The Battle Against Upper Limb Stiffness

Venue:
Lecture Theatre, 7/F, Block H, Princess Margaret Hospital, Hong Kong SAR

Co-Organizing organization:
Department of Orthopaedics & Traumatology, Princess Margaret Hospital

Invited speakers
• Filip Stockmans (BE)
• Shrikant Chinchalkar (CA)

Delegates from Russian Hand Surgery Society - Hand Group
• Igor Golubev (RU)
• Alexander Zolotov (RU)
• Irina Miguleva (RU)
• Georgy Nazaryan (RU)

25-26 March, 2017
www.hkssh.org

Please visit our website for latest information

Concurrent Programs:
19 March 2017
AADO / HKSSH Conjoint Scientific Meeting 2017

24 March 2017
HKSHT 9th Annual Therapist Symposium

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Lecture Theatre, 7/F, Block H, Princess Margaret Hospital, Hong Kong SAR

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Concurrent Programs:
19 March 2017
AADO / HKSSH Conjoint Scientific Meeting 2017

24 March 2017
HKSHT 9th Annual Therapist Symposium
ONE ORTHOPAEDICS SOLUTION FOR HAND AND WRIST

WE JOIN HANDS - TO HELP MORE PATIENTS.
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<td>37</td>
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</table>
On behalf of the Hong Kong Society for Surgery of the Hand, I would like to extend my warmest welcome to all of you to our 30th Annual Congress and the Congress week program. The Main theme of this year is “The battle against upper limb stiffness”. Maintaining a mobile and functional upper limb is always the aim our management, no matter in traumatic situations, degenerative conditions or inflammatory diseases. We are glad that we have experienced overseas and local speakers to share their experiences to tackle this problem.

This is our 30th Annual Congress and it is the first time that we have invited a Guest Nation Society to join our congress. We are very honoured that our first ever Guest Nation Society is “Russian Hand Surgery Society - Hand Group”. Five delegates, including their president will visit us and share their experience during the congress. Besides guests from Russia, we also have distinguished speakers from Belgium and Canada. I am sure we will learn a lot during the Congress.

This year, we also start a new Exchange Ambassador Programme with Korean Society for Surgery of the Hand (KSSH), alongside with the existing programme with Japanese Society of Surgery of the Hand (JSSH). We extend our welcome to the two exchange Ambassadors. We also continue to invite Chinese scholars and Asian Pacific Fellows to join our congress. We hope, through these exchange programmes and fellowships, we will continue to strengthen our friendship among hand surgeons in the region. I would like to take this opportunity to express my heartiest thanks to the council for all their support and the Organising Committee under the leadership of Dr Jennette Chan and Dr Edmund Yau for their hard work to make this congress and successful. I would also like to thank and appreciate the Department of Orthopaedics and Traumatology of Princess Margaret Hospital and Orthopaedic Learning Centre of the Department of Orthopaedics and Traumatology of the Chinese University of Hong Kong for collaboration for all these years in organising the congresses and workshops. Last but not least, I would also like to specially thank our commercial sponsors. Without their support, the congress cannot be possible.

Finally, I hope all of you enjoy the meeting and I am looking forward to seeing you all next year in the World Symposium for Congenital Hand Malformation 2018.

Dr CHAN Ping Tak
President
The Hong Kong Society of Surgery of the Hand
Message from the Co-chairpersons of the Organising Committee

Dear seniors, colleagues and guests,

It is our great pleasure and honor to be the chairpersons of the 30th Annual Congress of the Hong Kong Society for Surgery of the Hand.

The theme of congress this year is “The Battle against Upper Limbs Stiffness”. Stiffness has always been a big enemy of patients and hand surgeons. It causes great impairment in patients’ hand function, and it is very difficult to deal with. We would like to gather precious experience of experts from different parts of the world, so as to work together to defeat this devastating enemy. We hope we could win the battle hand in hand.

The congress programme comprises a wide range of activities include lectures, cadaveric workshops, nursing symposium, therapist symposium and social activities. This year, five surgeons from the Russia Hand Surgery Society (RHSS), Dr Igor Golubev, Dr Alexander Zolotov, Dr Irina Miguleva, Dr Georgy Nazaryan, and Dr Valentine Kalantyrskaia, have been invited to share their wisdom and skills with us. Dr Filip Stockmans from Belgium will be our guest lecturer for the lunch symposium. Mr Shrikant Chinchalkar from Canada will share with us his tremendous experience on rehabilitation of upper limb stiffness.

We would like to take this opportunity to express our gratefulness and appreciation to all the members of the organization committee for their encouragement and the countless hours of hard work during the preparation period. Furthermore, we would like to acknowledge the help and support provided by the Department of Orthopaedics and Traumatology of Prince Margaret Hospital, the University of Hong Kong, the Chinese University of Hong Kong, Asian Association for Dynamic Osteosynthesis, Hong Kong Occupational Therapy Association, Hong Kong Society for Hand Therapy and Hong Kong Physiotherapy Association, and last but not least, our generous sponsors who have been supporting our activities over the years.

On the behalf of the organizing committee, we would like to welcome all of you to join the congress, and our success is the result of your participation. Are you ready? The battle begins!

Dr CHAN Sze Yan Jennette          Dr YAU Leung Kei Edmund
The Council

PRESIDENT
Dr CHAN Ping Tak

VICE PRESIDENT
Dr LAU Yan Kit

PRESIDENT ELECT
Dr WONG Hin Keung

HONARARY SECRETARY
Dr KOO Siu Cheong Jeffery Justin

HONARARY TREASURER
Dr WAN Siu Ho

COUNCIL MEMBERS
Professor IP Wing Yuk
Dr CHOW Ching San Esther
Dr YAU Leung Kai Edmund
Organising Committee

CO-CHAIRPERSONS
Dr YAU Leung Kai Edmund
Dr CHAN Sze Yan Jennette

MEMBERS
Dr CHAN Ping Tak
Mr CHAU Shun Ling Stanley
Dr CHEUNG Kim Wai Thomas
Dr CHOW Ching San Esther
Dr HO Wing Hang Angela
Professor IP Wing Yuk
Dr KOO Siu Cheong Jeffery Justin
Miss KWOK Wai Yu
Dr LAM Man Yan
Dr LAU Yan Kit
Mr LAU Chan Fai Lewis
Dr LEUNG Oi Yee Priscilla
Dr TONG Hoi Yu Sara
Dr TSE Wing Lim
Dr WAN Siu Ho
Dr WONG Hin Keung
Dr YIP Ka Yan Emily
Dr YUNG Yu Bun Douglas
Russian Hand Surgery Society (RHSS)

Professor Igor GOLUBEV
Human Friendship University Medical School
Moscow
Russia

Dr Georgy A. NAZARYAN
Department of Microsurgery
Clinical Hospital after M.E.
Zhadkevicha
Moscow
Russia

Dr Valentina KALANTYRSKAIA
Soloviev State Clinical Hospital Yaroslavl
Russia

Dr Alexander ZOLOTOV
Medical Center
Far Eastern Federal University
Vladivostok Russia

Dr Irina MIGULEVA
Hand Surgery Department, Moscow State
Clinical Hospital No 29
Moscow
Russia
Overseas Faculty

**Professor Filip STOCKMANS**
Chief of Hand surgery
AZ Groeninge, Kortrijk
Professor
Faculty Medicine, KU Leuven KULAK
Belgium

---

**Mr Shrikant J. CHINCHALKAR**
Hand Therapist
The Hand & Upper Limb Centre, St. Joseph’s Health Centre
London
Ontario
Canada
Local Faculty

Dr CHAN Sze Yan Jennette  
Specialist in Orthopaedics and Traumatology  
The University of Hong Kong Medical Centre  
Queen Mary Hospital

Professor IP Wing Yuk Josephine  
Associate Professor and Chief  
Division of Hand and Foot Surgery  
Department of Orthopaedics & Traumatology  
Queen Mary Hospital

Miss FOK Man Shuen Winnie  
Occupational Therapist  
Tuen Mun Hospital

Dr TSE Wing Lim  
Associate Consultant  
Department of Orthopaedics & Traumatology  
Prince of Wales Hospital

Dr HO Pak Cheong  
Consultant and Chief  
Division of Hand and Microsurgery, Department of Orthopaedics & Traumatology  
Prince of Wales Hospital

Dr WONG Wing Yee Clara  
Specialist in Orthopaedics and Traumatology  
SMART1 Orthopaedics-Sports Medicine-Rehabilitation Centre

Professor HUNG Leung Kim  
Clinical Professor (honorary)  
Department of Orthopaedics and Traumatology  
The Chinese University of Hong Kong

Dr WONG Hin Keung  
Consultant  
Department of Orthopaedics and Traumatology  
Princess Margaret Hospital

Miss LUK Lai Mei May  
Physiotherapist  
Queen Elizabeth Hospital
HKSSH Visiting Scholar 2017

CHINA

Dr CHU Ting-gang
Department of Hand Surgery
2nd Affiliated Hospital
Wenzhou Medical University
Zhejiang

Dr SUN Hong Bin
Vice director
Associate clinical professor
Department of hand surgery
China-Japan Union Hospital
Jilin University
Jilin

Dr ZHAO Rui
Associate professor
Department of hand surgery
The Fourth Military Medical University
Xi’an
Shaanxi

HKSSH-JSSH Ambassador 2017

Dr Uemura TAKUYA
Department of Orthopaedic Surgery
Osaka City University Graduate School of Medicine
Japan

HKSSH-KSSH Ambassador 2017

Dr Ho-Jun CHEON
W hospital
Institute for Hand Reconstructive Microsurgery
Daegu
Korea

ASIA PACIFIC

Dr HIROKI ODA
Graduate School Of Medicine
Kyoto University
Japan
General and Venue Information

Venue
Block H, 7/F Lecture Theatre, Princess Margaret Hospital
2-10 Princess Margaret Hospital Road, Lai Chi Kok, Kowloon, Hong Kong
General and Venue Information

Locations of Programme

Registration desk: Next to the entrances of lecture theatre
Scientific exhibition booths: Foyer, 7th Floor of Block H
Coffee and Tea: Foyer, 7th Floor of Block H
Luncheon symposium: Lecture theatre

