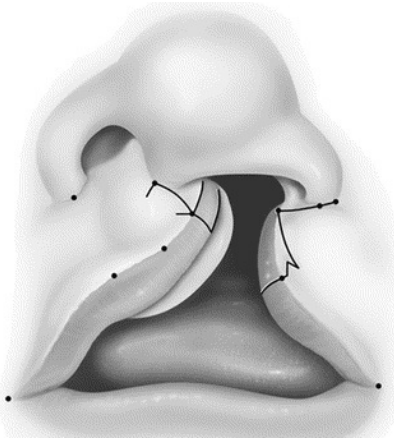
- Diabetic Foot: How about the Global Collaboration reseach in Saga university and Helsinki university (5ms)

RESIDENCIES in Japan and STUDY Oversea

- 1987-1989 Resident of Surgery, Japanese Red Cross Hospital, Tokyo Japan
- 1989-2000 Department of Plastic and Reconstructive Surgery, Showa Univers Tokyo Japan(T.Onizuka)
- 1993-1994 Australian Cra[illegible] Unit Adelaide Australia (D. J. D[illegible]

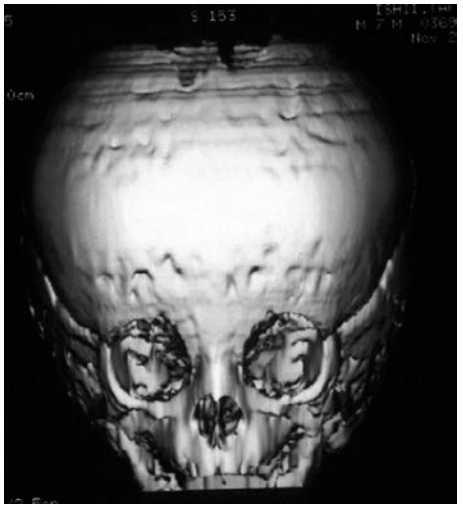


ACADEMIC APPONTMENTS

- 2000-2001 Instructor in Division of Plastic and Reconstructive Surgery, Saga University Hospital
- 2001-2008 Assistant Professor of in Division of Plastic and Reconstructive Surgery, Saga University Hospital
- 2008- 2009 Associated Professor of Saga University (Plastic and Reconstructive Surgery)
- 2009 to now Head /Professor of Plastic and Reconstructive Surgery, Saga University Hospital
- 2015(April-October) Sabbatical in Helsinki

My Academic Work

- Craniofacial Surgery
- Reconstructive plastic surgery
- Lim Preserving Surgery

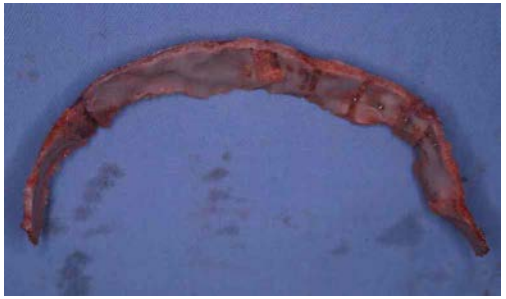


Surgical Program for Craniosynostosis Using Three-Dimensional Solid Model, Combined With Autologous Blood Transfusion in a Japanese Craniofacial Unit

Tetsuji Uemura, MD*
Takashi Hayashi, MD†
Yoshihiko Furukawa, MD†
Nobuyuki Mitsukawa, MD‡
Atsushige Yoshikawa, MD‡
Takao Jinnai, MD*

Saga, Japan
Fukuoka, Japan


ST.MARYS HOSPI
NAGAIWA.M
threshold160




B
A
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A Case of Improved Obstructive Sleep Apnea by Distraction Osteogenesis for Midface Hypoplasia of an Infantile Crouzon's Syndrome

Tetsuji Uemura, MD*
Takashi Hayashi, MD‡
Kaneshige Satoh, MD§
Nobuyuki Mitsukawa, MD†
Atsushige Yoshikawa, MD†
Takao Jinnnai, MD*
Yoshiaki Hosaka, MD§

