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Department of Orthopaedics & Traumatology

Queen Mary Hospital

The University of Hong Kong Medical Centre

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Message from the Editorial Board

Happy New Year. In this issue, we'd like to report some of our achievements in 2009 and let you know about our upcoming events in 2010. We would like to bring you some highlights of The First Professor SP Chow Orthopaedic Contest that was held in Guangzhou earlier in Sept 2009. We would also like to draw your attention to our upcoming Hong Kong International Orthopaedic Forum - Common Orthopaedic Myths. As the Chinese New Year is just around the corner, we wish you good luck and happiness in the Year of Tiger!

"Doc! What happened to my hand!"

The Role of Electro-Diagnostic Study in Managing Orthopaedic Pathologies Affecting Central and Peripheral Nervous System

Dr. HB Leung / Dr. HY Kwok

A significant proportion of patients who are seen in the orthopaedic clinics may be suffering from pathologies in central and peripheral nervous system.

Carpal tunnel and cubital tunnel syndromes are typical examples of peripheral nervous system pathologies that we would commonly see in our clinic. These patients would complain of pain over the upper limb, with or without history of work strain. Diagnosis rests on a careful history and clinical examination. Electro-diagnostic study can be considered as a very important supplementary tool to augment our clinical findings, and it can also be used to exclude other medical causes of symptoms such as peripheral neuropathy or radiculopathy. It is a direct reflection of the electrophysiological behavior of the involved nerve. Although its value in prognosticating and monitoring the disease has not been fully recognised because of the conflicting evidence among a diversity of techniques, it is still an investigation that is commonly performed by many orthopaedic surgeons.

Management of patients with spinal cord and nerve root pathology can be another area where electro-diagnostic study could be applied. Diagnosing and decision on treatment for patients with cervical myelopathy and lumbar radiculopathy relied heavily on clinical examination supplemented with imaging technique, especially Magnetic Resonant Imaging (MRI). Occasionally, the diagnosis could be made complicated by other pathologies, e.g. peripheral neuropathy or other spinal cord pathology, and that is the time when electrophysiology could help. The test could assess the function of the

Right hand is normal without any wasting; left hand shows marked muscle wasting in the thenar and hypothenar areas

nervous system and to correlate it with the clinical assessment and imaging study to give a more comprehensive view of the problem. Given that electro-diagnostic tests are objective functional assessments, complementing the current approach with this investigation modality should, at least in theory, improves the accuracy.

Besides it being a useful diagnostic tool, it can also be used to monitor our patients' neurological condition during very complicated spinal operation. Intraoperative spinal cord monitoring is now our standard of practice in patients having spinal surgery since 1996. With the help of the spinal cord monitoring, we could regularly check on the spinal cord function in order to minimize the jeopardy as caused by the spinal procedure. Our Department has well investigated the reliability of spinal cord monitoring in the aspects of baseline data, warning criteria, variation factors and the effect from anaesthesia, and they have greatly improved the accuracy of the test. We have published the results of the use of spinal cord monitoring and justified it as a very useful adjunct to a successful spinal operation.

Cutting Edge Development
Rehabilitation Service

Dr. HY Kwok

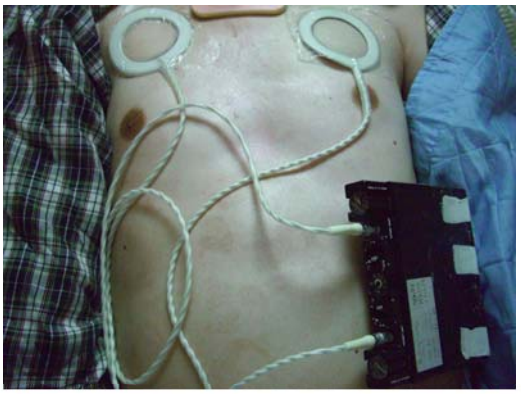
Orthopaedic Rehabilitation has established as a subspecialty division starting July 2009, landmarking the milestone of its development at the Department of Orthopaedics and Traumatology. Orthopaedic Rehabilitation has evolved since its set up as a distinct subspecialty under the College of Orthopaedic Surgeon in 2004. After that, the Orthopaedic Rehabilitation subspecialty takes a structured training program and gradually develops its distinct scope of service, including spinal cord injury rehabilitation, amputee rehabilitation, back pain rehabilitation, work rehabilitation, and many others.

