Minimally Invasive Posterior Lumbar Spine Surgery – What you and your patient should know
Dr Benedict Peng, MBBS, MMed (Ortho), FRCS (Ortho), Spine Surgeon, Dept of Orthopaedics, Singapore General Hospital

Minimally invasive techniques are employed in many areas of surgery and is increasingly being used in spine surgery. At Singapore General Hospital, we have been performing minimally invasive posterior lumbar spine surgery since 2004. Conditions for which minimally invasive spine surgery (MISS) can be used include prolapsed intervertebral disc, spinal stenosis and spondylolisthesis.

The goal of MISS is to achieve clinical outcomes comparable to those of conventional open surgery, while minimising the iatrogenic soft-tissue damage inherent with traditional spinal exposures. In conventional posterior lumbar surgery, paraspinal muscle retraction and extensive soft tissue dissection is required to adequately expose the spine. Multiple authors have documented the harmful effects of this extensive muscle dissection and retraction. It has been found that during retraction, the intramuscular pressure and intramuscular perfusion pressure are increased to the extent that the muscles are ischaemic. This significant iatrogenic muscle and soft tissue injury is associated with increased postoperative pain, lengthened recovery time, and impaired spinal function. The significant degree of the perioperative pain necessitates the use of more pain medication with their inherent side effects and also delays return to normal daily activities. Moreover, the dissection of the paraspinal muscles from their normal anatomic points of attachment results in healing by scarring of these muscles. The various layers of the individual muscles scar to one another losing their independent function. In addition, the extensive dissection results in the loss of innervation of the muscles with subsequent wasting away. It has been shown that the strength and density of the lumbar muscles are reduced after open lumbar surgery resulting in a permanent weakness of the back muscles. This weakness itself may be symptomatic (as a back fatigue-type pain) and/or limit the patient’s function - particularly in those who perform physical work. Therefore the most obvious benefit of a minimally invasive approach to the spine is that it greatly reduces the damage to the paraspinal musculature and surrounding ligaments and this translates to less postoperative pain, shorter hospital stay, less blood loss, and faster recovery from the surgical procedure. The smaller incisions used for minimally invasive procedures heal with minimal scarring and therefore are appealing to many patients.

With a small skin incision, the exposure of the spine is limited, hence the skin incision must be placed directly over the pathologic segment. Therefore pre-operative imaging is very important as they help the surgeon plan the approach. Fluoroscopy and/or other image guidance technology are used to assist in localising the segment to be operated and in positioning of the instruments. During the surgery, the surgeon uses high-powered illumination and magnification to adequately visualise the spinal anatomy.
With the minimally invasive technique, access to the spine can be achieved through a working channel of only 14-26mm in diameter. The traditional retractor used in open surgery is replaced by a tubular retractor (Fig 1). This employs a muscle dilation technique by using a series of dilators to sequentially dilate the muscle to open a space between muscle fascicles to expose the spine. Using the tubular retractor, procedures such as lumbar decompression, discectomy (Fig. 2) and interbody graft placement (Fig. 3) can be performed. In patients whose surgery requires pedicle screws and rods for fusion, the screws are inserted percutaneously (Fig. 4). Under fluoroscopic guidance, a needle is inserted into the pedicle percutaneously. A K-wire is then passed through the needle to serve as a guide for the screw placement. Using cannulated instruments, the pedicle screw is passed over the K-wire into the pedicle.

The indications for MISS include spinal stenosis, prolapsed herniated disc and spondylolisthesis. Relative contraindications include revision surgery due to extensive scarring and morbid obesity as this increases the working distance from the skin to the spine which makes the surgery technically more difficult.

There has been several studies conducted in the West which showed good clinical outcomes with MISS. Post-operative MRIs showed muscle trauma was less and resolved faster in patients with MISS when compared to those with open surgery. Studies also have shown that patients with MISS have less systemic inflammatory response as evidenced by a lower value of post-operative inflammatory markers. In SGH, so far we have performed 108 spinal fusions and 249 decompression/discectomies using the minimally invasive technique.