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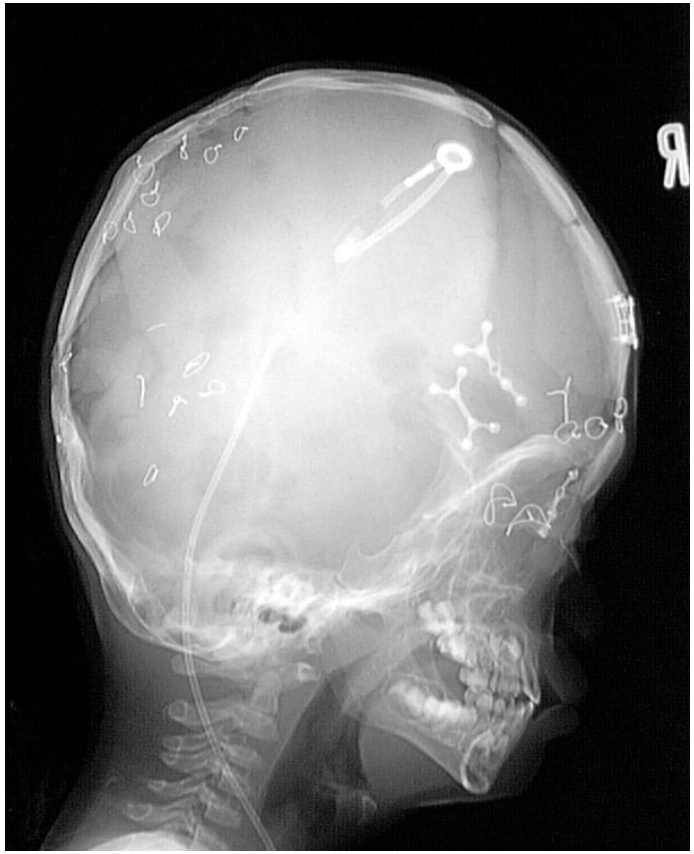
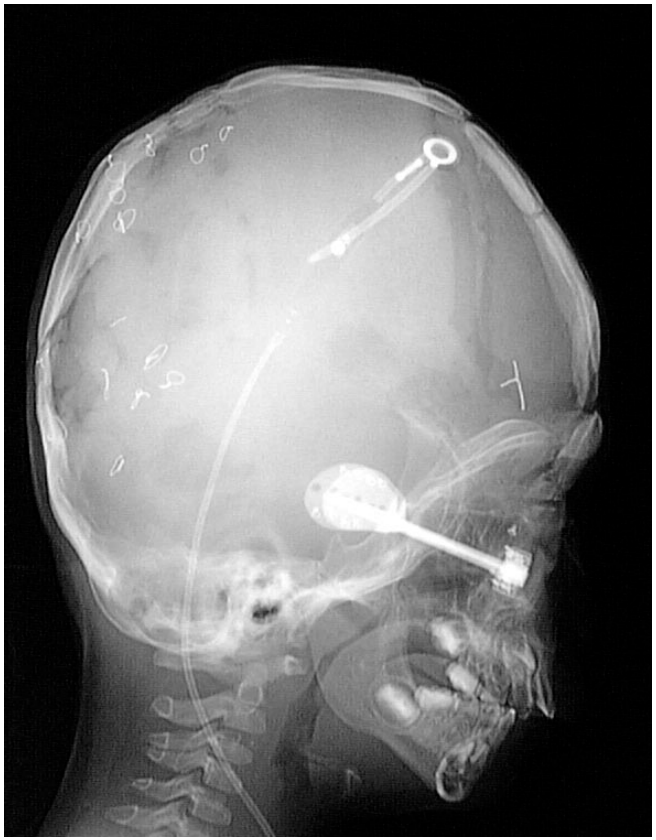
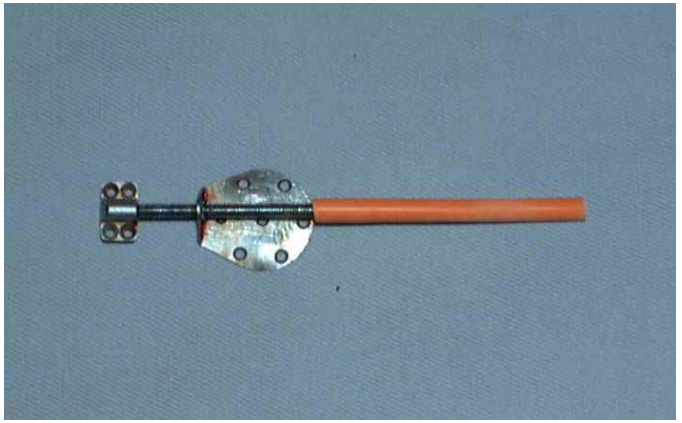
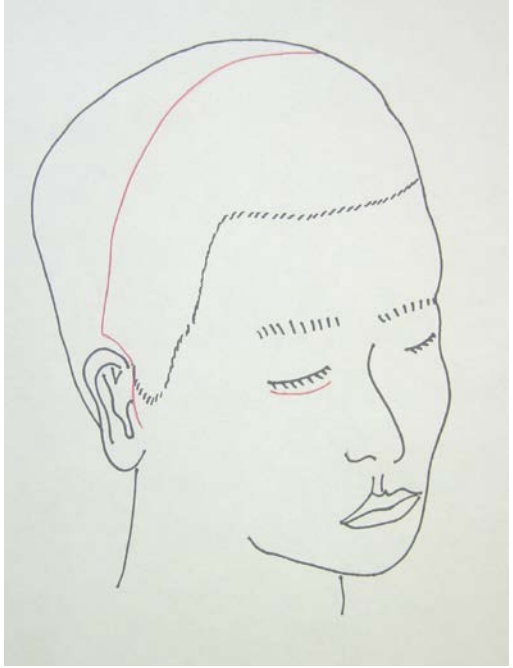
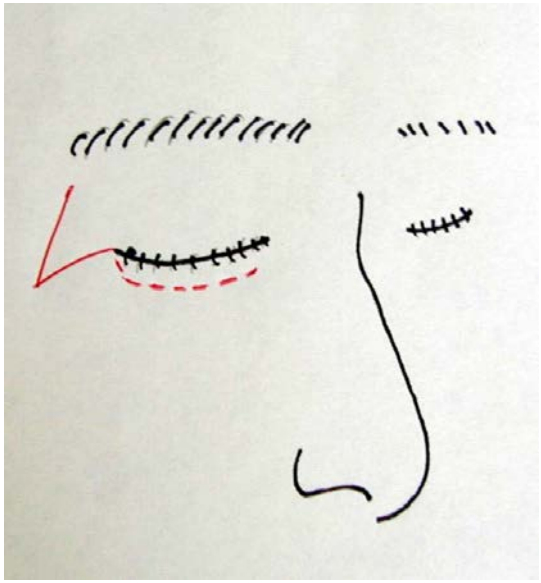
Kurume, Japan
Tokyo, Japan









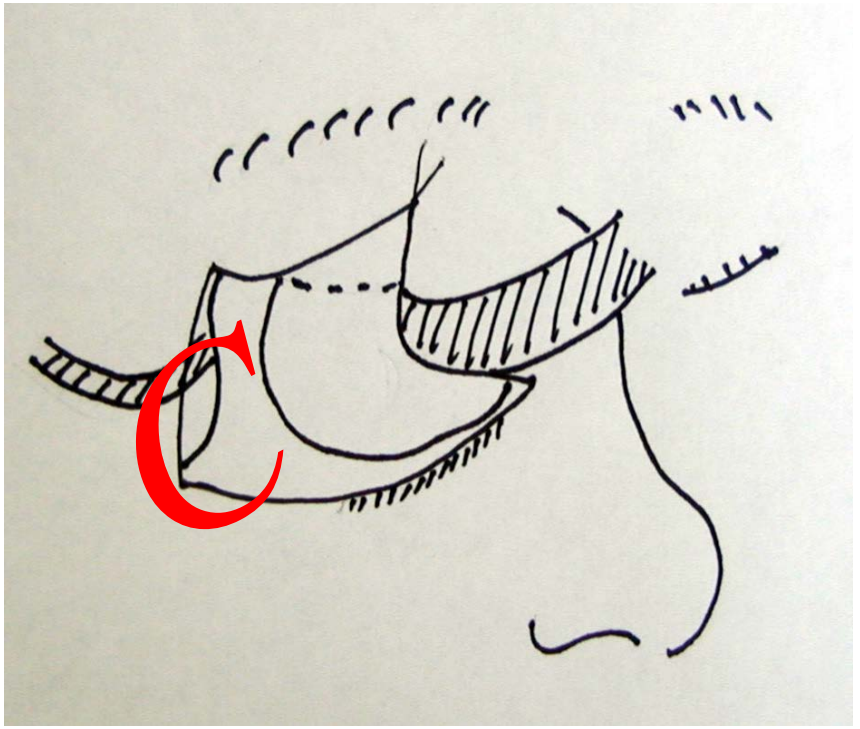


C-Shape Extended Transconjunctival Approach for the Exposure and Osteotomy of Traumatic Orbitozygomaticomaxillary Deformities