A reciprocating gait orthosis (RGO) designed for paraplegic patients. The aim is to provide a more natural and efficient method of ambulation by coupling the left and right orthoses

Rehabilitation mainly focuses in form and function, and that is well instilled in the mind of every orthopaedic surgeon. Orthopaedics has a long history of commitment in different areas of Rehabilitation in Hong Kong. Now that the Orthopaedic rehabilitation becomes a distinct subspecialty, the service would sure to contribute as a significant part among the other orthopaedic subspecialties.

RGO can bring about coordinated reciprocating action between two lower limbs. Hence, hip extension in either one can force the other hip joint into flexion.

One of the principles in rehabilitation is multidisciplinary care. It is exemplified by the rehabilitation of a spinal cord injury patient. Due to the injury at the spinal cord level, a significant portion of the bodily function would be lost. It is especially true in a cervical spinal cord injury patient. On top of the locomotor function, the respiratory function which is important to support life would be affected in various degree. The early part of the care would definitely involve a multidisciplinary care team. Besides the orthopaedic side of the disease, an Orthopaedic rehabilitation specialist would also need to have the knowledge on the respiratory system as well as other systemic function to provide the best coordinated care for the patient. A carefully planned rehabilitation training would certainly help to maximize the patient's function. Technology would help to augment the patient's lost spinal cord function and to further enhance the quality of life. Besides the different motor-driven training with or without stimulation of the paralyzed muscle,



A portable phrenic nerve stimulator helps to stimulate the diaphragm and to restore the respiratory action

nowadays scientists are developing various ways of functional electrical stimulation to restore part of the body function. The diaphragmatic stimulation is one of the examples which could significantly affect the quality of life in an even ventilator-dependent cervical spinal cord injury patient. With its help, the patient could improve his mobility and the way to communicate. The science is evolving and the technology is improving in helping the spinal cord injury patient. We as an Orthopaedic Rehabilitation specialist should embrace the skill, as a way to improve the "form and function" after the devastating injury.

Patient can be free from mechanical ventilation and enjoy outdoor activities in the wheelchair

Tips from our Allied Health

Respiratory Care for Patients with Spinal Cord Injury

Physiotherapy Department of the MacLehose Medical Rehabilitation Centre

The respiratory system of patients with spinal cord injury is impaired because of the paralysis of the chest muscle and diaphragm. As a result of poor coughing ability, patients will have difficulty to clear the dust, mucus and saliva from their lungs, hence resulting in chest infection. Proper assessment and regular training are very important to these patients in order to prevent chest infection.

During the initial assessment, the breathing pattern, neurological motor levels and spirometric measures (e.g. forced vital capacity and maximal insufflation) are recorded. These baseline assessments are essential and are used to monitor the progress of the lung condition and neurological recovery. It is important to maintain the lung compliance and prevent microatelectasis during the acute to subacute phase after spinal cord injury. After the patients are stabilized, it is essential to prevent complications as a result of the injury e.g. stiffness of chest wall, sputum retention and pneumonia. This can be achieved by the long-term home care program at which proper training in the use of the respiratory aids and respiratory exercise can be provided to the helpers and caretakers. The patients need to be followed up regularly to monitor their lung function as well as the techniques of the home helpers.

Air stacking exercise can help to maintain and improve the insufflation capacity of the lung. This can be achieved by ambu bag, glossopharyngeal breathing and mechanical insufflator-exsufflator (Coughassist). Mobilization exercise of the rib cage is also very important in maintaining the lung compliance.