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<tr>
<th>Booth Number</th>
<th>Company Name</th>
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<tr>
<td>1</td>
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<td>2</td>
<td>Accurate Technology Co. Ltd.</td>
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<td>3</td>
<td>Century Group</td>
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<td>4</td>
<td>Pacific Medical Systems</td>
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<td>Convatec</td>
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<td>6</td>
<td>DePuy Synthes</td>
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<td>7</td>
<td>Stryker China Limited</td>
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<td>8</td>
<td>Karl Storz Endoscopy China Ltd.</td>
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<td>9</td>
<td>Zimmer Asia (HK) Limited</td>
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<tr>
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<td>Arthrex Medizinische Instrument GmbH</td>
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<td>McBarron Book Co Ltd.</td>
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<td>12</td>
<td>The Industrial Promoting Co. Ltd.</td>
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<td>13</td>
<td>Evivo Biomaterials Solutions Ltd.</td>
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<td>Deltason Medical Limited</td>
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<td>15</td>
<td>Medtronic Hong Kong Medical Limited</td>
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<td>16</td>
<td>IDS Medical Systems (Hong Kong) Co. Ltd.</td>
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<td>17</td>
<td>Accession Medical Supplies Co.</td>
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# Programme at a Glance

## 25th March 2017

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>08:00 - 08:30</td>
<td>Registration</td>
</tr>
<tr>
<td>08:30 - 10:10</td>
<td>Symposium I: The Battle against hand stiffness (Round 1)</td>
</tr>
<tr>
<td>10:10 - 10:40</td>
<td>Tea break</td>
</tr>
<tr>
<td>10:40 - 12:10</td>
<td>Local free paper session</td>
</tr>
<tr>
<td>12:10 - 13:10</td>
<td>Luncheon symposium</td>
</tr>
<tr>
<td>13:10 - 13:55</td>
<td>Opening ceremony and presentation of souvenirs</td>
</tr>
<tr>
<td>13:55 - 15:20</td>
<td>Symposium II: The Battle against hand stiffness (Round 2)</td>
</tr>
<tr>
<td>15:20 - 15:50</td>
<td>Tea break</td>
</tr>
<tr>
<td>15:50 - 16:50</td>
<td>Symposium III: The Battle against hand stiffness (Round 3)</td>
</tr>
<tr>
<td>17:00 - 18:00</td>
<td>AGM of the HKSSH</td>
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<tr>
<td>19:00 - 21:00</td>
<td>Congress dinner</td>
</tr>
</tbody>
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## 26th March 2017

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30 - 09:55</td>
<td>Symposium IV: The Battle against upper limb stiffness (Round 1)</td>
</tr>
<tr>
<td>09:55 - 10:20</td>
<td>Tea break</td>
</tr>
<tr>
<td>10:20 - 11:20</td>
<td>Free paper (overseas) + Ambassadors’ paper</td>
</tr>
<tr>
<td>11:20 - 11:50</td>
<td>HKSSH-JSSH ambassador paper and report</td>
</tr>
<tr>
<td>11:50 - 13:00</td>
<td>Symposium V: The Battle against upper limb stiffness (Round 2)</td>
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<tr>
<td>13:00 - 13:10</td>
<td>Closing remarks</td>
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### Detailed Programme

#### 25th March 2017 (Saturday)

<table>
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<th>Time</th>
<th>Event</th>
<th>Speaker</th>
<th>Moderator</th>
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<tr>
<td>08:00 - 08:30</td>
<td>Registration</td>
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<tr>
<td></td>
<td><strong>Symposium I:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Battle against hand stiffness (Round 1)</td>
<td></td>
<td></td>
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<tr>
<td>08:30 - 08:55</td>
<td><strong>Plenary Lecture I:</strong></td>
<td>I Golubev</td>
<td>J Koo</td>
</tr>
<tr>
<td></td>
<td>Causes and problem of a stiff hand</td>
<td></td>
<td>S Tong</td>
</tr>
<tr>
<td>08:55 - 09:10</td>
<td>Tips for handling hand fracture to minimize post-traumatic stiffness</td>
<td>F Stockmans</td>
<td></td>
</tr>
<tr>
<td>09:10 - 09:25</td>
<td>Zone 2 and I tendoplasty against tendon adhesions: practice of prevention</td>
<td>I Miguleva</td>
<td></td>
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<tr>
<td>09:25 - 09:40</td>
<td>Salient points in tenolysis</td>
<td>HK Wong</td>
<td></td>
</tr>
<tr>
<td>09:40 - 09:55</td>
<td>Treatment options for PIPJ and MCPJ stiffness</td>
<td>PC Ho</td>
<td></td>
</tr>
<tr>
<td>09:55 - 10:10</td>
<td>Discussion</td>
<td></td>
<td></td>
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<tr>
<td>10:10 - 10:40</td>
<td>TEA BREAK</td>
<td></td>
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<tr>
<td>10:40 - 12:10</td>
<td>Local free paper session</td>
<td>WL Tse</td>
<td>E Yau</td>
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<tr>
<td>12:10 - 13:10</td>
<td>Luncheon Symposium</td>
<td>F Stockmans</td>
<td>HK Wong</td>
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<tr>
<td></td>
<td><strong>Opening Ceremony</strong></td>
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<td>M Lam</td>
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<tr>
<td>13:10 - 13:20</td>
<td>Welcome Speech by HKSSH President</td>
<td>PT Chan</td>
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</tr>
<tr>
<td>13:20 - 13:40</td>
<td>The Development of Hand surgery in Russia</td>
<td>I Golubev</td>
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<tr>
<td>13:40 - 13:55</td>
<td>Presentation of souvenir</td>
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<tr>
<td></td>
<td><strong>Symposium II:</strong></td>
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<td></td>
<td>The Battle against hand stiffness (round 2)</td>
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<tr>
<td>13:55 - 14:20</td>
<td><strong>Plenary Lecture II:</strong></td>
<td>A Zolotov</td>
<td>E Chow</td>
</tr>
<tr>
<td></td>
<td>Two-step treatment of hand deformities and contractures with the aid of Ilizarov device</td>
<td></td>
<td>J Chan</td>
</tr>
<tr>
<td>14:20 - 14:35</td>
<td>Physiotherapy for stiff hand</td>
<td>M Luk</td>
<td></td>
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<tr>
<td>14:35 - 14:50</td>
<td>How to deal with first web space contracture?</td>
<td>WL Tse</td>
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<tr>
<td>14:50 - 15:05</td>
<td>Surgical aspects of prevention of PIPJ contracture during Dupuytren's contracture release</td>
<td>G Nazaryan</td>
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<tr>
<td>15:05 - 15:20</td>
<td>Discussion</td>
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<td>15:20 - 15:50</td>
<td>TEA BREAK</td>
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<tr>
<td></td>
<td><strong>Symposium III:</strong></td>
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<td></td>
<td>The Battle against hand stiffness (round 3)</td>
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<tr>
<td>15:50 - 16:05</td>
<td>Hand therapy for scar management and tendon adhesion</td>
<td>W Fok</td>
<td>YK Lau</td>
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<tr>
<td>16:05 - 16:20</td>
<td>Approach to hand stiffness in burn injury</td>
<td>LK Hung</td>
<td>E Yip</td>
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<tr>
<td>16:20 - 16:35</td>
<td>Surgical treatment of chronic regional pain syndrome</td>
<td>I Golubev</td>
<td></td>
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<tr>
<td>16:35 - 16:50</td>
<td>Discussion</td>
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<tr>
<td>17:00 - 18:00</td>
<td>AGM of HKSSH</td>
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<tr>
<td>19:00 - 21:00</td>
<td>CONGRESS DINNER</td>
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### Detailed Programme

#### 26th March 2017 (Sunday)

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<th>Time</th>
<th>Event</th>
<th>Speaker</th>
<th>Moderator</th>
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</thead>
<tbody>
<tr>
<td>08:30 - 08:55</td>
<td><strong>Plenary Lecture III:</strong> Stiff elbow: prevention and management</td>
<td>V Kalantyrskaja</td>
<td></td>
</tr>
<tr>
<td>08:55 - 09:10</td>
<td>Arthroscopic management in post-traumatic stiff wrist</td>
<td>PC Ho</td>
<td></td>
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<tr>
<td>09:10 - 09:25</td>
<td>Approach to management of forearm rotational stiffness</td>
<td>F Stockmans</td>
<td></td>
</tr>
<tr>
<td>09:25 - 09:40</td>
<td>Experience on management of congenital causes of upper limb stiffness</td>
<td>WY Ip</td>
<td></td>
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<tr>
<td>09:40 - 09:55</td>
<td>Discussion</td>
<td></td>
<td></td>
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<tr>
<td>09:55 - 10:20</td>
<td><strong>TEA BREAK</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:20 - 11:20</td>
<td>Overseas Free Paper + Ambassadors' paper session</td>
<td>WY Ip</td>
<td>PT Chan</td>
</tr>
<tr>
<td>11:20 - 11:50</td>
<td>HKSSH-JSSH Ambassador report</td>
<td>E Chow</td>
<td></td>
</tr>
<tr>
<td>11:50 - 12:15</td>
<td><strong>Plenary Lecture IV:</strong> Therapeutic management for stiff elbow</td>
<td>S Chinchalkar</td>
<td>SH Wan</td>
</tr>
<tr>
<td>12:15 - 12:30</td>
<td>Upper limb stiffness in cerebral palsy</td>
<td>J Chan</td>
<td>L Lau</td>
</tr>
<tr>
<td>12:30 - 12:45</td>
<td>Arthroscopic management for stiff elbow</td>
<td>C Wong</td>
<td></td>
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<tr>
<td>12:45 - 13:00</td>
<td>Discussion</td>
<td></td>
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<tr>
<td>13:00 - 13:10</td>
<td>Closing Remarks</td>
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### Detailed Programme

#### Local free paper

<table>
<thead>
<tr>
<th>No</th>
<th>Time</th>
<th>Title</th>
<th>Presenter</th>
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<tbody>
<tr>
<td>1</td>
<td>10:40 - 10:48</td>
<td>Finger proximal interphalangeal joint unstable dorsal fracture-dislocation treated by trans-articular pinning</td>
<td>H Chan</td>
</tr>
<tr>
<td>2</td>
<td>10:48 - 10:56</td>
<td>Articular fractures of distal radius with dorsal displaced fragment: dorsal plate vs volar plate with frag-loc system</td>
<td>KM Chu</td>
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<tr>
<td>3</td>
<td>10:56 - 11:04</td>
<td>Functional Outcome for Arthroscopic Treatment of Septic Arthritis of the Wrist</td>
<td>L Liyeung</td>
</tr>
<tr>
<td>4</td>
<td>11:04 - 11:12</td>
<td>A propensity score matched control study of reconstruction plates versus anatomically pre-contoured plates for clavicle fracture</td>
<td>YS Lai</td>
</tr>
<tr>
<td>5</td>
<td>11:12 - 11:20</td>
<td>Wide Awake Surgery under Local Anaesthesia without Tourniquet for Ulnar Nerve Decompression and Medial Epicondylectomy: A Prospective Study</td>
<td>MCK Mak</td>
</tr>
<tr>
<td>6</td>
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<td>Arthroscopic treatment of thumb MCPJ dislocation</td>
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<td>Neurovascular Island Flap for Pulp and Nail Augmentation in Thumb Duplication Reconstruction- a Novel Treatment with Long Term Follow up of 7.9 years</td>
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<td>Our experience on finger tip injury treated with single stage finger flap surgery</td>
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#### Overseas Free Paper and Ambassadors’ paper session

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Abstracts of Lectures

Tips for handling hand fracture to minimize post-traumatic stiffness

Professor Filip STOCKMANS
AZ Groeninge, Kortrijk
Faculty Medicine, KU Leuven KULAK
Belgium

Hand fractures are frequent and fast mobilization is the best guarantee to maintain mobility. Trends in hand fracture treatment have followed the evolution of general fracture treatment evolving from conservative treatment to plate and screw fixation and percutaneous screw fixation.