Tetsuji Uemura, MD*
Takao Jinnai, MD*
Toshiya Yokoyama, MD†
Nobuyuki Mitsukawa, MD†
Atsushige Yoshikawa, MD†

Fukuoka, Japan
Saga, Japan

C-shape Extended Transconjunctival approach



Special Topics Humanitarian Cleft Lip/Palate Surgeries in AQ1 Buddhist Thailand and Neighboring Countries: 21 Years of Volunteer Mission

Tetsuji Uemura, MD, Piyoros Preeyanont, MD, PhD,† and Sopridee Udnoon, DDS‡*

Objective: This study evaluates surgeries done on patients with cleft lip and/or palate in Thailand and its neighboring countries from 1988 to 2008. This 21-year-long volunteer surgical mission was spon-

Key Words: Cleft lip, cleft palate, Onizuka modified method, cheiloplasty, surgical program, Thailand

(*J Craniofac Surg* 2015;26: 00–00)

treatment site. Logistic expenses at the site had to be covered as well.

In an analysis of our missions, a total of 6832 cases were medically checked with a per-site number of patients from 30 to 60. In all, 47% of the patients received treatment for CL, 32% for CP, and 21% for CL/P. The ages of those patients ranged from 93 days to 67 years

FIGURE 4. Multidisciplinary approach is being taker or complete primary cleft lip. CL/P. Specialists provide wound care and nutritional ery.

FIGURE 3. Members of a local DKF mission: volunteer Japanese plastic surgeons and white volunteers at a mission site in rural Thailand.

Superior Epigastric Artery Perforator Flap: Preliminary Report

Tetsuji Uemura, M.D.
Saga, Japan

Perforator flaps for flap-based treatment have been reported since the end of the 1980s.[1–3] Blood circulation in the skin and subcutaneous tissue above the fascia and muscle is believed to be determined by an angiosome of individual perforators, and the importance of skin territory has been recognized.

The first perforator flap to be examined was the costal cartilage of the sixth rib, where the vessel bifurcates and gives rise to the musculophrenic artery.[10] After bifurcation of the internal mammary artery into the musculophrenic branch, the superior epigastric artery descending along the rectus abdominis muscle penetrates the muscle caudal to the xiphoid process and reaches the skin.

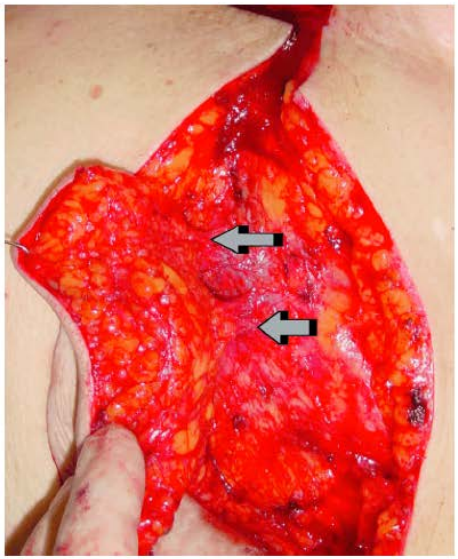
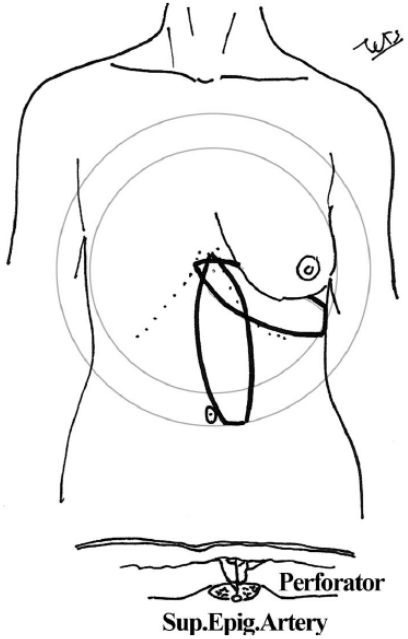


Fig. 6. Case 2. Two perforators (*arrows*) on the proximal side of the flap below the costal margin.