Mobilization of the rib cage can be achieved by truncal rotation (top right), retraction (top left), and side flexion exercise (bottom left)

Many of the patients with spinal cord injury will have reduced coughing effort i.e. decreased precough inspiration or forced vital capacity and peak cough flow. To improve

Coughassist (left) - a machine that helps to apply a positive pressure to the airway followed by a rapid shifting to negative pressure in order to produce a high expiratory flow simulating a natural cough

the coughing effort and to prevent sputum retention are essential to minimize chest infection. Coughing effort can be improved by a combination of air stacking exercise and abdominal thrust maneuver. Those who have very poor coughing effort may be benefited from Coughassist.

Drainage of the bronchial secretion can be achieved passively by postural drainage. With the help of gravity, the bronchial secretion from various parts of the lung could be drained to the bronchi and trachea.

A Chat with Dr. HY Kwok

Division Chief of Orthopaedic Rehabilitation

Kenny Kwan

"Rehabilitation starts at the acute hospital right from the patient was admitted to hospital..."

1. How did you decide to become a specialist in orthopaedic rehabilitation?

Initially I was trained in Orthopaedic Trauma which focused mainly on fracture fixation. However the longer I spent in trauma work, the more I realized the severity of the disability patients suffered from their injuries, which could not be treated surgically. I became more aware of the importance of rehabilitation, which gave me the inspiration to do orthopaedic rehabilitation. In 2004, rehabilitation became a subspecialty within the Orthopaedic College. At around the same time, Dr Lee Shwe Yan left MMRC to China to continue some rehabilitation work there, and I took up this opportunity to work as a full time orthopaedic specialist in looking after these rehabilitation patients.

2. What does orthopaedic rehabilitation involve?

Orthopaedic surgeons have been involved in rehabilitation work for a long time, right from the time of our predecessors such as Prof Sir Harry Fang and Dr York Chow. Since then, rehabilitation has evolved quickly over time, including technological advances, and methods of rehabilitation with focus on patients with specific needs, such as spinal cord injury patients, amputees, patients who suffer from complicated trauma and back pain. These patients need specific rehabilitation programmes to allow them to recover from their disability.

3. How did MMRC and FYKH come into existence?

MacLehose Medical Rehabilitation Centre was developed by the Hong Kong Society for Rehabilitation to provide more in-patient rehabilitation. It was officially opened in 1984 and became the first institution for comprehensive rehabilitation of the physically disabled on Hong Kong island. It has continued that work as an in-patient rehabilitation centre for the HKW cluster.

FYKH was originally known as the Sandy Bay Infirmary in the 1950s as a leprosarium. It eventually redeveloped into a hospital structure in 1966 and was renamed to Sandy Bay Convalescent Hospital to look after patients with chronic diseases. Subsequently the hospital received a generous donation from the Fung Yiu King Charity Foundation and underwent comprehensive renovation to become the Fung Yiu King Convalescent Hospital in 1988. Since then it has focused on the rehabilitation of the elderly for medical and orthopaedic patients. It changed its name to TWGH FYKH in 1994.

4. What role does our rehabilitation service provide in the delivery of orthopaedic care of our department?

Rehabilitation starts at the acute hospital right from the patient was admitted. At QMH the main focus is on the diagnosis and surgical treatment of these patients, and we serve as a continuation of this management, which is to expedite the rehabilitation process to maximize the patients' function and to allow the patients to re-integrate back to the society. This is the special role our rehabilitation centres play in the comprehensive orthopaedic service our department provides.