We have compared our patients who had MISS with those with open lumbar surgery and found that the MISS group had a faster recovery in terms of earlier ambulation, shorter hospital stay and earlier return to work and full function. They also had less blood loss, less post-operative pain and less analgesic use. The MISS group also had significant improvement in back pain and leg symptoms, as well as, “Quality of Life” scores after surgery.

Costs incurred by the patient undergoing MISS may be decreased by several factors. A shorter hospital stay results in a smaller hospital bill and less risk of catching a nosocomial infection. With a faster recovery, there is less need of inpatient rehabilitation. Less post-operative pain also translates into reduced cost of post-operative analgesia.

The complications of MISS are similar to those of open surgery. These are bleeding, infection, nerve root injury, cerebrospinal fluid leak, deep vein thrombosis, pseudoarthrosis (in fusion cases) and implant failure (if inserted). All patients are carefully counselled about these potential risks.

In conclusion, MISS is a safe and efficacious technique. It is associated with smaller wounds, less tissue trauma and faster recovery. SGH has performed various minimally invasive spine procedures with good clinical outcomes and patients have shown improvement in their symptoms and quality of life.

Appointments with the SGH spine surgeons can be made by calling 6321 4377.
Food Allergy in Singapore: Is there a problem?

Dr Chiang Wen Chin, Associate Consultant, Paediatric Allergy, Immunology and Rheumatology, Department of Paediatrics, KK Women’s and Children’s Hospital

An adverse reaction to a food can be the result of either a food allergy or a food intolerance. Many people think these two terms mean the same thing, but they do not. A food allergy occurs when the immune system mistakenly believes that a food is harmful. In its attempt to protect the body, it creates specific immunoglobulin E (IgE) antibodies to that food. The next time the individual eats that food, the IgE antibodies sense it and signal the immune system to release massive amounts of chemicals and histamines. These chemicals trigger allergic symptoms that can affect the respiratory system, gastrointestinal tract, skin, or cardiovascular system. A severe allergic reaction is called anaphylaxis. A food intolerance does not involve the immune system. Lactose intolerance is a common example. A person with lactose intolerance lacks an enzyme that is needed to digest milk sugar. When the individual eats milk products, symptoms such as gas, bloating, and abdominal pain may occur.

Peanut related food allergy has been an active area of research in most ‘westernised’ countries. The increased prevalence and severity of peanut hypersensitivity appears to be on the rise in the last two decades in some parts of the world. Sequential birth cohorts suggests that the rate of peanut allergy in some countries could be doubling\(^1,2\). However, little is understood about how ethnicity and environment may impact food allergy outcomes. Peanut allergy has been perceived to be low in prevalence in Asia. However, sensitisation patterns in children presenting with symptomatic food allergy to the Allergy Clinic at the KK Children’s Hospital suggests that peanut sensitisation is the third most common symptomatic food allergen, and is present in 27% of our Asian patients presenting with food associated hypersensitivity\(^3\). Anecdotal observations that Asian immigrants in North America and Europe\(^4,5\) have equal or even increased rates of food hypersensitivity, poses a worrying possibility that with the urbanisation and westernisation of Asia, this increase in the rate and severity of food hypersensitivity will expand to areas of the world where the general awareness of food allergies is relatively low.

Diagnosing a food allergy requires a history of the symptoms that resulted and their duration after eating, the food or foods eaten prior to the onset of symptoms, the amount of each food eaten, and whether similar reactions have occurred before. Symptoms typically appear within minutes to two hours after a person has eaten the food he/she is allergic to. Symptoms of food allergy can include: a tingling sensation in the mouth, swelling of the tongue and throat, rash, eczema, hives, vomiting, abdominal cramps, diarrhoea, wheezing, difficulty breathing, drop in blood pressure, loss of consciousness and (very rarely) death.