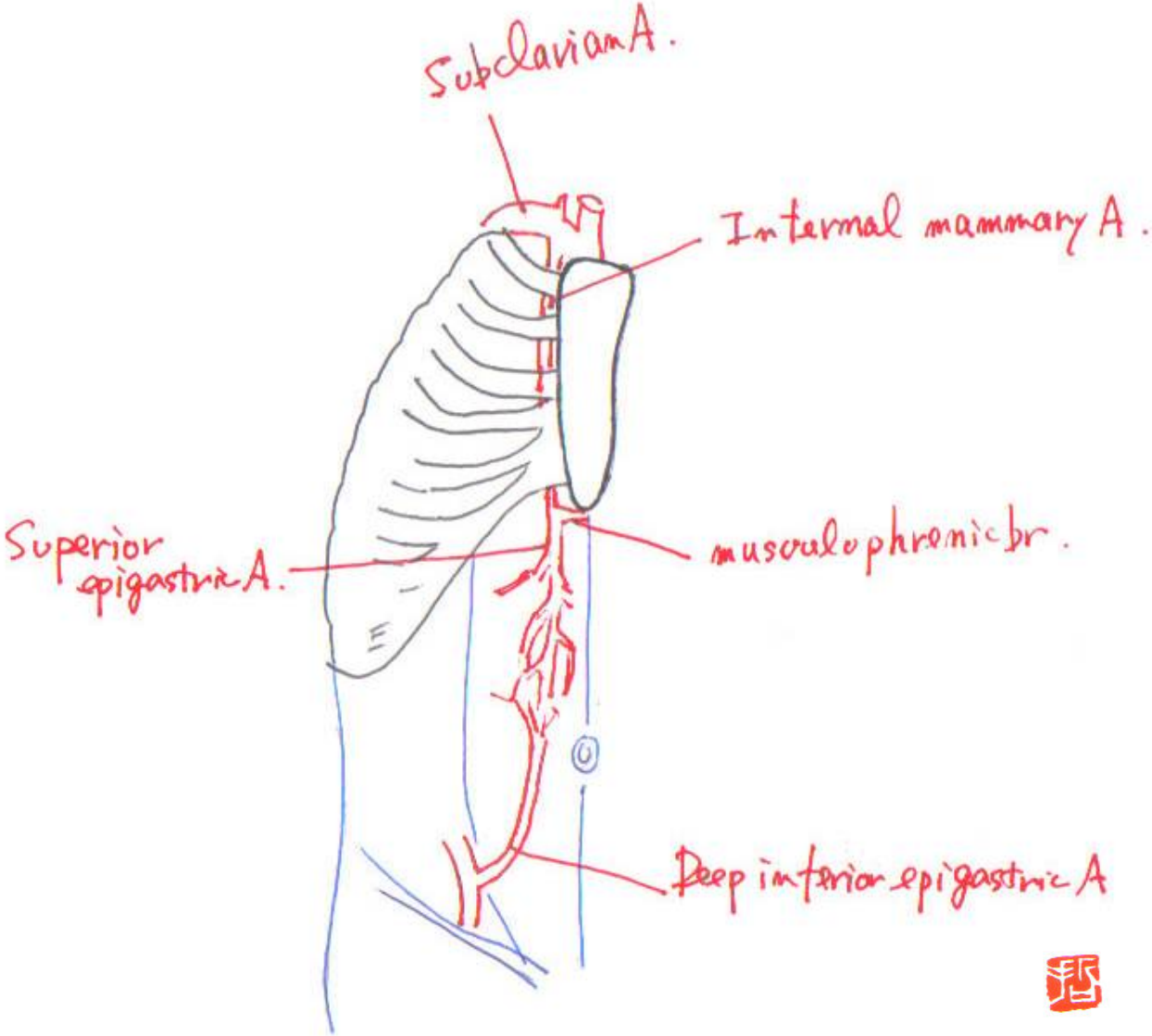

Subclavian A.
Internal mammary A.
Superior epigastric A.
musculophrenic br.
Deep inferior epigastric A