Although conservative treatment using immobilization seems contra intuitive, it can still give a better outcome for mobility when compared with inadequate internal fixation. This explains the maintained popularity of K wire fixation. It is relatively forgiving but it is not able to achieve rigid fixation.

Interestingly plate and screw fixation has not enjoyed the same enthusiasm in hand fractures as in other parts of the body. Initially implant bulkiness posed problems as the implants are in close contact with tendons. Miniaturized plates with surface treatment have been able to reduce soft tissue adhesion. The introduction of locking plates was another important steps to facilitate their use. Lateral placement of locking plates interferes less with the extensor apparatus and allows bridging the fracture site. Intramedullary fixation with headless screws allows minimal invasive fracture treatment without interfering with the soft tissue structures at all.

As in other fields, careful patient selection is key in achieving predictable results. When considering different fixation options, the choice should go to the least invasive fixation that gives sufficient stability to allow early mobilization. Whenever open reduction and internal fixation is chosen there has to be full commitment of the surgeon to leave the operating room with a rigid construct if not stiffness will be the price to pay.

Zone 2 and 1 tendoplasty against tendon adhesions: practice of prevention

Dr I MIGULEVA
Sklifosovsky Clinical and Research Institute for Emergency Medicine, Moscow, Russia

The rationale of tendon grafting was to create tenorrhaphy sites outside the sheath where adhesions do not interfere with gliding. Yet even after Bunnell’s palm-to-distal phalanx tendon grafting solution and Bassett’s and Carroll’s silicone rubber rod insertion procedure that was refined into two-stage flexor tendon reconstruction method by Hunter and Salisbury the flexor tendoplasty development history was as well the history of the battle to prevent the scarring and limitation of motion which so frequently occurred after grafting either.

In our clinic flexor tendon grafting experience gains to early 80th and includes conventional grafting, two-stage reconstruction, primary grafting in the acute setting, profundus advancement and profundus isolated one- or two-stage grafting. Keeping with classic tendoplasty concepts as well as further development of questionable aspects has brought us to significantly low contracture rate (from 2.4% to 8.2%), low fair rate (from 7.1% to 20%) and high excellent rate (from 42.6% to 74.4%) for clinical outcomes in about 1200 cases.

Basic items of flexor tendon graft scarring prevention and providing favorable conditions for good gliding function include both surgical principles and technical details. Should be mentioned specially our mini-open technique for surgical approach to flexor tendon bed in course of conventional grafting procedure, the rod proximal end retrograde placing for further autograft proximal suture site be intact, long time interval from stage 1 to stage 2 of 10 to 12 months and postoperative passive and active flexion-extension exercise protocol with alternate splinting in flexed and in extend position.
Salient points in tenolysis

Dr WONG Hin Keung
Department of Orthopaedics and Traumatology, Princess Margaret Hospital, Hong Kong

Extensor tendon adhesions following laceration, fracture, or crush injuries will prevent normal joint function. Extensor tenolysis alone often will not address the resulting stiffness. A systematic release of the extensors, joint capsule, collateral ligaments, and occasionally the flexor tendons is needed to restore function.

Flexor tendon adhesions in zone II are common. The origin of these adhesions is multifactorial. Flexor tenolysis can improve the active range of motion and function. This surgery is complex and difficult.

There is no absolute indication for flexor tenolysis. The decision should be made in a motivated patient who has access to adequate postoperative hand therapy. It should be based on healed fractures and osteotomies, mature soft tissue coverage, intact tendons and gliding tissues, and a full range of passive flexion, and preferably extension of the affected joints. The principle of flexor tenolysis is the consequent resection of all adhesive tissue around the tendon inside and outside the tendon sheath, with preservation of as many pulley sections as possible. Therefore, extensive approaches are frequently necessary. Arthrolysis and the resolution of unfavorable scars, the resection of scarred lumbricals, and pulley reconstruction are additional procedures that are frequently performed.

Early active mobilization is the key of success in rehabilitation. Any surgical procedure that would hamper this active mobilization must be completed before the flexor tenolysis. The main complication of this surgery is the risk of flexor digitorum profundus rupture and the salvage procedure is a two-staged flexor tendon grafting.

Treatment options for PIPJ and MCPJ stiffness

Dr HO Pak Cheong
Department of Orthopaedics & Traumatology, Prince of Wales Hospital, Hong Kong

Finger joint stiffness is a common challenge to hand surgeons and therapists in managing hand problem. It can be the primary problem presented to the surgeon, or a consequence developed during the treatment and care process. Evaluation should be focused on the etiology of the stiffness, magnitude of the problem, impact to patient’s life and functional demand of the patient. Treatment goal should be practical and realistic pertained to the need of the patient and the rehabilitation potential. Seamless collaboration among surgeon and therapists is indispensable. Patient’s understanding, motivation and engagement are the keys to success.

Motion at the metacarpo-phalangeal joint (MCPJ) and the proximal inter-phalangeal joint (PIPJ) constitutes 85% of the functional arc of the hand. Preservation of the functional motion at these two joints is the goal of treatment in the diseased hand. MCPJ is unique in human body. The highly adapted architecture of the joint enables maximal mobility of the joint in a fully extended position while maximal stability is achieved in complete flexion during strong gripping action. This special function is established through the trapezoidal and asymmetrical contour of the joint, together with change in tension of the collateral ligaments under the coordinated action of the intrinsic and extrinsic musculatures. Proximal inter-phalangeal joint is a highly congruent joint providing good stability of the joint at all positions. The superficial nature and the distal location of the joint over the fingers invite for injury and affection. The accessory collateral ligament offers strong stability in extended posture but it also carries the potential to induce flexion contracture of the joint when it is being affected.

Finger joint stiffness can be caused by a multitude of causes. The culprit may not lie at the same level of the affected joint. The pathology can be divided into extrinsic and intrinsic causes as follow:

A. Extrinsic causes
   a. Skin - hypertrophic scar, skin loss / contracture
   b. Subcutaneous tissue – oedema / fibrosis
   c. Nerve – painful neuroma / tethering
   d. Fascial retinacular tissue - Dupuytren’s contracture
   e. Tendon – extensor / intrinsic tendon /flexor
   f. Capsule – dorsal capsule/ volar plate
   g. Ligament – proper collateral/ accessory collateral
   h. Bone – extra-articular malunion / nonunion
B. Intrinsic causes
   a. Cartilage damage
   b. Arthrofibrosis
   c. Intra-articular malunion of fracture
   d. Joint subluxation

Often a combination of diseased structures prevails and secondary contracture of the originally uninvolved tissues may develop with time. Timing of intervention is therefore critical in determining the outcome of treatment. Painful stiffness, stiffness in unfavourable joint position and stiffness in rigidity deserve earlier surgical attention. Generally speaking non-operative therapeutic measures should be installed and exhausted before surgical intervention is being contemplated. Surgery should not be performed in hands still undergoing active proliferative scar change, or under the influence of chronic regional pain syndrome. Equally important, continuing hand therapy is mandatory after any surgical undertaking till functional gain is optimized. Compliance of the patient should properly be assessed and addressed.

Surgical treatment depends on the aetiology of the stiffness, severity, functional need of the patient and other prognostic factors. Surgical risk should be balanced with the sequelae of non-intervention. Potential neurovascular complication should be anticipated and avoided. Precise surgical planning should be tailor-made to tackle the culprit of the stiffness. Skin contracture such as burn insult can be effectively treated by scar release, skin graft and flap procedure. Tenolysis and capsulectomy can be performed under local anaesthesia to accurately assess the adequacy of the release and active functional capacity of the tendons and musculature. Partial collateral ligament excision (especially the accessory collateral ligament), together with volar plate excision is common procedure to regain useful extension of the digit. Jumping phenomenon should be observed and corrected in chronically stiffen MCPJs both intra-operatively and in the postoperative phase. There is a role of arthroscopic intervention at the MCPJ level in which joint arthrofibrosis and volar plate adhesion can be tackled through the minimal incision approach, combined with manipulation under anaesthesia. Soft tissue distraction lengthening is another useful strategy to correct chronic deformity. Any extra-articular malunion can be corrected either at the time of soft tissue release or as a staged procedure depending on the severity of the malunion. Unsound joint associated with incapacitating pain can be treated with joint fusion or implant arthroplasty depending on the digit being involved, functional demand and age of the patient. Anatomically designed metal prosthesis has better longevity compared to the conventional silicone spacer interposition in the younger active patients. Occasionally selective ray amputation may improve the overall hand function, in case the affected digit is occupying a critical position in the hand.

Stiffness in the fingers joint is often difficult if not impossible to treat. Outcome can be unpredictable or suboptimal. Therefore prevention of stiffness at the initial management of the insult to the hand should be the goal to accomplish at all cost. Sound surgical intervention, multi-disciplinary rehabilitation approach, vigilant follow-up together with patient motivation are safeguards to prevent dreadful stiffness from happening.

Plenary Lecture II
Two-stage treatment of the hand and forearm deformities with the aid of Ilizarov device

Dr Alexander ZOLOTOV
Medical Center, Far Eastern Federal University, Vladivostok, Russia

Treatment of bone and joint deformities is a challenge for surgeon. Correction of old deformities is associated with the risk of damage of peripheral nerves and blood vessels with subsequent ischemic disorders up to the occurrence of limb segment’s necrosis. In case of severe deformity two stage treatment with slow distraction using Ilizarov frame on the first stage can be an available alternative to acute deformity’s elimination.

The purpose of study: To analyze the efficacy and safety of two-stage treatment for the correction of the hand and forearm deformities with the aid of ilizarov device.