There are two tests most commonly used to begin to determine if an allergy exists—a skin prick test or a blood test, such as a specific CAP ELISA (enzyme linked immunosorbent assay). Both of these tests can only indicate whether IgE is present. Therefore, the allergist may combine the test results along with the medical history to make a food allergy diagnosis.
In a recent study carried out in KK Hospital, a questionnaire was sent out to 62 Asian patients with peanut sensitisation documented on skin prick testing when they presented for review of their symptomatic food allergy. Two-thirds of these patients were reported to have had an accidental peanut encounter. The prevalence of repeated reactions secondary to ‘accidental peanut ingestions’ after the diagnosis of peanut allergy/sensitisation was more than 50%, with half of these reactions reported to be more severe than the first symptomatic food reaction. This alarmingly high rate of “accidental exposure” is most likely secondary to both the ubiquitous presence of peanuts in our daily living and peanut seasoning within the Asian cuisine. There is a relative deficiency in public awareness and education concerning the potential grave effects, morbidity and mortality of food allergy and the almost universal absence of appropriate labelling of food components in the Asian culture.

The low use of epinephrine in the Emergency care setting and the low rate of patient awareness of the correct use of the Epipen as seen on questionnaire responses in our population of children poses a challenge to treating this potentially life threatening scenario. As noted with previous other publications, risk of accidental ingestion of peanut allergic patients is high, ranging from 50-86%\(^{(13,40)}\).

A worrying trend is revealed by the relatively high prevalence of peanut hypersensitivity, now constituting almost a third of patients presenting for the diagnosis and treatment of food allergy in KK Hospital, Singapore. Both the clinical characteristics and peanut protein specific allergen determination suggest a phenotype that is similar to that of European and North American patients, although of less severity. Efforts must be made to educate our population and to increase the awareness of food allergy and its treatment, especially in the use of Epipen in the case of anaphylaxis. A major revision of labelling laws and regulations is also urgently needed in Asia.

References
Motor Control Lab at NNI - providing quantitative measurements for Parkinson’s

Dr Au Wing Lok, Consultant, Department of Neurology, National Neuroscience Institute

Parkinson’s disease is one of the most common neurodegenerative diseases, affecting 3 per 1000 individuals aged 50 and above in Singapore. It is a chronic debilitating illness, presenting with slowing of movement (bradykinesia), stiffness (rigidity), shaking of limbs (tremor), and falls (postural instability). Of these symptoms, bradykinesia is the most consistent and disabling symptom. Fortunately, there are effective medications to control these symptoms so that patients may remain active in the community.

One of the challenges in the management of parkinsonism is to determine the level of response to treatment, which is used as a supportive criteria to diagnose Parkinson’s disease. The specialist uses a clinical rating scale which is subjective and requires training of raters to ensure inter-rater consistency. Since Parkinson’s disease may be managed by general practitioners, internists, and geriatricians, who may not be familiar with these rating scales, there is thus a need for objective quantitative measures to document disease severity in Parkinson’s disease.

The Motor Control Laboratory at NNI uses various techniques to quantitate motor disability so that physicians may have objective markers to monitor disease progression and treatment response in parkinsonism. The laboratory is run by a team of movement disorders specialists, nurse clinicians and technicians. Three services are currently offered:

a. Motor-time testing
b. On-off evaluation
c. Deep Brain Stimulation (DBS) programming and evaluation

These services are open to all physicians managing Parkinson’s disease and related disorders.

Motor-Time Testing
By using simple ‘motor-time testing’ parameters, the Motor Control Laboratory is able to provide objective quantitative measures that correlate well to disease severity in Parkinson’s disease. Subjects will perform a set of upper limb movements and a 7-metre walking test. These movements will be timed to provide a quantitative score that correlated to disease severity (bradykinesia) in Parkinson’s disease. Physicians may use this objective marker to monitor disease progression and treatment response. The test takes approximately 30 – 45 minutes to complete.

On-off Evaluation
Under the supervision of nurse clinicians and movement disorders specialists, the Motor Control Laboratory provides ‘on-off testing’ to evaluate levodopa responsiveness. Improvement in quantitative scores after levodopa challenge will provide physicians an objective marker to further aid in their diagnosis and management of parkinsonism. Levodopa responsiveness is also one of the pre-requisite for good outcome in DBS surgery for Parkinson’s disease. On-off evaluation will help to determine patient suitability for DBS operation, thereby further optimising the limited resources available.