Fig. 1

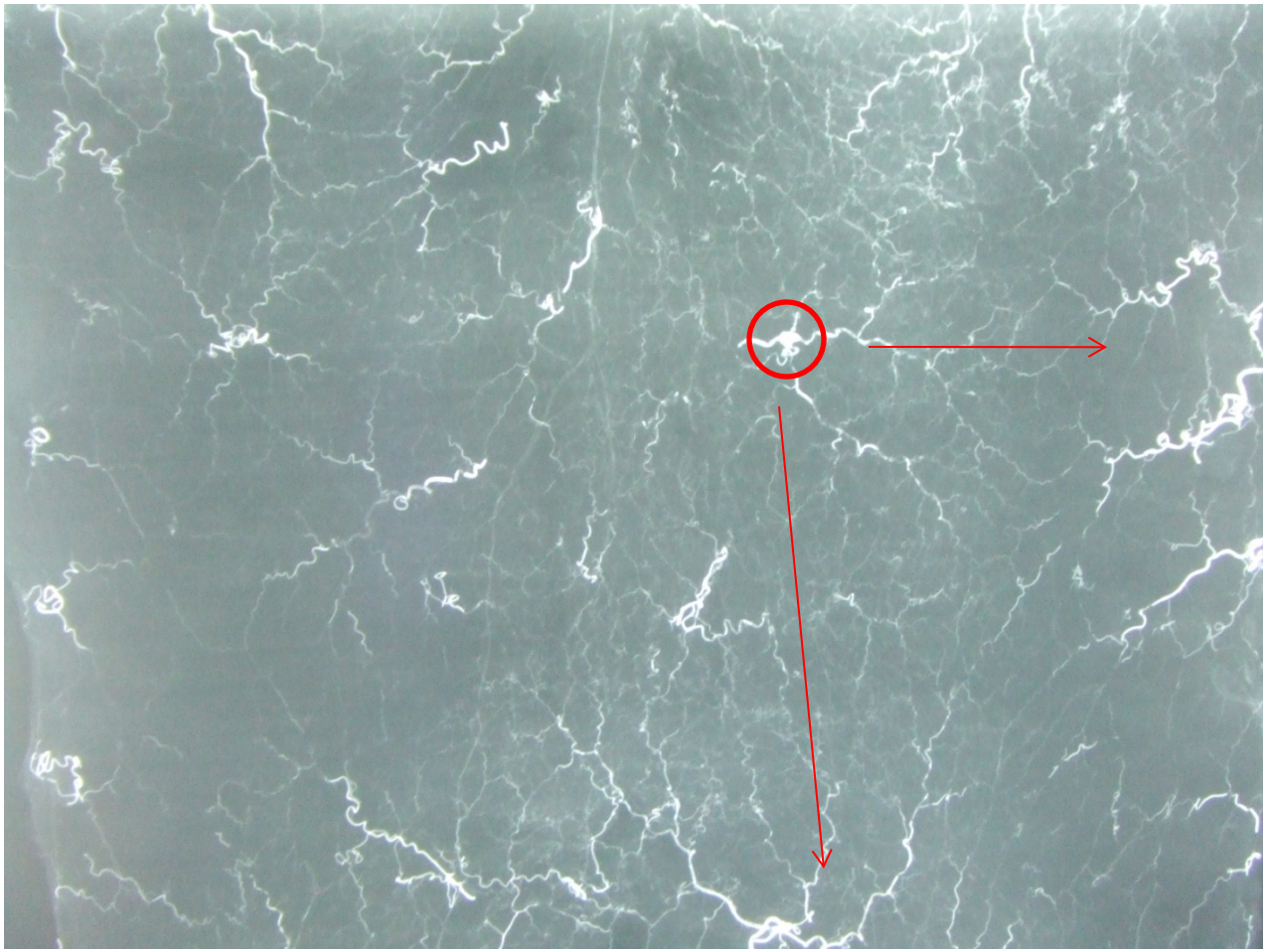
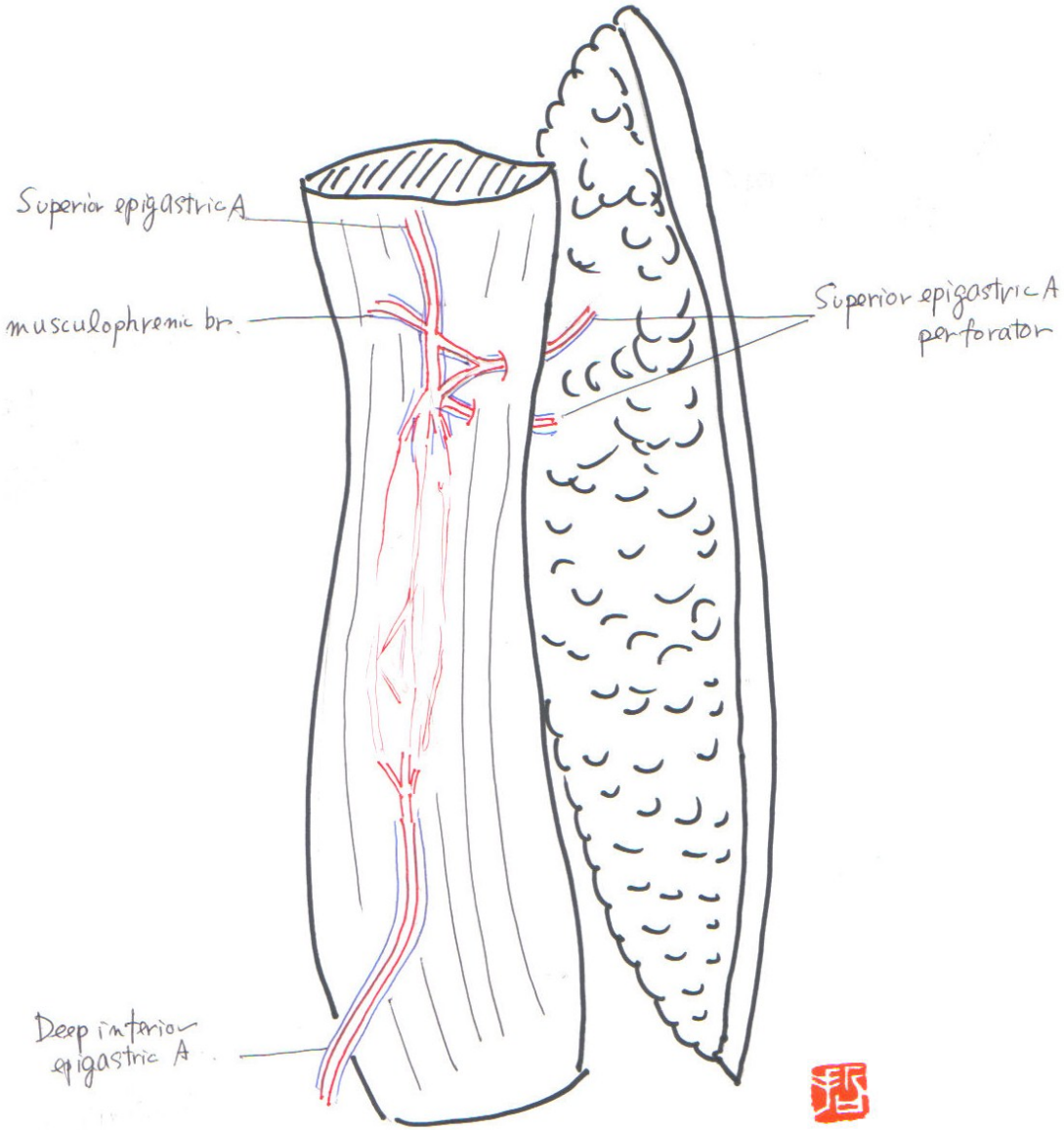
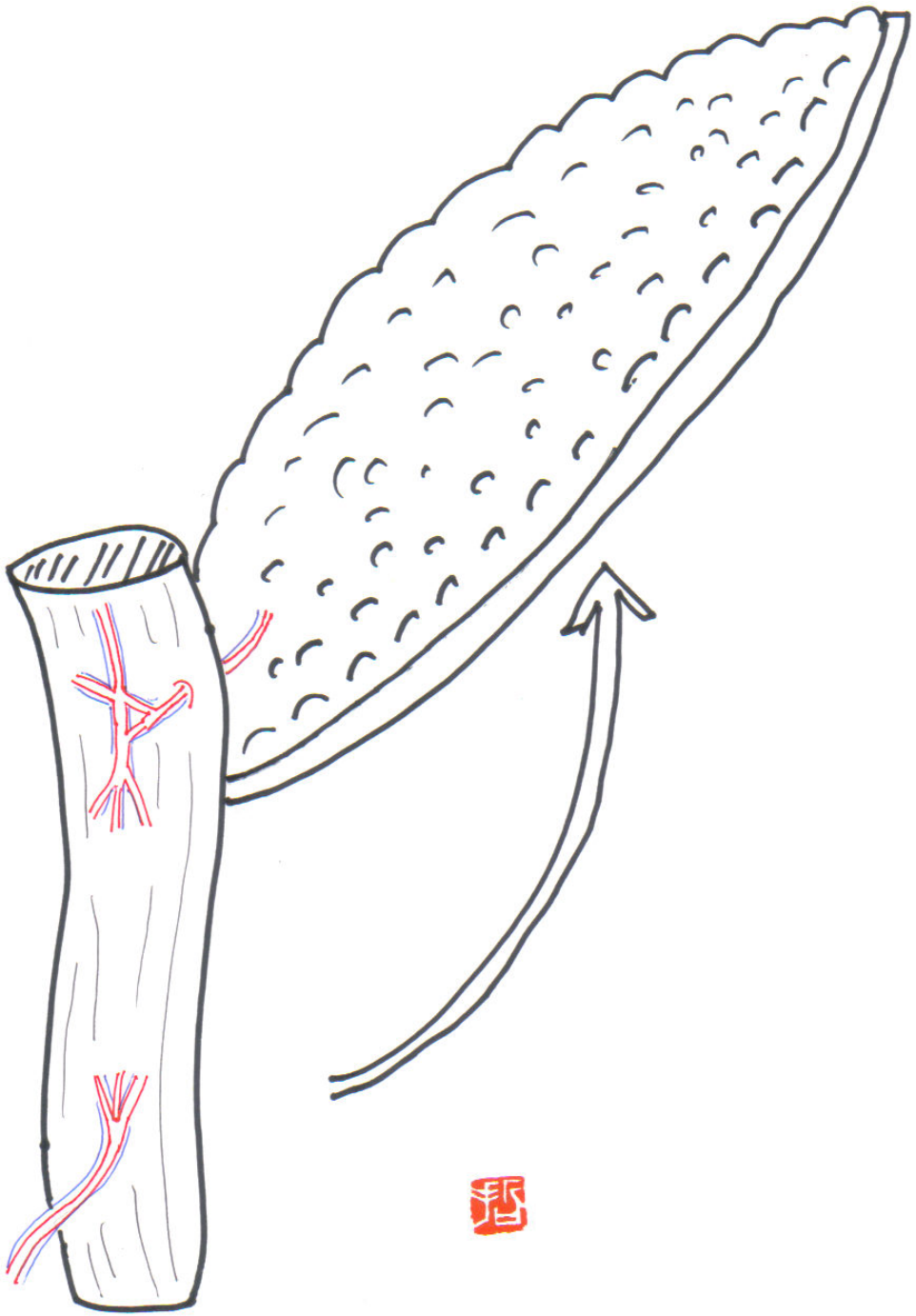
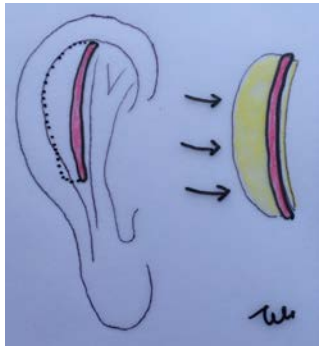