5. How does the organization of rehabilitation in Hong Kong differ from the rest of the world?

The main difference in Hong Kong compared with Europe, America, Japan and China is that rehabilitation is part of the orthopaedic specialty rather than its own specialty. This means that most of the rehabilitation care is undertaken by orthopaedic surgeons who have a good grasp of the underlying problem and what the patient requires in terms of rehabilitation. In Hong Kong, rehabilitation has developed as a subspecialty with its own knowledge, training and service, but it is still in its infancy and requires work on defining its role within the orthopaedic service,

which disease entities to focus on, and the training it needs to deliver.

6. What is your vision for our rehabilitation service in the next few years?

We need to refine our service so that it can cater for specific categories of conditions with their own programmes. I also want to develop some community-based rehabilitation to allow out-patients to be looked after. Another area to develop is to pursue some academic research to improve the body of medical knowledge within rehabilitation thus improving our delivery of care.

7. What advice would you give anyone who wishes to pursue orthopaedic rehabilitation?

I think it requires a wide knowledge base of different orthopaedic conditions including some post-operative regimes in order to maximize the rehabilitation potential. It also needs good communication and organization skills in order to co-ordinate the multi-disciplinary care that it requires to gain benefit from rehabilitation. It needs an analytical mind to explore the problems faced and devise innovative and sometimes individual-based solutions for the patients. Lastly, I think you must have a heart to pursue rehabilitation since it can be a prolonged process and at times you as the clinician can be frustrated by the patients' disabilities, but if your heart is in it, then you will feel for the patients, and try to come up with the best way to help them.

Residents' Corner
Dr. Leung Ka Hei & Dr. Chan Hau Yee Orthopaedics and Surgery tie the knot on 5 Dec 2009

Chan Hau Yee (left) and Leung Ka Hei (right)

Congratulations to Dr. Leung Ka Hei (Department of Orthopaedics & Traumatology) and Dr. Chan Hau Yee (Department of Surgery). After tying so many surgical knots as surgeons, they decided to tie their wedding knot on 5 Dec 2009 as Mr. and Mrs Leung. The wedding ceremony was very touching and memorable. The banquet was even more unforgettable when the couple surprised their guests by their heartfelt duet and dazzling fireworks over Victoria Harbour. Yes! Fireworks! The couple certainly knows more than just orthopaedics and surgery and they know how to choose their wedding day - the opening day of the East Asian Games 2009.


Welcome Hau Yee to our UOU family

The First Western Pacific Region World Health Organization Collaborating Centres for Rehabilitation Working Group Meeting 11-12 December 2009 in Hong Kong

Dr. Dino Samartzis and Dr. HY Kwok of our department were part of the invited delegates alongside WHO representatives from Switzerland, Japan, Taiwan, Philippines, China, and Hong Kong on the very first Western Pacific Region World Health Organization Collaborating Centres for Rehabilitation Working Group Meeting.

The Professor SP Chow Orthopaedic Contest
Department of Orthopaedics
The First Affiliated Hospital, Sun Yat Sen University, Guangzhou
13 September 2009

Professor SP Chow has long been an enthusiastic mentor and generous sponsor of orthopaedic education in Hong Kong and Guangzhou. In the past years, he dedicated his time and money at the education of undergraduate medical students. To continue his legacy, the Prof. SP Chow Education Fund will support an annual programme called 'Professor SP Chow Orthopaedic Contest'.

Professor Chow presenting the award to Dr. Christian Fang

The aim of the Professor SP Chow Orthopaedic Contest is to promote academic exchange and nurture friendship between the Department of O&T, The University of Hong Kong (HKU) and the Department of Orthopaedics, the First Affiliated Hospital, Sun Yat Sen University (SYSU). It also aims at upgrading orthopaedic knowledge of the young fellows and trainees and their interests in orthopaedic related research.

HKU and SYSU will take turns every year to be the host of the contest. Three to five orthopaedic trainees and/or young fellows from each department will be invited to join. A panel of judges formed by professors/senior doctors from both departments will choose the winner, 1st runner up and 2nd runner up afterwards.