The test takes approximately 90 – 140 minutes to complete, including waiting time for the medication effects to turn on. Subjects will need to withdraw anti-Parkinson medications overnight for at least 12 hours before the test. The test is scheduled in the morning. Subjects will need to bring along their usual anti-Parkinson medications to the laboratory on the day of the test. If at any time subjects are not able to tolerate being off anti-Parkinson medications overnight, they are advised to take their usual dose of
anti-Parkinson medication immediately, and to call the laboratory the soonerest possible during office hours to reschedule or to arrange for alternative tests.

Referring physicians may also discuss with specialists at the Motor Control Laboratory for alternative tests, if they think the patients are not likely to tolerate being off anti-Parkinson medications overnight for 12 hours.

Deep Brain Stimulation (DBS) Programming and Evaluation

The Laboratory provides the expertise to perform post-operative DBS programming and evaluation, which is integral to the success of DBS surgery in Parkinson’s disease. Subjects will be evaluated in the ‘off-stimulator, off-medication’ state, the ‘on-stimulator, off-medication’ state, and the ‘on-stimulator, on-medication’ state. The test will take approximately half a day to complete, including DBS programming time. As in on-off evaluation, subjects will need to withdraw anti-Parkinson medications overnight for 12 hours before the test. The requirements and precautions as stated under the ‘On-off evaluation’ section apply.

Indications for referral:
- **Motor-Time Testing:**
  1. Quantification of disease severity in parkinsonism
  2. Monitoring of disease progression and treatment response in parkinsonism
- **On-off evaluation:**
  1. To determine levodopa responsiveness in parkinsonism
  2. Pre-operative evaluation for DBS surgery in Parkinson’s disease
- **DBS programming and evaluation:**
  1. Post-operative DBS programming and evaluation for Parkinson’s disease

Subject requirements:
1. Ability to follow simple verbal instructions
2. Ability to sit upright
3. Without upper limb disability (other than due to parkinsonism)
4. For on-off evaluation and DBS programming and evaluation,
   a. Subject to withdraw all anti-Parkinson medications for at least 12 hours before the test.
   b. Subject to bring along all anti-Parkinson medications to the Motor Control Laboratory on the day of the test.

Precautions (for ‘On-off evaluation’ and ‘DBS programming and evaluation’):
1. If subject is not able to tolerate being off anti-Parkinson medications overnight, he/she is advised to take his/her usual dose of anti-Parkinson medication immediately, and to call the Motor Control Laboratory the soonerest possible during office hours to reschedule or to arrange for alternative tests.
2. Referring physicians to discuss with specialists at the Motor Control Laboratory for alternative tests, if they think the subjects are not likely to tolerate being off anti-Parkinson medications for 12 hours.

How to Order The Tests:
For appointment and enquiry, please call the Motor Control Laboratory at 65-6357 7070 or fax the Neurodiagnostic Service Request Form to 65-6357 7069.

The Motor Control Laboratory was set up in National Neuroscience Institute (NNI) in February 2008, with the aim of providing diagnostic evaluation of Parkinson’s disease and movement disorders through various methods of quantitative measures and electrophysiological studies. This service is provided by the Parkinson’s Disease and Movement Disorders Centre of NNI, as part of its continuing effort to improve the care and management of Parkinson’s disease.

Contact Information:
**Enquiry and Appointment:**
Tel : 65-6357 7070 during office hours
Fax: 65-6357 7069

**Opening Hours**
8:00am to 5:30pm (Mon-Wed, Fri)
8:00am to 5:00pm (Thurs)

With reference to the article ‘Cardiothoracic Surgery @ NHC - An Update’ in Aescapulus issue 01/2008. In the Endovein Harvesting Programme, the incision is minimal (fig 1) as compared to a typical leg scar when the vein is harvested in the traditional way (fig 2).

Figure 1

Figure 2
Get Healthy on “ACTIVE-8”
Changi Sports Medicine Centre introduces “ACTIVE-8” programme for people with chronic diseases

Many medical conditions such as high blood pressure, high cholesterol, diabetes, and obstructive sleep apnoea (OSA) are closely linked to being overweight. Exercise has proven to be an effective treatment for chronic diseases, and is also recommended by the Ministry of Health (MOH) and the American College of Sports Medicine. Even if patients do not lose weight, their conditions will still improve with exercise.