Material and methods: We analyzed the treatment of 14 patients (from 16 to 64 years) with the deformities of hand and forearm. Two-stage treatment was applied for correction of neglected DIP and PIP joints’ dislocation (3), atypical form of Dupuytren’s contracture (1), metacarpal malunion, nonunion, bone defect (2), perilunate dislocation (5) forearm malunion, nonunion, bone defect
Ilizarov apparatus was used in all cases. Standard Ilizarov frame with 130 mm in diameter rings was used at the level of the forearm. Mini-Ilizarov was used at the level of the metacarpals and fingers. Mini-apparatus was used with 2/3 rings 35 mm and 45 mm in diameter or in the form of a threaded rod. Distraction was performed 1 mm per day on the forearm, 0.5-1 mm per day on the hand. Distraction period continued for 3-4 weeks. The second stage surgery procedures included: PIPJ and DIPJ arthrodesis (3), ORIF and/or bone grafting of metacarpal and radius (5), aponeurectomy (1), open reduction of perilunate dislocation (5).

Results: In all cases severe deformities were corrected with the aid of distraction. Slow distraction provided a gradual lengthening of the skin, muscle, joint capsule, nerves, blood vessels without ischemic and neurological destroy. After the second stage surgery the segment’s anatomy and function were improved in 12 cases, and recovered fully in 2 cases. There was a complication after osteosynthesis in one case – K-wire’s broken and loosening. Previous “stage I” surgical procedure facilitated the performing of “stage II” surgical procedure significantly.

Conclusion: Two-stage treatment of hand and forearm severe deformities is effective and safe. Pre-distraction on the first stage makes easier to do the second stage surgical procedure.

Physiotherapy for stiff hand

Miss LUK Lai Mei May
Department of Physiotherapy Queen Elizabeth Hospital, Hong Kong

Managing stiff joints is one of the biggest challenges faced by physiotherapists, particularly in extensive traumatic conditions. The aetiology of joint stiffness is usually multi-factorial, resulting from a combination of tendon adhesion, capsular or soft tissue fibrosis, or disrupted joint biomechanics. Comprehensive understanding of tissue healing, joint kinematics, as well as the specific pattern of joint stiffness are the keys for restoration of hand motion. Oedema, prolonged immobilization, pain and scar are the main enemies of hand mobility. A primary component of preventing stiff hand is edema reduction. In acute phase, oedema can be controlled by manual lymphatic drainage, application of boxing glove bandaging and electro-physical agents. With developed joint contracture, the focus of treatment is to re-establish collagen mobility and length of soft tissue, as well as to regain joint surface gliding motion. Early active and passive exercises together with thermal agents and neuromuscular electrical stimulation can reduce the development of stiff joint. Mobilization of stiff joints is often complicated by pain and restricted by delayed/non-union of fractures. Timely intervention for these complications would be beneficial. To achieve a good recovery, not only therapy being an important component, motivation and compliance of patients are equally essential in improving rehabilitation outcomes.

How to deal with first web space contracture?

Dr TSE Wing Lim
Department of Orthopaedics & Traumatology, Prince of Wales Hospital, Hong Kong

Contracture of 1st web will significantly hand function and this may be the result of various conditions including congenital anomalies, post traumatic, post burn conditions and neurological disorders. Prevention, anticipation and early intervention with therapy and splinting are crucial part of treatment. Surgical intervention need to address the structures that contributing to contractures, including skin or scar contracture, muscle, fascia or tendon contracture, deficient or weakness of motors that open the web, and joint contracture. Additional skin may be provided by skeletal traction, skin grafting, dermal substitute, local flaps including Z-plasties, regional pedicle flaps like radial forearm, first dorsal metacarpal artery, posterior interosseous artery flaps; or distant groin flap, or any free flaps like lateral arm and anterolateral flaps.
Abstracts of Lectures

Surgical aspects of prevention of PIPJ contracture during Dupuytren’s contracture release

**Dr G.A. NAZARYAN**

*Department of Microsurgery, Clinical hospital after M.E. Zhadkevicha, Moscow, Russia*

The management of Dupuytren disease has been evolved over the last few decades. Better surgical results and outcomes have achieved recently. Observation is an appropriate treatment for asymptomatic nodules, Dupuytren’s disease without flexion deformity. Surgical treatment is indicated when there is functional disability with 30° of MP or 20° of PIP joint contracture.

Nodulectomy is justifiable for large painful dorsal nodules or palmar nodules during surgery on associated trigger finger. Percutaneous fasciotomy is indicated for elderly patients or patients with poor health. Fasciectomy is gold standard for treatment of Dupuytren disease. Skin shortage after fasciectomy can be treated with full-thickness skin graft, flap coverage, open palm method or Z-plasties. The results of PIP surgery in Dupuytren’s contracture highly variable and unpredictable. MCP joint is not determinant, but PIP joint is a major determinant of functional outcomes in Dupuytren’s disease. PIP flexion contracture in Dupuytren’s disease may be primarily caused by digital cord (involvement of Dupuytren’s fascial elements, but basically by central, spiral and lateral cords) or by secondary contracture, caused by adaptive changes of normal structures. Structures like volar plate, collateral ligaments, flexor sheath, oblique retinacular ligament, flexor tendon, skin, extensor tendon and boney block become part of process in secondary contracture. PIP joint involvement in Dupuytren’s contracture solved by release or excision of Dupuytren’s tissue and release of secondary constraints. Cord excision and managing the skin shortage will correct deformity in most cases. Sometimes postoperative splinting improves post residual contracture. If PIP contracture persists after removing Dupuytren’s tissues, we look for releasing check rein ligaments, accessory collateral ligaments, flexor sheath and then followed by gentle manipulation and do not altered volar plate, transverse retinacular ligament, lateral bands and proper collateral ligaments.

Hand Therapy for Scar Management and Tendon Adhesion

**Miss FOK Man Shuen Winnie**

*Department of Occupational Therapy, Tuen Mun Hospital, Hong Kong*

Tendon injuries are common. The ultimate treatment goal of tendon rehabilitation is to prevent gapping or rupture, minimize tendon adhesion and maximize tendon excursion for daily hand functions. With the advancement in surgical repair techniques, understanding of tendon anatomy and healing, we have stronger tendon repairs and different early motion rehabilitation protocols developed. Yet complications of scarring, stiffness, functional impairments and even contractures still pose a great challenge to therapists in the rehabilitation course. In this presentation, common scar treatment modalities and strategies employed by occupational therapists in different healing phases will be discussed.
Approach to Hand Stiffness in Burn Injury

Professor HUNG Leung-kim  
Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong, Hong Kong

Burn scars impair hand functions because of their inelasticity and the tendency to contract, causing joint contractures, which in the long term result in secondary joint deformities. The most common form of deformity is the claw hand deformity. Badly treated childhood hand burns may result in syndactyly, or global scar entrapment of the hand, the “cocooned hand”.

Surgical management of burn scar contractures has to be individualized, and consists of 4 major components: (1) Scar management – release or excision, and re-surfacing; (2) Correction of joint contractures – release, reduction, repair, stabilization, rehabilitation; (3) Specific management for syndactyly, adactyly, nail fold retraction, nail replacement, first web contracture, or loss of tendon substance or muscle fibrosis; and (4) Prevention of recurrence.

Surgical release converts a closed disorder into an open wound, which is larger than predicted, and may cause exposure of tendons or joints. Re-surfacing requires careful planning and execution to achieve primary healing, otherwise new scar tissues will be formed. Staged surgical treatment is frequently necessary.

Post-operative joint mobilization, muscle re-training and strengthening are essential for hand function to return. The availability of hand therapy, and patient’s compliance and adherence need to be reviewed and considered before surgery, which would influence the staging of procedures, whether surgery should or should not be done or when. Patients and their families should realize the aim and limitations of surgery, and the importance of rehabilitation, in order to benefit from the best possible surgical outcome.

Surgical Treatment of CRPS

Professor I.O. GOLUBEV, A.I. KRUPATKIN  
Priorov Central Traumatology and Orthopedics Institute, Moscow, Russia

The treatment of CRPS can be both conservative and surgical. It is mainly targeted to remove a pain syndrome, maintain the extremity function and restore the patient’s working ability.

Aim: To accessed results of different types of upper extremity sympathectomy for CRPS treatment.

Materials and methods: There were investigated and treated surgically 64 patients with hand CRPS. All of the patients had previous trauma. Indication for surgical treatment was done after computer thermography and Laser Doppler flowmetry (LDF). There were diagnosed CRPS type I in all cases. Stage I was in 4, stage II in 20 and stage III in 40 patients. In 33 cases there were done intra thoraxal sympathectomies, in 15 periarterial, in 16 – perivascular sympathectomy.

Results: There was noted significant decreasing of pain after sympathectomy. VAS score decreased from 6.33 to 0.46 points in 3 month after surgery. Most effective was intra thoracic and perivascular sympathectomy, which results in pain regress were comparable. Periarterial procedure shows inferior results.
Abstracts of Lectures

Plenary Lecture III
Stiff elbow: prevention and management

Dr A V.A. KALANTYRSKAI
Soloviev State Clinical Hospital, Yaroslavl, Russia

Aim: establish a protocol of prevention of elbow stiffness after intraarticular fractures at the area of elbow.

Materials and methods: At the period of 12 years (2000-2012) there were operated 296 patients intraarticular fractures of the elbow. Among them there were: 93 (31.4%) with distal humerus fractures, 97 (32.7%) with radial head fracture and 106 (35.8%) with proximal ulna fractures. All the patients were operated by internal fixation.

Postoperative prevention stiffness protocol was used in all the cases and consists of 6 main postulates:

1. Immediate postoperative immobilization of elbow in 30° of flexion position during 3 days. Elevation of the hand above the heart level.
2. Active flexion-extension movements start in 3 days after operation. Rotational movement in 7 days.
3. Only active "pain-free" movement on 4-th day after operation.
4. No massage and physiotherapy.
5. Active shoulder and wrist movement soon after operation.
6. Soon after operation prescribed indomethacin 25 mg 3 times a day for 6 weeks. At the same time for the same period Ulgastrat 1.0 one time a day.

Results: Results were investigated in average 15 month after operation. There were used Mayo Elbow Performance Score. The result was 90.4 score in cases of Type A fractures, 94.1 in Type B fractures and 72.8 score in type C fractures according to AO classification.

Conclusion: Anatomical reposition and prevention of stiffness protocol allows achieving good functional results in cases of intraarticular elbow fractures.