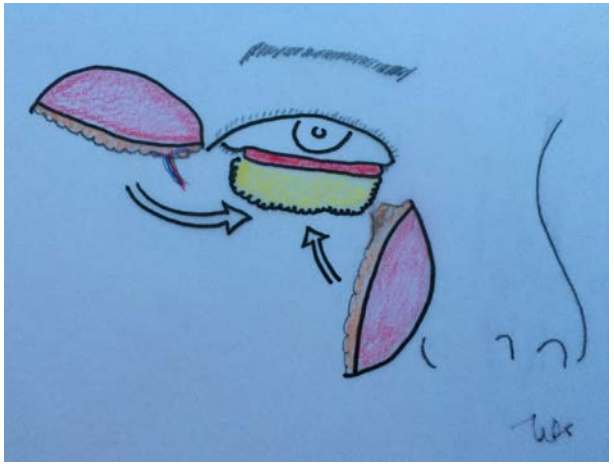
Fig.3

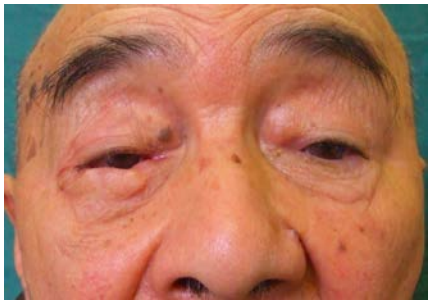

Superia epigastric A
musculophrenic br.
Superior epigastric A perforator
Deep inferior epigastric A



Esthetic Total Reconstruction of Lower Eyelid using Scapha Cartilage Graft on Vascularized Propeller Flap（**submit to PRS now**）








腫瘍切除
上眼瞼悪性腫瘍
切除後の再建術

The Thema today

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Prevention and Management of Foot Problems in Diabetes Guidance Documents and Recommendations