“ACTIVE-8” Programme - Changi Sports Medicine Centre
Leveraging on our successful Weight Loss Programme, Changi Sports Medicine Centre (CSMC) introduces the “ACTIVE-8” Programme for people with chronic diseases with an aim to alleviate their conditions.

The “ACTIVE-8” Programme targets the following eight conditions:
1. Diabetes
2. High Blood Pressure
3. High Cholesterol or Hyperlipidaemia
4. Impaired Glucose Tolerance (Pre-diabetes)
5. Metabolic Syndrome
6. Obstructive Sleep Apnoea (OSA)
7. Fatty Liver
8. Obesity

What does the programme entail?
“ACTIVE-8” adopts a similar 6-month structure as our Weight Loss Programme. Diet and exercise advice is specifically tailored to target individual's needs and medical conditions. The programme also includes exercise sessions guided by sports trainers in our fully equipped gymnasium. At the end of the programme, blood tests will be conducted on the patients to assess the improvements made.

Who is it for?
“ACTIVE-8” is suitable for patients who have been diagnosed with one or more of the above-mentioned eight conditions. In addition, they must be able to complete a minimum of 15 minutes of continuous walking, and are motivated to improve their health.

How much does the programme cost?
• “ACTIVE-8” Recruitment Visit
  (For patients who wish to have up-to-date evaluation of other conditions such as diabetes, high cholesterol and metabolic syndrome before starting on the programme.)

<table>
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<tr>
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<th>Package</th>
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<tr>
<td>Doctor’s consultation</td>
<td>1</td>
</tr>
<tr>
<td>Evaluation of diabetic status, blood pressure, obesity, cholesterol and metabolic syndrome using blood tests on lipid profile, insulin and glucose tolerance test (GTT)</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>S$106</td>
</tr>
</tbody>
</table>

• Post “ACTIVE-8” Recruitment – Follow-up Visit
  (This visit will be charged separately as follow-up consultation according to your payment class.)

During this follow-up visit, our doctors will advise if you are suitable for the “ACTIVE-8” programme. If you are suitable, you may choose to sign up for the programme on the spot. If you are found not suitable for the programme, you may wish to consider our health-screening packages to find out more about your health condition.

• “ACTIVE-8” Exercise Programme
Duration: 24 weeks
Charges:
<table>
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<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician consultations</td>
<td>4</td>
</tr>
<tr>
<td>Dietitian consultations</td>
<td>4</td>
</tr>
<tr>
<td>Supervised gym sessions</td>
<td>10</td>
</tr>
<tr>
<td>Re-evaluation of health status at the end of programme (blood test)</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>S$668</td>
</tr>
</tbody>
</table>

Rates are inclusive of 7% GST
• Investigations, medications and referrals as necessary at additional charge
• 10% non-residents surcharge applies

How do I make an appointment?
For appointments and enquiries, please call the CGH Appointment Centre at Tel: (65) 6850 3333

CGH Appointment Centre
operating hours:
Monday – Friday: 8.30 am to 8.00 pm
Saturday – Sunday: 8.30 am to 12.30 pm
Closed on Public Holidays

For more information, please visit http://www.cgh.com.sg/medical/active8.asp
The Women’s Pain Centre at KKH offers new medical approaches to chronic pain conditions such as joint, back, lower body and migraine pains, without the need for surgery. Its aim is to provide an effective treatment to pain, to help women overcome their conditions and to improve their quality of life.

Painful back, joint and abdominal pains can be treated through laser injections, and sprains and injuries can be treated through soft laser acupuncture.

The multidisciplinary team at the KKH Women’s Pain Centre consists of pain specialists, physiotherapists, psychologists and nurses, working together to provide a holistic treatment programme to bring relief to your pain.