Arthroscopic Release of Stiff Wrist

Dr HO Pak Cheong
Department of Orthopaedics & Traumatology, Prince of Wales Hospital, Hong Kong

Wrist stiffness after injury or inflammation is a common occurrence. The functional motion of wrist required in daily activities is controversial but most patients appreciate the preservation of as much motion as possible after an insult. Joint stiffness is also a significant cause of continuing pain after an injury and the vicious cycle can perpetuate with negative impact to patient's health. The cause of stiffness can occur at extra-articular level such as tendon adhesion, scar contracture of the overlying skin and extra-articular malunion. Capsular contracture and intraarticular fibrosis develops in response to trauma or inflammation as a result of immune response. Fibroblast proliferation and synthesis of extracellular matrix protein is increased in response to various growth factors stimulation such as TGF-beta and PDGF. Predictable pattern of fibrous tissue formation (FTF) can be formed after intraarticular fracture of the distal radius, presumably starting from the exposed subchondral bone at the fracture gaps. Hattori reported 5 types of FTF; including Type 0, isolated fibrous strands without capsular attachment; type 1, sagittal fan with dorsal attachment to capsule and SLIL; type 2, sagittal fan with volar capsular attachment; type 3, multidirectional, complete fibrotic separation; and type 4, horizontal fibrotic obliteration along dorsal capsular recess. In addition, there are type 1a combined type 1 and 4, and type 2a combining type 2 and 1. The group also reported about 11 patients with wrist contracture after fractures of the distal radius, Galeazzi fracture, perilunate dislocation and carpal bone contusion. They found arthrofibrosis located between the SL ligament and the midradial ridge. A specific radiocarpal septum could be formed completely separating the scaphoid fossa from the lunate fossa. A knowledge of these fibrosis patterns helps to execute a thorough surgical clearance. Arthroscopic approach helps to minimize the surgical trauma on top of the existing tissue insult, potentially reduces the chance of secondary soft tissue contracture and facilitates post-operative rehabilitation. It proves to be valuable in selected cases of stiff wrists due to intra-articular derangement.
Verhellen and Bain described the use of combined volar and dorsal portals in performing arthroscopic release in 2 cases of severe post-traumatic capsular fibrosis and stiff wrist. All volar capsular ligaments except the ulno-carpal ligament complex and the volar radioulnar ligament were divided completely with a shaver, radiofrequency (RF) probe or using an arthroscopic knife, followed by gentle manipulation under anaesthesia. The relationship of the major neurovascular structures to the volar capsule had been studied. The average distance from the radiocarpal joint capsule to the median nerve was 6.9mm, 6.7mm to the ulnar nerve and 5.2mm to the radial artery. Release could also be performed for the dorsal capsular ligament. However extreme caution needed to be exercised to avoid injury to the closely related extensor tendons. Arthroscopic knife and RF probe were contraindicated. Bain advocated the use of a nylon tape to be placed through the 3/4 and 4/5 portals and “railroading” it between the dorsal capsule and the extensor tendons.

In our experience, the main difficulty in arthroscopic arthrolysis lies on the initial entry of the scope and instrument into an already contracted joint space. The trick is to perform progressive dilatation of the joint space using trocar of different sizes before the final introduction of the arthroscope. Also a small sized arthroscope of 1.9mm facilitates the procedure. The joint usually becomes more spacious and visible after initial debridement of the intra-articular fibrosis. Extreme caution needs to be exercised during the intraarticular maneuvers to avoid iatrogenic cartilage damage. It is possible to release the DRUJ contracture arthroscopically through a perforated TFCC, or using separate DRUJ portals. However technically it is very demanding and open procedure of capsulectomy is recommended. Volar DRUJ capsulectomy is indicated in patients with restriction of supination, while dorsal capsulectomy is indicated in patients with loss of pronation. Often combined approach is necessary with more global loss of forearm rotation. X ray is essential before the operation to rule out extensive joint incongruity which can be a contraindication to the surgery. Postop intensive mobilization exercise, vigorous pain and edema control, dynamic and static splinting regime for extended period are prerequisite to successful rehabilitation and outcome.

Luchetti et al reported the result on 28 patients with post-distal radius fracture arthrofibrosis at an average follow up of 28 months. Radiocarpal, midcarpal and DRUJ portals were used. Wrist flexion /extension increased from an average of 84° to 99° and mean pronosupination increased from 144° to 159°. The mean grip strength increased from 22 to 28 Kg (p<0.0001). Gabl reported the result of arthroscopic debridement in 20 patients with post distal radius fracture arthrofibrosis. They noted that fracture lines crossing the radius extensor compartments or interfacet ridge, cartilage defects and C3 fractures showed highest risk of developing severely rigid FTF. Arthroscopic debridement at the time of implant removal should be considered in these cases of stiff wrist management.

Approach to management of forearm post fracture rotational stiffness

**Professor Filip STOCKMANS**

AZ Groeninge, Kortrijk
KU Leuven KULAK
Belgium

Pro-supination limitations are a challenging problem for the patient and physician. Although some transient supination deficiency is common after distal radius fracture treatment, only severe, volar distal radius malunions result in moderate limitations of pro-supination.

Most patients with pro supination limitations present with a history of double bone forearm fractures. The nature of pro-supination in which the radius turns around a relatively static ulna explains the bowing of the radius. Angular malunions of the ulnar shaft and even more so, angular malunions of the radial shaft quickly result in severe limitations of forearm rotation. Rotational deformities in radial or ulnar shaft are much better tolerated and will rarely result in major limitations in mobility.

The role of the interosseous membrane is not fully understood. Most studies focus on the role of the distal oblique band in stability of the DRUJ, or instability in case of rupture. The only soft tissue structure that has been identified as a clear source of rotational stiffness is the joint capsule of the DRUJ.

Evaluation of a post traumatic rotational stiffness should start with the evaluation of the skeletal elements. In view of the complexity this is best done using bilateral full forearm CT scans. Mirroring of the contralateral unaffected side readily allows to appreciate the deformities and it will allow the planning of corrective osteotomies. Restoring bony anatomy is the first step. During the rehabilitation, torsion splints can be used for stretching of the soft tissues. In rare cases, radical excision of the contracted DRUJ capsule components can be considered.

Abstracts of Lectures
Experience on management of congenital causes of upper limb stiffness

Professor IP Wing Yuk Josephine
Department of Orthopaedics and Traumatology, Queen Mary Hospital, Hong Kong

Common congenital contracture includes arthrogryposis congenita multiplex, clasped thumb etc.

Arthrogryposis congenital multiplex involves multiple joints in both upper limb and lower limb. Hand contracture is not frequently tackled as these patients need multiple joint reconstruction. Literature review on hand reconstruction and case illustration will be presented.

Therapeutic management for stiff elbow

Mr Shrikant J. CHINCHALKAR
The Hand & Upper Limb Centre, St. Joseph’s Health Centre, London, Ontario, Canada

The rehabilitation of elbow trauma presents numerous challenges. Involvement of the osseous structures, compromise of the ligamentous stability, and loss of the soft tissue excursion necessary for elbow motion and function require due consideration during the treatment of elbow joint injuries. Stiffness of the elbow joint following trauma is common. This stiffness is caused by extrinsic and intrinsic factors. Contractures of the elbow joint develop as a result of contractures of the joint capsule, ligamentous structures, musculo-tendinous structures, intra-articular adhesions, and ectopic ossification. Early mobilization and splinting of the elbow following injury, within a safe arc of elbow motion, makes the elbow joint more compliant to the rehabilitative techniques. Understanding the details of elbow anatomy, biomechanics, trauma, and surgical procedures for repairing the osseous and the ligamentous structures thus are the key factors in rehabilitating the elbow joint successfully.

Upper limb stiffness in cerebral palsy

Dr CHAN Sze Yan Jennette
Department of Orthopaedics & Traumatology, Queen Mary Hospital, Hong Kong

Loss of voluntary control, abnormal motion co-ordination and spasticity are problems of patients with cerebral palsy. These factors can lead to upper limb ‘stiffness’. Careful evaluation of the whole patient and thorough understanding on the level of function are important for formulating treatment plan. Botox injection can facilitate decision making. Over-correction and disruption of well-developed adaptive movements should be avoided. Degree of voluntary control of muscles is the best predictor of outcome. Rehabilitation should facilitate motor learning of most bio-mechanically sound movement pattern.

Arthroscopic management for stiff elbow

Dr WONG Wing Yee Clara
SMART Orthopaedics-Sports Medicine-Rehabilitation Centre, Hong Kong

Elbow stiffness is not an uncommon condition. It can be due to post-traumatic, osteoarthritis, and inflammatory arthritis. 30 to 130 degrees were known to be the elbow functional range. When there is 50% reduction of the elbow motion, the upper extremity function would be reduced by 80%. Higher demand patients, e.g. athletes, would already have functional limitation even when there is mild flexion contracture. The symptoms would be more intolerable if there is pain in addition to stiffness. Surgical release helps to restore the elbow function. Arthroscopic release achieves the purpose in a minimal invasive way, which not only gives smaller incisions, less infection and quicker recovery, it also preserves delicate important structures around the elbow, preserves existing function, and meets the high demand patients when open surgery cannot be used for the same purpose. Patient selection, surgical technique and post-operative rehabilitation are discussed.
1. Finger proximal interphalangeal joint unstable dorsal fracture-dislocation treated by trans-articular pinning

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**Background:** To evaluate the outcome of trans-articular Kirschner wire fixation in acute unstable dorsal fracture-dislocation of the proximal interphalangeal joint (PIPJ).

**Methods:** Eight patients sustaining 9 unstable PIPJ dorsal fracture-dislocations (5 closed, 4 open) between January 2010 and January 2016 were reviewed. All were treated by closed reduction and PIPJ trans-articular pinning without fixation of fracture fragment. The pins were removed after an average of 37 days (range 29-44 days). PIPJ mobilisation and strengthening programme was then started.

**Results:** All patients had a mean follow-up of 5.5 months. The average flexion of the PIPJ was 56° (range 5° hyperextension - 110°), including 2 cases with complication which resulted in poor outcomes. Excluding these 2 cases, the average PIPJ flexion was 67°. One complication resulted from early pin removal after 29 days, and the PIPJ subluxated. He underwent volar plate arthroplasty eventually. Another complication of PIPJ stiffness at 5° hyperextension resulted from axial pinning of both DIPJ and PIPJ with the latter hyperextended. The patient underwent PIPJ release at 9 months, and his final PIPJ flexion was 50°. All patients reported acceptable function of the hand upon final follow-up. None reported chronic pain.