Summary for Daily Practice

Guidance Documents

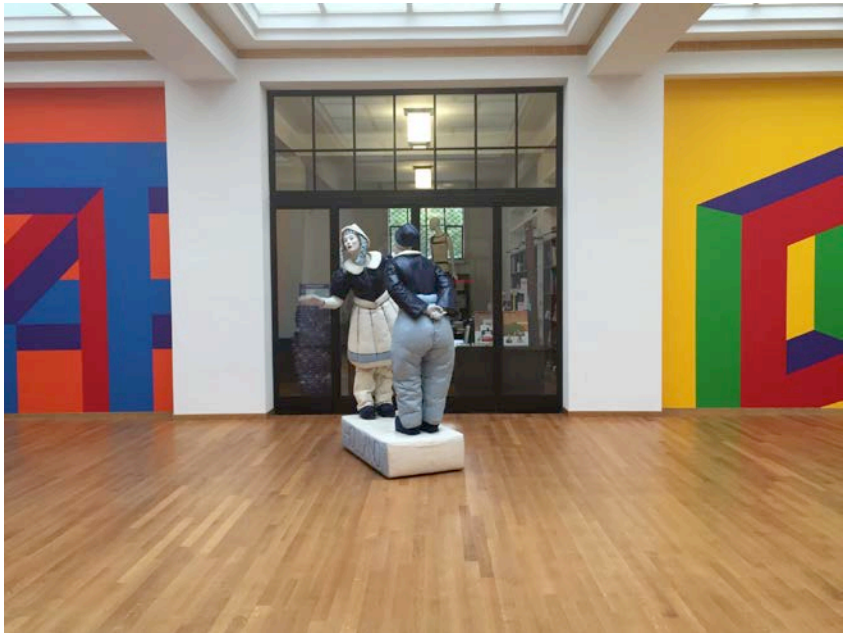
Definitions and Criteria

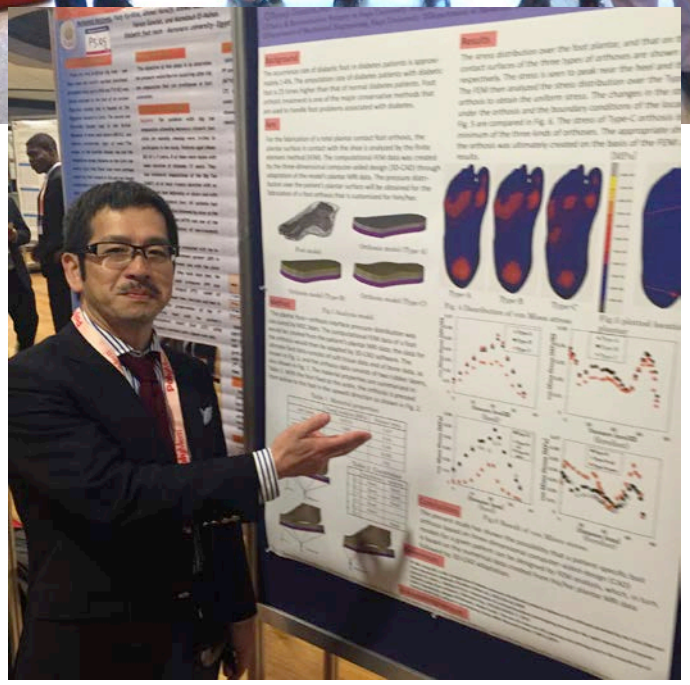
GUIDANCE ON THE DIABETIC FOOT

The 2015 challenge of the International Working Group on the Diabetic Foot

An interactive program on the **International Consensus on the Diabetic Foot 2015**
Including **Summary for Daily Practice**
a **Series of Guidance Documents** and **Definitions and Criteria**


Welcome to ISDF 2015
Registration and Information
Welcome to ISDF 2015
Faculty & (Invited) Speakers
Welcome to ISDF 2015






Vesa Juutilainen
This is The Hague

13 Recommendations(IWGDF 2015)

1. To identify a person with diabetes at risk for foot ulceration, examine the feet annually to seek evidence for signs or symptoms of peripheral neuropathy and peripheral artery disease.
   (GRADE recommendation: strong;Quality of evidence: low)

2. In a person with diabetes who has peripheral neuropathy, screen for: a history of foot ulceration or lower-extremity amputation; peripheral artery disease; foot deformity; pre-ulcerative signs on the foot; poor foot hygiene; and ill-fitting or inadequate footwear.
(Strong; Low)

3. Treat any pre-ulcerative sign on the foot of a patient with diabetes. This includes: removing callus; protecting blisters and draining when necessary; treating ingrown or thickened toe nails; treating haemorrhage when necessary; and prescribing antifungal treatment for fungal infections. (Strong; Low)

4. To protect their feet, instruct an at-risk patient with diabetes not to walk barefoot, in socks, or in thin-soled standard slippers, whether at home or when outside. (Strong; Low)

13 Recommendations(IWGDF 2015)

5. Instruct an at-risk patient with diabetes to: daily inspect their feet and the inside of their shoes; daily wash their feet (with careful drying particularly between the toes); avoid using chemical agents or plasters to remove callus or corns; use emollients to lubricate dry skin; and cut toe nails straight across. (Weak; Low)

6. Instruct an at-risk patient with diabetes to wear properly fitting footwear to prevent a first foot ulcer, either plantar or non-plantar, or a recurrent non-plantar foot ulcer. When a foot deformity or a pre-ulcerative sign is present, consider prescribing therapeutic shoes, custom-made insoles, or toe orthosis. (Strong; Low)

7. To prevent a recurrent plantar foot ulcer in an at-risk patient with diabetes, prescribe therapeutic footwear that has a demonstrated plantar pressure relieving effect during walking (i.e. 30% relief compared to plantar pressure in standard of care therapeutic footwear), and encourage the patient to wear this footwear.(Strong; Moderate)

8. To prevent a first foot ulcer in an at-risk patient with diabetes, provide education aimed at improving foot care knowledge and behaviour, as well as encouraging the patient to adhere to this foot care advice.(Weak; Low)

13 Recommendations(IWGDF 2015)

9. To prevent a recurrent foot ulcer in an at-risk patient with diabetes, provide integrated foot care, which includes professional foot treatment, adequate footwear and education. This should be repeated orre-evaluated once every one to three months as necessary. (Strong; Low)

10. Instruct a high-risk patient with diabetes to monitor foot skin temperature at home to prevent a first or recurrent plantar foot ulcer. This aims at identifying the early signs of inflammation, followed by action taken by the patient and care provider to resolve the cause of inflammation. (Weak; Moderate)

11. Consider digital flexor tenotomy to prevent a toe ulcer when conservative treatment fails in a high-risk patient with diabetes, hammertoes and either a pre-ulcerative sign or an ulcer on the toe. (Weak; Low)

12. Consider Achilles tendon lengthening, joint arthroplasty, single or pan metatarsal head resection, or osteotomy to prevent a recurrent foot ulcer when conservative treatment fails in a high-risk patient with diabetes and a plantar foot ulcer. (Weak; Low)

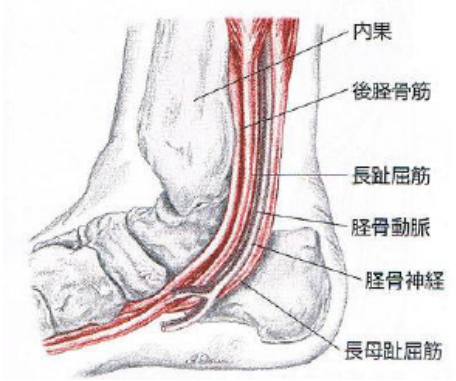
13. Do not use a nerve decompression procedure in an effort to prevent a foot ulcer in an at-risk patient with diabetes, in preference to accepted standards of good quality care. (Weak; Low)

Surgical treatment of diabetic neuropathy

- Decompression of the tibial nerve in the medial ankle tunnels

足根管症候群

- TTS（＝Tarsal Tunnel Syndromes）
  ⇒足根管の中を走る脛骨神経が何らかの原因で内圧があがり、圧迫されて引き起こされる症候群のこと。
  ガングリオン・癒合した距踵関節の骨隆起などにより足底のしびれ・痛みが生じる。