**Conditions and Types of Pain Treated**

Some of the chronic pains we treat include:

- Pelvic pain (pain in abdominal region)
- Musculoskeletal conditions (joint, back and neck pain)
- Pain from damaged nerves
- Persistent pain after surgery
- Slipped discs
- Shingles
- Migraines
- Arthritis
- Sports injuries
- Cancer pain
- Menstrual pain
- Endometriosis
- Urinary pain
- Menopausal pain

**How We Can Help You**

We are equipped with the latest state-of-the-art technology to conduct minimally invasive procedures to treat pain. Upon consultation, our pain specialist will diagnose your condition and identify the pain source, and a customised short and long-term plan based on your needs will be drawn up for you.

Treatments can include oral medication, laser treatments and depending on your needs, our physiotherapists can also work with you to provide physiotherapy. Laser treatments can desensitise painful nerves, and the new soft laser technology can aid in tissue regeneration to speed healing from injuries.

With help from our psychologist, we can also help empower and motivate you to manage and cope better with your pain.

*To find out more, please call the Women’s Pain Centre at 6394 8073 or email womenpaincentre@kkh.com.sg.*

*To make appointments, please call Central Appointments at 6293 4044.*
The Department of Endocrinology at SGH has set up a dedicated Osteoporosis and Bone Metabolism Clinic to provide a one-stop medical facility to provide comprehensive and holistic care for patients with Osteoporosis and other disorders of Bone Metabolism.

Located within the newly-opened LIFE (Lifestyle Improvement Fitness Enhancement) Centre, the Clinic serves both as an assessment as well as treatment centre. Staffed by highly trained specialists with extensive experience in state-of-the-art treatments, the Clinic offers a multidisciplinary approach to prevent bone loss. Patients not only receive medical treatment but are also advised on exercise programmes and nutritional therapy to complement their treatment.

The Medical specialists at the Clinic work closely in collaboration with Orthopaedic Doctors, Physiotherapists, Dietitians, GP’s and Polyclinics to provide holistic care to patients.

A qualified Specialty Nurse Clinician is also an integral part of the service. She is directly responsible for the pre clinic assessment of the patient, for counseling and patient education, for coordinating patient appointments and for liaising between the different specialties involved in the care of the patient.

The specialised service caters to male and female adolescent and adult patients diagnosed with Osteopenia, Osteoporosis and other Disorders of Bone Metabolism such as parathyroid disorders, Paget’s disease of bones, Osteomalacia, Renal Bone disease, Vitamin D Deficiency, and disorders of Calcium, Phosphorous and Magnesium metabolism.

Our Osteoporosis services offer:
• Pre clinic assessment by Osteoporosis and Bone Metabolism Nurse Clinician
• Diagnostic testing including X-rays, hormone and chemistry profiles, DEXA scan of the spine and hip and measurement of biochemical markers of bone turnover
• Physical examination and treatment recommendations by the Specialist Doctor
• Referrals to Orthopedic Surgeons for treatment of fractures
• Prescription of bone and muscle strengthening exercises by highly trained physiotherapists with special interest in Osteoporosis and Osteopenia. There are basic as well as intermediate and advanced exercise sessions that are conducted every Tuesday and Thursday afternoon at the state-of-the-art LIFE Centre Gymnasium.
• Dietary counseling by Nutritionists- Special “DIET BONE” Clinic that operates out of the LIFE Centre every Tuesday morning.
• Telephonic advice and follow up by the Osteoporosis and Bone Metabolism Nurse Clinician

SGH sets up specialised unit for Osteoporosis and Disorders of Bone Metabolism

- Osteoporosis and Bone Metabolism Clinic opens at LIFE Centre

Your Providers at SGH Osteoporosis and Bone Metabolism Clinic:
Consultant and Director: Dr Manju Chandran, MBBS, MD, ABIM (USA), FACP, FACE, CCD
Associate Consultant: Dr Alvin Ng, MBBS, MRCP (UK)
Osteoporosis Nurse Clinician: SSN Zhang Rong Fang
Physiotherapist: Ms Cindy Ng
Dietitian: Mr Gary Chiah

Who Can Refer
Referrals will be accepted from polyclinics, GP’s and specialists within and outside SGH.