**Conclusion:** In acute dorsal fracture-dislocation of PIPJ, closed reduction and trans-articular pinning is a relatively simple treatment technique. Early pin removal and axial pinning of both DIPJ and PIPJ resulted in poor outcome. Otherwise this method appears to give subjectively acceptable outcomes, and objectively satisfactory range in selected cases.

2. Articular fractures of distal radius with dorsal displaced fragment: dorsal plate vs volar plate with Frag-loc system

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**Introduction:** Treatment for comminuted fractures of distal radius with dorsal displaced fragment is often challenging due to the difficulty in reducing and fixing the dorsal displaced fragments with conventional volar plate and high surgical skills with dorsal plate fixation. We studied the outcome of internal fixation with dorsal plate versus volar plate with Frag-loc system in these type of fractures and aimed to find out the optimal treatment.

**Materials & Methods:** 16 patients with AO23-C2/3 comminuted intra-articular fracture of the distal radius, with displaced dorsal fragment from 3/2015 to 9/2016 were recruited retrospectively. 8 of them were treated by volar plate (Acumed® Acu-loc plate with Frag-loc system) (V group) and 8 were treated by Synthes® 2-column dorsal plates with or without volar plate (D group). Demographic data, outcomes in terms of active range of motion, grip strength, functional outcomes and complications were compared.

**Results:** The average age in two groups was comparable. The average ranges of wrist motion were 51° flexion & 60° extension in D group and 58° flexion & 68° extension in V group. The supination and pronation ranges were comparable. Pain level, grip strength and complication rates were comparable. There was one case in each group required removal of implant due to implant impingement.

**Conclusion:** Both treatment options offered similar outcome in AO 23-C2/3 distal radius fracture with dorsal displaced fragments. Volar plate fixation with Frag-loc system had slight benefit in the degree of wrist flexion and extension. Outcomes were comparable.
3. Functional Outcome for Arthroscopic Treatment of Septic Arthritis of the Wrist

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Department of Orthopedics and Traumatology, Prince of Wales Hospital

Introduction: Septic arthritis is a potentially joint destructing condition if not treated properly. Arthroscopic lavage for septic arthritis of the knee, hip or shoulder is well-documented in the literature while previous research studies with wrist focusing solely in open treatment, and functional outcome were limited. Septic arthritis of the wrist is less common and accounts for an estimated 5% on septic arthritis of all joints. Immunosuppression is a common risk factor including diabetes mellitus and IV drug use.

Our study aims to evaluate the effectiveness of arthroscopic treatment and investigate the functional outcome.

Materials and Methods: A consecutive series of 14 patients, including 10 males and 4 females of an average age of 59.7 (range 30-93) with a history of septic arthritis of the wrist who underwent arthroscopic treatment, collected from the Prince of Wales Hospital database over 10 years (2007-2016) was included in a retrospective cohort study while 2 passed-away patients were excluded. History of prior injury, arthroscopic and radiological findings, need for subsequent operation, joint aspirate and intra-op tissue culture, antibiotics used, hospital stay and duration of antibiotics were recorded.

QuickDASH score, with 11 items of symptoms and abilities to perform certain activities, was used for phone-interviewing all patients accessing subjective functional outcome. Calculated overall score, item score (1 being least difficult and 5 being unable) and total score (highest 100) were recorded and calculated for each item.

Results: All except 2 patients (83.3%) responded well to single arthroscopic treatment. 2 required subsequent operations with no complication. Average QuickDASH score was 19.7 out of 100 (range 0-56.8) with average follow up of 10 months. Jar opening, cutting food, and recreational activity scored the highest with an average of 2.2 among all items; while tingling sensation had a lowest score of 1, followed by social activities with a score of 1.3. Duration of symptoms of 7 days or more prior to presentation gave a higher QuickDASH score. Only one case (8.3%) had signs of severe joint erosion on X-Ray on subsequent follow-up.

Discussion and Conclusion: Septic arthritis of the wrist can be managed with arthroscopic treatment for a reasonably favorable outcome. Early arthroscopic treatment should be considered for all patients admitted for septic arthritis of wrist if not contra-indicated.

4. A propensity score matched control study of reconstruction plates versus anatomically pre-contoured plates for clavicle fracture

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Introduction: The aim of this study was to compare the outcomes of patients with displaced midshaft clavicle fractures treated with reconstruction locking compression plates (RLCP) against those with anatomically pre-contoured locking compression plates (ALCP).

Methods: A matched control study was carried out in a two-center consecutive cohort of 114 patients with displaced clavicle shaft fractures treated by plate fixation. Two groups included 53 clavicle fractures fixed with the ALCP and 53 with the RLCP. The groups were matched for gender, age, fracture comminution, energy of injury, and fracture location using propensity score.

Results: At 21.7 months mean follow-up, there were no non-unions or fixation failures observed in the ALCP group, while 6 (11%) patients in the RLCP group was noted to have plate deformation with one plate breakage and non-union (p=0.027, Fisher’s exact test). There was no statistically significant difference in the overall complication rate and rate of surgical revision. Both groups had no difference regarding the incidence of side to side abduction deficit of more than 10 degrees (ALCP 9.4% vs RLCP 11%, p=1.000), incidence of pain that affecting daily function (ACL 13% vs RCLP 9.4%, p=0.761), and incidence of implant removal (ALCP 49% vs RLCP 57%, p=0.560).

Conclusion: The functional outcome was similar but reconstruction plates were more prone to plastic deformation and failure.
5. Wide Awake Surgery under Local Anaesthesia without Tourniquet for Ulnar Nerve Decompression and Medial Epicondylectomy: A Prospective Study

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Introduction: Ulnar nerve decompression with or without adjunctive procedures for cubital tunnel syndrome is a commonly performed surgery. Despite its modest surgical magnitude, conventionally this procedure is performed under general or regional anaesthesia. Local anaesthesia has the advantage of minimizing anaesthetic risks and is well tolerated in other hand surgery procedures. To investigate the efficacy and safety of local anaesthesia for ulnar nerve decompression and medical epicondylectomy, a prospective single arm study was conducted.

Methods: A prospective single arm study was performed with 16 patients. There were 11 male and 5 female subjects, with an age range of 39-69. There were 3 patients with McGowan stage 1 severity, 1 with stage 2, and 12 with stage 3. All procedures were performed under local anaesthesia using either 0.5% or 1% lignocaine with 1:100000 adrenaline without tourniquet. Subjective and objective parameters included DASH scores, Visual Analog Scale, grip and pinch power. Patients were assessed preoperatively, intraoperatively and postoperatively.

Results: The VAS score during nerve dissection was 22 out of 100. The VAS score at the end of the operation was 7.9. Patients' satisfaction at the end of the procedure was 89 out of 100. 15 patients were satisfied with the procedure and the outcome. 1 patient remained dissatisfied because there was no motor improvement. DASH score was 12.54% at three months versus 24.9% pre-operatively (p=0.004). There were no complications.

Conclusion: This is the first report of the WALANT (wide awake surgery under local anaesthesia with no tourniquet) technique being applied to open bony procedure. Ulnar nerve decompression with local anaesthesia and medial epicondylectomy is a safe procedure which provides a bloodless field and adequate anaesthesia for the patient.

6. Arthroscopic treatment of thumb MCPJ dislocation

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Department of Orthopaedics and Traumatology, Caritas Medical Centre

Introduction: MCPJ dislocation is commonly associated with volar plate and collateral ligament injury. Patient may present with limited range of movement of MCPJ after closed reduction. Such complication was traditionally treated with open reduction of volar plate; however it is associated with wound complications such as infection, scarring and subsequent stiffness. Our center has 2 experiences in treating patients with post thumb MCPJ dislocation stiffness using arthroscopy.

Methods: Both patients were young male (44 and 35 years old respectively), and both suffered from thumb MCPJ dorsal dislocation. They were both treated initially with closed reduction and immobilization by the emergency department. They were both put on immobilization until they were seen in our orthopaedics clinic around 1-2 weeks after injury, and both patients suffered from severe limited ROM of MCPJ after removal of casting. The locked MCPJ of thumb were treated arthroscopically under general anaesthesia, with the operation time around 1 hour. A dorsal-radial and dorsal-ulnar portal were established, with the assessment of collateral ligament, and proper reduction of the entrapped volar plate performed via arthroscopy. Post-operatively, they were both allowed full range of motion (ROM) immediately.

Results: Both patients achieved acceptable results with MCPJ active ROM being 50 and 70 degrees respectively. Both patients were able to resume work within 3 months of operation. None of them suffered from any post-operative complications or pain.

Conclusion: Post-dislocation stiffness of MCPJ of thumb can be effectively treated arthroscopically.
Abstracts of Local Free Papers

7. Neurovascular Island Flap for Pulp and Nail Augmentation in Thumb Duplication Reconstruction- a Novel Treatment with Long Term Follow up of 7.9 years

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¹Department of Orthopaedics and Traumatology, Prince of Wales Hospital
²Department of Orthopaedics and Traumatology, United Christian Hospital
³Dept of Hand Surgery, Beijing Jishuitan Hospital, Beijing, China

Objective: In thumb duplication, hypoplasia of both digits and asymmetry of the pulp and nail present challenges for reconstruction. Conventional or modified Bilhaut-Cloquet procedure can help to restore size and symmetry but may result in an obvious and unpleasant dorsal scar, joint stiffness and nail complication. Application can be difficult or impossible in asymmetrical duplication. To improve the aesthetic and functional results, a neurovascular island flap for pulp and nail augmentation with a dorsally based flap is described in this paper with long-term outcome.

Methods: 15 patients aged from 8 to 18 months were operated between 2002 and 2013 by our surgical team based at the Prince of Wales Hospital. There were 1 case of type I, 3 cases of type II, 2 cases of type III, 8 cases of type IV, and 1 case of type VII. All patients had significant hypoplasia and asymmetry of the pulp and nail of their digits. A dorsally based flap centered on the site of bifurcation was raised for exposure and dissection of the abnormal structures. A neurovascular island flap including pulp tissue, nail bed, with or without distal phalangeal bone was raised from the planned ablated digit basing on its single neurovascular bundle. This was transferred to the proper digit and repaired using 7-0 to 10-0 vicryl sutures under microscope magnification. All patients were followed up to monitor the aesthetic, functional and radiological outcome. An aesthetic scoring system was proposed to assess the cosmetic results of the thumb duplication reconstruction.