13 Recommendations(IWGDF 2015)

9. To prevent a recurrent foot ulcer in an at-risk patient with diabetes, provide integrated foot care, which includes professional foot treatment, adequate footwear and education. This should be repeated orre-evaluated once every one to three months as necessary. (Strong; Low)

10. Instruct a high-risk patient with diabetes to monitor foot skin temperature at home to prevent a first or recurrent plantar foot ulcer. This aims at identifying the early signs of inflammation, followed by action taken by the patient and care provider to resolve the cause of inflammation. (Weak; Moderate)

11. Consider digital flexor tenotomy to prevent a toe ulcer when conservative treatment fails in a high-risk patient with diabetes, hammertoes and either a pre-ulcerative sign or an ulcer on the toe. (Weak; Low)

12. Consider Achilles tendon lengthening, joint arthroplasty, single or pan metatarsal head resection, or osteotomy to prevent a recurrent foot ulcer when conservative treatment fails in a high-risk patient with diabetes and a plantar foot ulcer. (Weak; Low)

13. Do not use a nerve decompression procedure in an effort to prevent a foot ulcer in an at-risk patient with diabetes, in preference to accepted standards of good quality care. (Weak; Low)

GRADE recommendation: Weak
Quality of evidence: low

- **13. Do not use a nerve decompression procedure in an effort to prevent a foot ulcer in an at-risk patient with diabetes, in preference to accepted standards of good quality care.**

Rationale for 13

nerve decompression procedure

We found two retrospective cohort studies with high risk of bias, and three non-controlled studies that investigated nerve decompression in the prevention of foot ulcers in at-risk patients with diabetes (63-67). Although with positive results (one retrospective cohort study reported a significantly lower ulcer incidence in the operated leg compared to the contralateral non-operated leg of the same patient), the risk of bias of these studies was high, information on post-operative complications was scarce, and (most importantly) nerve decompression was not compared with accepted standards of good quality preventative care. Most studies were also from the same research group, further limiting the generalizability of these results. With various non-surgical interventions available that can be considered standard of good quality care to prevent a foot ulcer in an at-risk patient, nerve decompression should not be used, until more evidence for its efficacy compared to conservative treatment is obtained from appropriately designed controlled studies.

Dellon Al et al

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Global Collaboration Clinical reseach
The Effort of nerve decompression procedure for Diabetic Foot

in Saga,Japan and Helsinki,Finland

INVITED PAPER

HOW I DEVELOPED THE WORLD'S FIRST EVIDENCE-BASED ENDOSCOPIC MANAGEMENT OF CARPAL TUNNEL SYNDROME

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Fig. 4 Positioning of the USE system and hook knife. The USE sheath is located just ulnar to the palmaris longus tendon. The median nerve is protected from the hook knife by the USE sheath in this location.

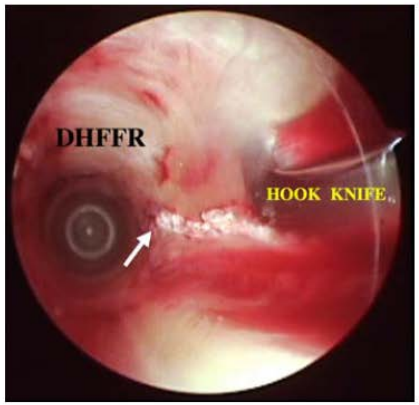

Fig. 5 Endoscopic view (incomplete release of the carpal canal). Release of the flexor retinaculum alone. Previously unidentified structure superficial and distal to the flexor retinaculum (later named as distal holdfast fibres of the flexor retinaculum, DHFFR) is clearly observed. White arrow shows sectioned distal end of the flexor retinaculum.

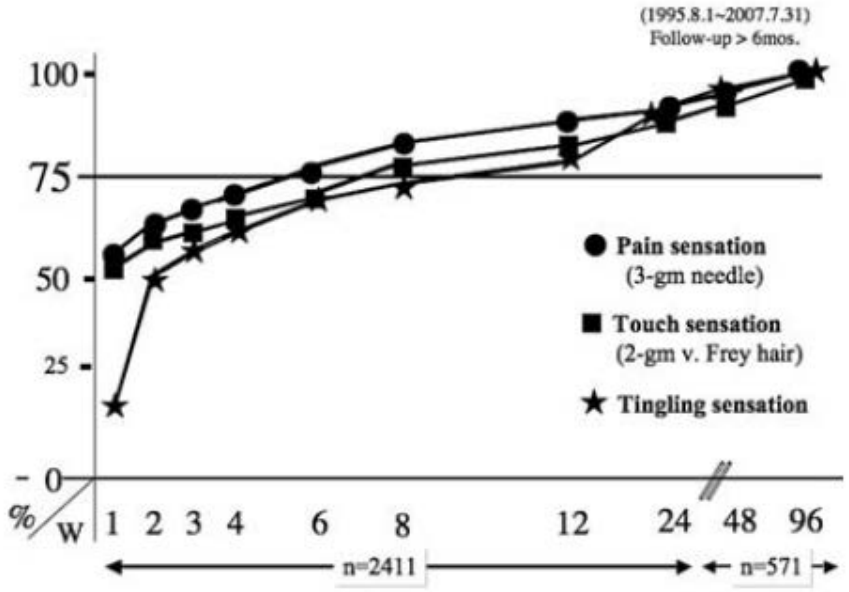

Fig. 7 Clinical recovery rates following complete carpal canal decompression.

Table 3 Complication Rate and Complications by Type.

(1986.6–2009.3) 22/7993 hands = 0.28%	
Pseudo-aneurism formation	2
Partial laceration of ulnar arterial wall	3
Postoperative local haematoma formation	11
Postoperative temporary ulnar nerve palsy	5
Postoperative motor nerve palsy due to scar formation	1
No nerve and flexor tendon injuries	


アミグランド
500mL
大塚糖液


アミグランド

AWARD of Saga University Hospital 2014

表彰状

Kiitos paljon！ ！

（きーとす　ぱりよん）