What We Offer
The following patients will be seen in our clinic:
• Male and female Adolescent and Adult patients with Premenopausal Osteoporosis
• Pregnancy and lactation induced Osteoporosis
• Postmenopausal Osteoporosis with decline in BMD despite standard therapy
• Patients with Postmenopausal Osteoporosis who continue to fracture despite treatment
• Osteoporosis and Osteopenia in Eating Disorders
• Osteoporosis following Renal Transplant
• Osteoporosis in Patients following hormonal therapy for breast Cancer
• All cases of Male Osteoporosis
• Metabolic Bone diseases such as Bone and Mineral Disorders Associated with Renal Disease
• Vitamin D deficiency
• Osteomalacia
• Hypo and Hyperparathyroidism
• Hypo and Hyper calcemia
• Hyper and Hypophosphatemia
• Hypophosphatasia
• Disorders of Magnesium metabolism
• Paget’s disease

For medical appointment, enquiries and referrals, please call 6326 6697.
Location: LIFE CENTRE, BOWYER BLOCK.
Day: Tuesday and Friday
Time: 9.30 am- 1 pm.
Acute Thrombolysis Stroke Service at NNI

Dr Rajinder Singh, Consultant, Department of Neurology, National Neuroscience Institute

In 2006, the National Neuroscience Institute (NNI) Neuroradiology Department became the first imaging centre in Singapore to provide 24-hour MRI scanning for acute stroke patients. Using fast imaging techniques, the department can complete a scan in half the time usually needed for MRI stroke protocol – a scan can even be completed in five minutes. This service enables doctors to decide on the most appropriate management for the stroke patients. With short scanning times, patients diagnosed with an acute stroke in the Emergency Department of Tan Tock Seng Hospital (TTSH) can get an MRI scan done promptly at the department, en route to the acute ward or Neuro Intensive Care Unit.

With further improvement of our acute stroke service, the NNI now provides acute thrombolysis treatment for all patients admitted to its Tan Tock Seng Seng Hospital campus with ischemic stroke under three hours of symptom onset. Such treatment can be critical for some stroke patients because acute thrombolysis given within a few hours after onset has been shown to improve outcome with potential for significant or even complete reversal of neurological deficits. In addition, all patients admitted for stroke receive magnetic resonance imaging scans as the primary neuroimaging modality round the clock. With almost 1900 scans performed in 2006, this has changed the paradigm of care, with improvement in accuracy of diagnosis, streamlining of further tests and treatment strategies.

Thrombolytic Therapy for Acute Ischemic Stroke at NNI-TTSH Campus

Intravenous TPA for thrombolysis of acute stroke was licensed for use in Singapore in 2004. Its use was initiated at NNI-TTSH campus, with the implementation of the acute stroke service, for all eligible patients with acute ischemic stroke. In line with this, an Acute Stroke Thrombolysis Protocol, adapted from the American Heart Association (AHA) Guidelines for Thrombolytic Therapy for Acute Stroke, was developed by our team of doctors.

Speed is of the essence as treatment for acute stroke is often time-dependent. The emergency department at TTSH triages patients who present with acute stroke within two hours of onset of symptoms and activates the acute stroke service at the time of the patient’s arrival. The acute stroke service, which comprises the stroke neurologist and resident-oncall, assess eligibility of patients with acute ischemic stroke for intravenous thrombolytic therapy based on inclusion and exclusion criteria as per protocol. An NIH Stroke Scale (NIHSS) scoring is also performed at this point in time. CT scan brain interpretation is done by the attending resident and stroke neurologist.

Patients with hemorrhagic strokes, mild or rapidly improving deficits and contraindications to thrombolytic therapy are excluded from treatment. Intravenous tissue plasminogen activator (TPA) is administered to eligible patients after informed consent is obtained. During discussion with the patient and family, they are informed that there may be no clear benefit seen at Day 1, but treated patients are 30% more likely to have minimal or no disability at 3 months. To date, 47 patients have received TPA since the start of the thrombolysis service.
Advances in Breast Imaging & Image-Guided Biopsy Workshop

What you will achieve

• Understand how breast anatomy and physiology correlates with imaging modalities
• Appreciate pathological processing of breast specimen and how it affects diagnosis
• Improve understanding of breast imaging modalities (ultrasound, mammogram, MRI) and thermal imaging
• Enhance skills in image guided biopsy
• Familiarity with ultrasound elastography and thermal imaging of the breast

Who should attend

Health care professionals involved in the management of breast diseases who are keen to update and improve their diagnostic skills and repertoire on breast imaging and biopsy techniques.