Results: The mean follow up period was 7 years 11 months (range 3 years 1 month to 13 years 7months). Of the 15 cases, 14 flaps survived. For the failure case, circulation of the flap deteriorated in the early postoperative period and was removed while the ulnar dominant digit was kept intact. The discrepancy in the mean nail width decreased from 19% narrower than the contralateral thumb to 2% wider in the final assessment, which was statistically significant (p=0.006). In the subgroup of 8 patients with an intermediate assessment 3.5 years earlier, there was a further decrease in discrepancy from 5.6% to 1.7%. There was a small difference in pulp circumference of 4% (p=0.05). Nail ridging was prominent in 4 cases, mild in 2 and inconspicuous in 9. Two subjects who had prominent ridging in the intermediate assessment improved to mild and one subject with initially inconspicuous ridging deteriorated. Asymmetry of pulp and nail fold was improved after surgery in all subjects except one who had recurrence of asymmetry with growth.

There was a significant correlation between our aesthetic score (p=0.012) and the Tada score. However, there is no correlation between the Tada and JSSH scores or the JSSH and aesthetic scores. All parents expressed satisfaction at the overall outcome.

Conclusion: In selected cases of thumb duplication where an ablation procedure would result in a hypoplastic and asymmetrical thumb, the neurovascular island flap is a safe and effective means to improve size and aesthetics. However, parents should be cautioned about possible deterioration of the aesthetic outcome with growth.

8. Our experience on finger tip injury treated with single stage finger flap surgery

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The management of finger tip injury with tissue loss is challenging. Treatment aims includes adequate soft tissue coverage, preservation of sensation and mobility, and avoidance of possible complications, e.g. hypersensitivity, hook nail, cold intolerance. The use of one-stage finger flap coverage allows early closure of wound and prompt initiation of rehabilitation program. We reviewed cases of finger tip injury treated with one-stage finger flap coverage in our centre from 2012 to 2016. We tried to analyse the demographic data and assess both subjective and objective surgical outcomes.
9. Fasciocutaneous Flap reconstruction for distal leg to foot soft tissue defect

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Department of Orthopaedics & Traumatology, Tuen Mun Hospital

Background: Reconstruction of soft tissue defects in the distal one third of the leg, ankle to foot regions poses challenges to Orthopaedic surgeons due to paucity of donor tissue to cover exposed tendons and bones. Reverse sural artery fasciocutaneous (RSAF) flap remains the workhorse flap in reconstructing these areas. Recently, perforator-based flaps gain more popularity and offer a versatile alternative treatment. The study presented our case series of distal lower limb reconstruction with various flap options.

Methods: Patients with fasciocutaneous flap reconstruction for distal leg to foot soft tissue defect were retrospectively reviewed from Jan 2012 to Dec 2016. 18 Patients with 19 flaps were identified through medical records. Patient demographics, types of defect and flap reconstruction, and the clinical outcomes were studied.

Results: There were 9 RSAF flaps, 4 perforator-based flaps and 6 free flaps. Most defects were caused by infection or trauma. Average age of patients was 48. Mean follow-up time was 15 months. Overall successful rate was 89%. Minimal pain related to the flap was encountered. There were 2 free flap failure, both were in pediatric age group. Complication of partial flap necrosis was encountered in one RSAF flap.

Conclusions: Choices of flap reconstruction of soft tissue defects in the distal one third of the leg to foot regions depend on the availability and versatility of the flap. Reverse sural artery flap and perforator based flap offer satisfactory results. Free flap reconstruction requires more advanced microsurgical skills but is still an armamentarium in more complex defects.

10. Isolated Dorsal TFCC Tear: Diagnosis and Outcome Of Arthroscopic Repair Under Portal Site Local Anaesthesia

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Introduction: Dorsal triangular fibrocartilage complex (TFCC) tear is a distinct entity not included in the original Palmer classification. Our study aims to investigate the diagnostic features and clinical outcome of those patients with isolated dorsal TFCC tear.

Materials and Methods: 14 patients with chronic ulnar wrist pain diagnosed isolated dorsal TFCC tear were included in our retrospective cohort study under the same protocol for 2 hospitals (PWH and AHNH). Preoperative clinical assessments were recorded on a predesigned performa. Arthroscopic repair of the tear was performed in all using outside-in technique under portal site local anaesthesia without the use of tourniquet. Mean wrist performance score and Mayo modified wrist score were used to assess the clinical outcomes.

Results: The average age of 7 male and 7 female patients was 34.64 (SD 9.11). All patients had grade I instability of the distal radio-ulnar joint.11 patients had positive ulnar grinding test and pisotriquetral shear test before operation. MRI findings were inconsistent. Dorsal TFCC tear have been found to be missed without stringent wrist arthroscopic assessment and coexisting synovitis over dorsal-ulnar capsule was a common finding. Average final follow-up examination was performed 31.29 months after first assessment (SD 31.36). Mean wrist performance score improved from 31.93 preoperatively to 37.5 (p<0.01). Based on the modified Mayo wrist Score, 4 patients had excellent results, good in 7, fair in 2 and poor in 1 patient at the final follow-up.

Discussion and Conclusion: With vigilant clinical assessment and careful wrist arthroscopy techniques, dorsal TFCC tears can be diagnosed and treated arthroscopically with favorable outcomes.
Abstract of Overseas Paper

1. Complications following reconstruction of soft-tissue sarcoma: importance of early coverage reconstruction

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Background: Soft-tissue sarcomas (STSs) are rare malignant mesenchyme-derived tumours arising most frequently in the extremities. Current treatment involves wide excision and radiotherapy. Reconstruction of defects following limb-sparing surgery is best achieved with free flaps immediately after primary resection. Nevertheless, high rates of wound complications are expected, mainly due to postoperative radiotherapy. Patients inadequately treated with multiple surgeries and repetitive radiotherapy, are more prone to develop complications leading to the worst functional outcomes.

Methods: A retrospective analysis of patients referred for reconstruction following STS resection was performed. For all patients, history of smoking, diabetes, and preoperative radiotherapy and/or brachytherapy was recorded. Patients were then classified into the following 2 groups: group A, immediate reconstruction within 1 year since oncologic surgery and group B, delayed reconstruction after 1 year. Concerning reconstruction, we considered major wound complications if one or more of the following conditions were met: (1) a secondary operation was required for wound treatment, (2) an invasive procedure was necessary for wound care, and (3) readmission to the hospital was necessary for wound care. Statistical analysis was carried out using Student t test and χ². Odds ratio with 95% confidence interval was estimated.

Results: A total of 30 patients were referred to our unit for reconstruction with 14 free flaps, 12 pedicled muscle flaps, 3 fasciocutaneous local flaps, and 1 perforator propeller flap. From the total, 14 patients corresponding to group A and 16 to group B. Significant difference was observed in complication rates between the groups (P < 0.05). Early reconstruction decreased the risk of complications (odds ratio, 0.06; 95% confidence interval, 0.01-0.36).

Conclusions: STSs are best treated in specialist centres. Early referral is highly recommended to achieve good oncologic outcomes. Our results show a clear tendency of higher wound complication rates in patients lately referred for reconstruction. We believe that early coverage reconstruction in the management of STS is mandatory for avoiding major complications, namely related with radiotherapy negative effects.

2. The cause, diagnosis and treatment of upper trunk subtype thoracic outlet syndrome

R Zhao
The Fourth Military Medical University, Shannxi, China

Upper trunk subtype thoracic outlet syndrome is one subtype of neurogenic thoracic outlet syndrome (TOS), which constitutes about 10% as a whole, but existence of most cases is still controversial. 31 patients diagnosed with upper subtype TOS were treated in our department. The following results indicate that recovery rate of shoulder abduction and elbow flexion of the patients who had neurolysis of internal and external foramen intervertebrale are better than the ones who had neurolysis of upper trunk only. We speculate that the pathogenesis of upper trunk subtype TOS may has relationship with cervical spondylotic radiculopathy. The therapeutic effect of neurolysis of internal and external foramen intervertebrale is better than neurolysis of upper trunk only for the patients who had nerve compression both at the internal and external foramen intervertebrale.
Abstract of Overseas Paper

3. A Review and Reflection on the Diagnosis and Treatment of 146 cases of Neurogenic Thoracic Outlet Syndrome

HB Sun
China-Japan Union Hospital, Jilin University, China

We reviewed 146 thoracic outlet decompression procedures from September 1, 2008 to December 31, 2015. The results are as follows:

<table>
<thead>
<tr>
<th>Pathology</th>
<th>NTOS 146 cases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scalene triangle</strong></td>
<td></td>
</tr>
<tr>
<td>abnormal first rib</td>
<td>57(39.0%)</td>
</tr>
<tr>
<td>long C7 transverse process</td>
<td>7(4.8%)</td>
</tr>
<tr>
<td>cervical rib</td>
<td>6(4.1%)</td>
</tr>
<tr>
<td>Anterior/middle scalene anomalies</td>
<td>93(63.7%)</td>
</tr>
<tr>
<td>scalenus minimus</td>
<td>18(12.3%)</td>
</tr>
<tr>
<td>fibrous bands</td>
<td>72(49.3%)</td>
</tr>
<tr>
<td>scarring</td>
<td>28(19.2%)</td>
</tr>
<tr>
<td><strong>Costoclavicular space</strong></td>
<td></td>
</tr>
<tr>
<td>Thickened subclavius muscle</td>
<td>64(43.8%)</td>
</tr>
<tr>
<td>Accessory tendinous band</td>
<td>18(12.3%)</td>
</tr>
<tr>
<td><strong>Retropectoralis minor space</strong></td>
<td></td>
</tr>
<tr>
<td>Thickened pectoralis minor muscle</td>
<td>81(55.5%)</td>
</tr>
<tr>
<td>Fibrous or ectopic/supernumerary muscular slips</td>
<td>23(15.7%)</td>
</tr>
</tbody>
</table>

The number of compartments having anomalies NTOS 146 cases

| Three Compartments               |                |
| Scalene triangle + Costoclavicular space + Subcorocoid space | 43(29.5%) |

| Two Compartments                 |                |
| Scalene triangle + Costoclavicular space | 34 |
| Scalene triangle + Subcorocoid space | 38 |

| One Compartment                  |                |
| Scalene triangle                 | 18(12.3%)      |

From the results, we found that most of the patients had more than two compression sites (78.8%). We also found that misdiagnosis can easily happen without comprehensive pre-operative tests and careful differential diagnosis. To treat the TOS, we share our experience on three points: to remove the first rib or not, to perform pectoralis minor tenotomy or not and how to deal with the subclavius muscle and surrounding tissues.