Representatives from First Affiliated Hospital

Dr. Christian Fang, Dr. Margaret Fok and Dr. Leung Ka Hei won the 1st prize, 2nd prize and 3rd prize respectively in the Professor SP Chow Orthopaedic Contest held in Department of Orthopaedics, The First Affiliated Hospital, Sun Yat Sen University in Guangzhou on 13 September 2009.

Some of the Publications in 2009

(The following list is incomplete)

Scholarly books, monographs and chapters

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Announcement

Many of our staff continue to excel their talent and have been highly recognized locally and internationally.

Congratulations

The 29th Annual Congress of the Hong Kong Orthopaedic Association (November 28-29, 2009)

5 awards in total were bestowed upon our department:

Michael To - won the A.R. Hodgson Award. - "Long-term efficacy of orthotic devices in children with flexible pes planus"

Grace Yuen - won the Best Basic Science Paper Award - "A cadaveric study of anatomical landmarks and guidelines for volar locking plate application in the distal radius"

Kenny Kwan - won the Spine Chapter's Most Promising Spine Paper Award - "Pedicle screw fixation strategies of the thoracic curve in adolescent idiopathic scoliosis"

Cheung Wai Yuen - won the Best Spine Paper Award - "Prediction of scoliosis correction with thoracic segmental pedicle screw constructs u! sing fulcrum beding radiograph"

Dino Samartzis - won the Best Clinical Paper Award - "Is there a relationship between intervertebral disc degeneration based on MRI and low back pain? "

The International Society for Study of the Lumbar Spine (ISSLS)

The ISSLS Award for Lumbar Spine Research was awarded to **Florence Mok, Dino Samartzis, Jaro Karppinen, Keith DK Luk, Daniel YT Fong, and Kenneth MC Cheung** for the study entitled "Prevalence, determinants and association of Schmorl's Nodes of the Lumbar Spine with disc degeneration: a population-based study of 2499 individuals"

New Appointments

Dr. Lam Ying Lee is appointed Consultant

Dr. Paul Wen is appointed Post-doctoral Fellow

Grants

Dino Samartzis, Kenneth MC Cheung, Bernard Cheung, and Keith DK Luk were awarded the Health & Health Services Research Fund (HHSRF) in the amount of 559,636 HKD to study "Cardiovascular risk factors associated with intervertebral disc degeneration/low back pain"

Donations

Professor Richard Y.H. Yu donated a sum of HKD$100,000 in support of research activities undertaken by Division of Paediatric Orthopaedics of the Department

Professor Lau Chu Pak donated a sum of HKD$100,000 in support of research, teaching and patient care activities undertaken by Division of Orthopaedic Truama of the Department

7th Hong Kong International Orthopaedic Forum
Common Orthopaedic Myths

24-25 April 2010

Li Ka Shing Faculty of Medicine, The University of Hong Kong

The Hong Kong International Orthopaedic Forum is an official departmental annual event. The title this year is "Common Orthopaedic Myths". Myths, whether or not they are true, are widely held beliefs in the society. Questions like *"Can flatfeet be cured? Does a heavy school bag lead to back pain? Is surgery the cure for back pain? Is surgery the only treatment for spinal stenosis? Should adolescent ACL injury be treated surgically? Is joint replacement painful? Does a total joint replacement only last 10 years? Are you too young/old for a joint replacement? Is surgery needed for Perthes disease? Is congenital dislocation of the hip really congenital? Are new methods better than old ones?"* are commonly asked everyday. We have prepared a very exciting program hoping to give you a more in depth analysis of these questions. Our international guest speakers including **Prof. Daniel Berry (USA)**, **Prof. Toshio Fujii (Japan)**, **Prof. Andrew Haig (USA)** and **Prof. Jaro Karppinen (Finland)** together with our renowned local speakers will help us answer these questions.

Early Bird Registration: **Before 21 Mar 2010**

For further information, please visit our website www.hku.hk/ortho/forum2010/index.htm