Guest Speakers from Overseas
Dr Ei Ueno, Clinical Professor, Graduate School of Comprehensive Human Sciences, University of Tsukuba, Japan
Dr Kim Hak-Hee, Associate Professor, Division of Breast Radiology, Asan Medical Centre, Korea
Dr Peter Leando, Meditherm Inc. USA

Speakers from Singapore
Dr Tan Su-Ming, Workshop Organiser / Acting Chief & Senior Consultant Surgeon, Changi General Hospital (CGH)
Dr Poh Wee Teng, Head & Senior Consultant / Division of Laboratory Medicine, CGH
Dr Rashan Agrawal, Associate Consultant / Division of Laboratory Medicine, CGH
Dr Clarisse Chong, Senior Consultant Radiologist, CGH
Dr Chiang Siew Hwa, Consultant Radiologist, CGH
Dr Sim Shao Jen, Llewellyn, Consultant Radiologist, Singapore General Hospital

Registration Details

Date 4-5 July 2008 (Friday & Saturday)
Venue Changi General Hospital, Singapore Training Centre, Breast Centre
Host Departments of Radiology, Laboratory Medicine, Surgery Changi General Hospital, Singapore
Fee SGD 200 per participant
Lunch, tea, car park tickets & workshop materials will be provided. CME points awarded.

Programme

4 July (Fri)

8.00-8.30  Registration
8.30-8.45  Welcome Address
8.45-9.15  Applied Anatomy and Physiology of the Breast
9.15-9.45  Breast Ultrasound
9.45-10.15 Ultrasound Elastography
10.15-10.45 Ultrasound Elastography – a Clinical Approach
10.45-11.00 Tea Break
11.00-11.30 Pathological Handling of the Breast Tissue
11.30-12.00 Ultrasound Guided Biopsy (Fine needle, Core, Vacuum-assisted biopsy)
12.00-12.30 Question & Answers
12.30-13.30 Lunch
13.30-16.00 Workshop and Hands-on rotation
Ultrasound Elastography
Ultrasound Guided FNAC & Core Biopsy
Ultrasound Guided Vacuum-assisted Biopsy

5 July (Sat)

8.30-8.45  Introduction
8.45-9.15  Mammogram – Analogue vs. Digital
9.15-9.45  Stereostatic Biopsy
9.45-10.15 MRI Breast
10.15-10.30 Tea Break
10.30-11.00 MRI Biopsy
11.00-11.30 Thermal Imaging of the Breast
11.30-1200 Questions & Answers
12.00-13.00 Lunch
13.00-16.00 Life Demonstration
Stereo static Biopsy
Thermal Imaging of the Breast
16.00-16.20 Presentation of Certificates

Contact:
CME Secretariat
c/o Clinical Services
Changi General Hospital
2 Simei St 3, Singapore 529889
Tel: 6850 2387 / 6850 2372
Fax: 67871258
NNI GP SEMINARS

GP Seminar “Stroke”
Date: 5 July 2008

GP Seminar “Spine Disorders”
Date: 16 August 2008

GP Seminar “Epilepsy and Sleep Disorders”
Date: 11 October 2008

Enquiries and Registration
National Neuroscience Institute
Tel: (65) 6357 7163
Fax: (65) 6256 4755
Email: nni_secretariat@nni.com.sg
Website: http://www.nni.com.sg

SINGHEALTH CONTINUING MEDICAL EDUCATION PROGRAMME

HOTLINE NUMBERS

SOC FAST TRACK APPOINTMENT CONTACT NUMBERS

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DIRECT WARD REFERRAL CONTACT NUMBERS

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<tr>
<td>Dr Paul Chang</td>
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<td>Dr Edwin Low</td>
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<td>Dr Por Yong Ming</td>
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<td>Dr Thng Choon Hua</td>
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