4. Story of FIVE replantation of one total avulsed scalp

TG Chu
The 2nd Affiliated Hospital, Wenzhou Medical University, Zhejiang, Wenzhou, China

Introduction of the story of the 5th total scalp replantation, the 5th case is one of our eighth successful scalp replantations in the past 3 years. We conducted eight avulsed scalp replantations successfully. Some detailed procedures will be discussed in the story.
Abstract of JSSH Ambassador's Paper

Acceleration of peripheral nerve regeneration using nerve conduits in combination with induced pluripotent stem cell technology and a basic fibroblast growth factor drug delivery system

U Takuya
The Department of Orthopaedic Surgery, Osaka City University Graduate School of Medicine

Objective: For peripheral nerve repair, various modifications including addition of Schwann cells or incorporation of growth factors with bioabsorbable nerve conduits have been explored. However, no reports about nerve conduits containing both supportive cells and growth factors have been published as regenerative medicine for peripheral nerves. The purpose of this study was to repair sciatic nerve gaps in mice using tissue-engineered bioabsorbable nerve conduits coated with basic fibroblast growth factors (bFGF) in combination with induced pluripotent stem cell (iPSC)-derived neurospheres as a way to deliver both supportive cells and growth factors.

Methods: The bioabsorbable nerve conduit (external diameter 2 mm, internal diameter 1 mm and length 7 mm) was composed of an outer layer of a poly L-lactide mesh and an inner layer of a porous sponge composed of 50% L-lactide and 50% ε-caprolactone. Mouse iPSCs were neurally induced in vitro using a published protocol. The secondary neurospheres (4.0 × 10⁶ cells per conduit) derived from iPSCs were suspended in each conduit. The bFGF (100 µg)-incorporated gelatin microspheres (5 mg), which create a slow-release drug delivery system, were suspended in the nerve conduits coated with neurospheres derived from iPSC just before transplantation into mice. The 5-mm sciatic nerve gaps in mice were reconstructed in the following groups: nerve conduit alone (control group, 18 mice), nerve conduit coated with iPSC-derived neurospheres (iPSC group, 18 mice), nerve conduit coated with iPSC-derived neurospheres and bFGF-incorporated gelatin microspheres (iPSC+bFGF group, 8 mice), and autograft (autograft group, 12 mice). The recovery of motor and sensory function of each mouse's hindlimb was assessed at 4, 8, and 12 weeks after repair of the peripheral nerve gaps. At 12 weeks, the nerve conduits and grafted nerve were harvested, and nerve regeneration was evaluated by histological analysis.

Results: The fastest functional recovery and the greatest axon regeneration occurred in the autograft group, followed in order by the iPSC+bFGF group, iPSC group, and control group until 12 weeks after reconstruction.

Conclusion: Peripheral nerve regeneration using nerve conduits and functional recovery in mice were accelerated by a combination of iPSC-derived neurospheres and a bFGF drug delivery system. The combination of all three fundamental methodologies, bioabsorbable nerve conduits for scaffolds, iPSC technology for supportive cells, and a bFGF drug delivery system for growth factors, was essential and useful for peripheral nerve regenerative medicine.
Abstract of KSSH Ambassador’s Paper

Dorsal metacarpal artery perforator flap

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Institute for Hand Reconstructive Microsurgery, Daegu, Korea

Objective: Reverse dorsal metacarpal artery island flap is a common procedure performed in the reconstruction of the soft tissue of the hand, except for the tip of the finger. Rather than elevating the flap and the artery through reverse dorsal metacarpal artery island flap procedure, elevating only the island flap via the use of a perforator in the dorsal metacarpal artery perforator flap is a simpler and more useful procedure. The purpose of this study is to evaluate the result of the dorsal metacarpal artery perforator flap procedure.

Methods: Dorsal metacarpal artery perforator flap was performed in 37 patients, composed of 29 males and 8 females, from November 2012 through October 2016. The mean age of the patients was 47, and the average follow up period was 5.3 months. Of the 38 cases, 35 cases presented soft tissue defect due to trauma and 3 cases due to burning. In 16 of the cases, the subcutaneous tunnel was created for the pedicle to pass through, and in 22 of the cases, the pedicle was left exposed with wet dressing and 2 weeks later, pedicle division was performed.

Results: The mean flap size was 4.3x2.5cm. Primary closure (mean flap size 4.1 x 2cm) was performed at the donor site in 17 cases, and full thickness skin graft (mean flap size 4.2 x 2.8cm) was performed at the donor site in 21 cases. It involved 3 case of perforator of 1st dorsal metacarpal artery, 18 cases of 2nd dorsal metacarpal artery, 13 cases of 3rd metacarpal artery, 4 cases of 4th metacarpal artery. 5 cases of partial necrosis, and 1 case of total necrosis were observed, and 15 cases included additional procedure of flap defatting.

Conclusion: Scars remained, but donor site morbidity was minimal. It is also a useful procedure in producing adequate length of the pedicle for reconstructing not just the dorsal side of the hand, but also the thumb or the 1st web space of the hand.
Plasma microrna-146a and microrna-155 are potential objective and early biomarkers for acute rejection of transplanted limbs

Hiroki Oda, Ryosuke Ikeguchi, Tomoki Aoyama, Souichi Ohta, Takashi Noguchi, Yukitoshi Kaizawa, Hirofumi Yurie, Hisataka Takeuchi, Koji Yamamoto, Shuichi Matsuda

Graduate school of medicine, Kyoto university, Japan

Background: Limb transplantation is one treatment option for amputees. Visual skin inspection and histological assessment are used to assess the rejection. However, they are largely subjective. We investigated the potential of several micrornas (mirnas) as objective biomarkers for acute rejection of transplanted limbs.

Methods: In the allograft group, Brown Norway rats were used as the donors and Lewis rats as the recipients. In the control group, Lewis rats were used as the donors and recipients. Donors’ hind limbs were transplanted orthotopically to recipients. Plasma samples were obtained from all recipients before surgery and on days 3, 7, 10, and 14 post-transplantation. Mirnas were isolated from the plasma and measured with RT-PCR. All recipients were sacrificed on day 14, and skin tissues were harvested to assess histologically.

Results: The plasma expression of mirna-146a and mirna-155 was significantly elevated in the allograft group on days 10 and 14 post-transplantation compared with that in the control group. Most skin samples in the allograft group were classified as grade 3 rejection, whereas most samples in the control group as grade 0 or 1.

Conclusions: Mirna-146a and mirna-155 are over-expressed in plasma during acute rejection, and they are the potential biomarkers for early and objective diagnosis of rejection.
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Nursing Council of Hong Kong
CNE 10 points

Hong Kong Occupational Therapy Association
CPD  points (pending)

Hong Kong Physiotherapy Association
CPD  points (pending)

Hong Kong Society of Certified Prosthetist-Orthotists
Day 1: 5 Cat A. 1 CPD points  Day 2: 3 Cat A. 1 CPD points
BETADINE®
ENGINEERED TO HEAL & PROTECT

PVP-I

- Improves wound healing time by 2–9 weeks¹
- Less cytotoxic in minimum bactericidal concentration²³⁴
- Better tissue tolerance³⁴
- No clinical reports of microbial resistance development⁴

Povidone-iodine is recommended as an appropriate 1st line choice for wound infection management.³

Reference:

BETADINE® Antiseptics – Abbreviated Product Information

Competitive: Povidone-iodine

- Indications: Dry powder spray Treatment & prevention of wound infection including: ulcer cuts & other minor injuries, Paint Topical antiseptic for relief of cold sores, protection from infection on grafts, abrasions, cuts and wounds. Oxidation Antiseptic for burns, scalds, minor cuts, scratches, & grazes. Antiseptic cloth Cleansing of wounds, abrasions, cuts, various degree burns, provogue, skin & mucous tissues. Alcohol-free Prep skin preparation. Surgical scrub Pre-op scrubbing. Cream Major & minor burns, cuts, & abrasions. Debridge & administration: Powder spray Spray about 6-10 inches away from the area to be treated 3-4 times, Antiseptic spray/Alcohol free Apply as needed as required, Paint Apply directly to affected areas bid & allow to dry, Oxidant spray once daily or bid for a max of 14 days, Cream Apply once or twice a day. Contra-Indications: Hypersensitivity, hyperthyroidism, before & after radioactive therapy, thyroid carcinoma, goitre or following thyroid diseases, concomitant Euthyroid Therapy, Pregnancy & lactation. Cream & Paint Babies <1yr, Oxidant & Dry powder spray 2mls < 1yr. Special warnings and precautions for use: In pre-operative preparation, avoid pooling beneath the patient. Prolonged exposure to wet solution may cause irritation or rash, severe skin reactions, Chemical burns of skin due to pooling may occur. In instance of skin irritation, contact dermatitis or hypersensitivity, discontinue use. Do not use prior to application. Keep out of the reach of children. Patients with goitre, thyroid nodules, or other non-thyroidal thyroid diseases are at risk of developing thyroid hyperfunction (hyperthyroidism) from the administration of large amounts of iodine. In this patient population, povidone-iodine solution should not be applied for an extended period of time and to large areas of the skin unless strictly indicated. Even after the end of the treatment one should look for the early symptoms of possible hyperthyroidism and if necessary the thyroid function should be monitored. It should not be used prior to or after radioactive isotope therapy or radioactive treatment of thyroid carcinoma. Newborns and small infants are at increased risk of developing hyperthyroidism from the administration of large amounts of iodine. Because of the permeable nature of their skin and their increased sensitivity to iodine, the use of povidone-iodine should be kept to the absolute minimum in newborns and small infants. A check of the child’s thyroid function (e.g., T4 levels and TSH levels) may be necessary. Any possible and progression of povidone-iodine by the infant must be absolutely avoided. Undesirable effects: Local reaction (discontinued). Drug interactions: Wound treatment prep containing enzymes & mercury. Natrium containing silver hydroxide paste or laureth – # Prescription Antiseptic 10% x 30ml, 500 ml. Surgical scrub 7.5% x 1 fl. Ointment 10% x 60g, 100% x 100 g Paint 10% x 8 ml, Dry powder spray 2.5% x 155 g Alcohol free 10% x 500 ml, Cream 5% x 15 g

FULL prescribing information is available upon request. © Betadine is a Registered Trademark Version: Oct 2016 HKL-BET-0197-V1-1016

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Using the powerful functionality of SOMA, our population-based design environment, we are able to create anatomically shaped plates that are enhanced for a broad range of patients.

Fit for procedures
Intelligent instruments, smart design features and thoughtful innovation allow for a streamlined procedure, letting you focus on what really matters.

Fit for you
Dedicated and hard-working, our sales force provides you with market-leading support.

Fit for the future
Evolving our plating portfolio is a continuous process, and our ambition is to lead in all aspects of trauma plating.

Trauma & Extremities

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