



Department Of Orthopaedics & Traumatology Queen Mary Hospital University Of Hong Kong Medical Centre *Newsletter*



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Low back pain

Dr. Kenneth M C Cheung
Associate Professor

Low back pain (LBP) is one of the most common disorders seen in general and orthopaedic practices. This article deals mainly with the treatment of acute low back pain (duration of < 3 months) and outlines some of the more recent developments in its management within our department.

Common causes of low back pain in Orthopaedic Practice

Low back strain
Herniated intervertebral disc
Spondylolisthesis

Degenerative - Spinal stenosis
- Discogenic back pain
- Facet arthropathy

Serious - Fractures
- Infection (TB or pyogenic)
- Tumour

Editors' notes

The main theme of this issue is "low back pain". The readers may find the article written by Dr Kenneth Cheung helpful when treating the patients with this common affliction. There are also contribution from the nursing staff and the physiotherapy colleagues. The nurses will introduce the "Spinal Unit" of Queen Mary Hospital to the readers while Mr

Aldous Cheng will show the "Post-discectomy rehabilitation programme".

As in the previous issues of the Newsletter, this issue also includes the Radiographic Quiz and the Department Research sections. We hope the readers continue to find the Newsletter pleasant to read.

THE MAJORITY OF ACUTE LOW BACK PAIN WILL SETTLE WITHIN 4 WEEKS REGARDLESS OF TREATMENT

Assessment

The majority of acute low back pain are usually self-limiting and will settle within 1 month regardless of the type of treatment given. It would not be either cost effective or beneficial to patients if they are all sent for expensive investigations or referred for specialist assessment. Thus in the

management of such patients, one should look out for suspicious symptoms and signs which may indicate a more serious underlying cause. These are often termed the "red flag symptoms and signs". These, together with the patients which fail to respond to a short course of conservative treatment should be referred for specialist assessment.

Red flags for potentially serious conditions

(from Clinical Practice Guidelines - US Department of Health and Human Services)

Possible fracture	Possible tumour or infection	Possible cauda equina syndrome
From history		
Major trauma (e.g. fall from height, traffic accident).	Age > 50 or < 20. History of cancer.	Perianal numbness. Bladder dysfunction.
Minor trauma in elderly or potentially osteoporotic patient.	Fever, chills & rigors, night sweats. Anorexia and weight loss. IV drug abuse or immunosuppression (e.g. steroid or after organ transplant). Inflammatory type of pain - worse at rest and at night.	Severe or progressive neurological deficit in the lower limbs.
Physical examination		
Unexpected laxity of the anal sphincter Perianal / perineal loss of sensation Major motor weakness, especially the more distal roots: L4 - ankle dorsiflexion, L5 - big toe extension, S1 - big toe flexion.		

Further investigations

Additional investigations that may be helpful include: **X-rays:** to look for changes in alignment, bone destruction and soft tissue swelling. **White cell count and ESR:** to exclude underlying infection. **MRI:** This is the investigation of choice in those patients with suspicious findings or neurological deficit.

Other investigations which are sometimes performed to help make a diagnosis and localise the level of pathology include: CT/myelogram, bone scan, injection tests (discogram, facet joint, sacroiliac joint) and electrophysiological studies.

Initial / conservative treatment

BEDREST SHOULD BE AVOIDED

- 1) **Education and assurance** - If no red flags symptoms and signs are detected, then patients should be assured that they are likely to get better over a period of 4 weeks.
- 2) **Symptomatic treatment** - Mainly in the form of NSAIDs. Small doses of muscle relaxants and/or opioids may be used in combination.

Physiotherapy is also beneficial in acute LBP, but the only modalities proven scientifically to be of benefit is manipulation and back exercises.

Lumbar corsets may be helpful but should be discarded as soon as possible, to encourage back muscle exercise.

- 3) **Activity alteration** - Avoid undue stress in the low back: heavy lifting, bending, twisting; Change posture often; Low back support;
- 4) **Long term prevention** - As many of these patients have a poor posture or improper lifting techniques, prevention of recurrence by proper education is important. Back Classes are held in most physiotherapy units, in which specific exercises and back care are taught. Patients can be directly referred to them.

There is little scientific evidence that bedrest hastens the recovery from LBP, and is now increasingly avoided by Spine Surgeons world-wide. However, in cases of severe pain, a short period of rest (no more than 1 week) may be the only option until the symptoms are sufficiently

controlled to allow the commencement of a physiotherapy programme.

Common surgical operations

Indications for surgery will vary depending on the pathology. In general, progressive neurological deficit, pain unresponsive to conservative treatment, progressive deformity and/or spinal instability are all indications for surgical intervention. The type of surgery varies depending on the patient's symptoms, pathology, age, job nature, etc. There are however certain principles that are applicable to all.

- 1) **Surgical approach** - The lumbar spine can be approached from an anterior retroperitoneal approach or from a posterior approach. Ever since the pioneering days of the "Hong Kong Operation" for tuberculosis of the spine, we have favoured an anterior

approach to tackle pathology which occur at the front of the spine. Posterior approaches are used where the compression is from posterior, or where posterior stabilisation is required. On occasions, a combined anterior and posterior approach may be used.

- 2) **Decompression** - Nerve root compression is often the main cause of the patients' symptoms. The method of decompression is often critical to the success of the procedure (see table below).
- 3) **Stabilisation** - Spinal instability or potential instability can give rise to mechanical back pain (pain with movement). These are treated by stabilisation which can be achieved by bone grafting alone or combined with instrumentation.

Pathology	Typical procedures performed
Herniated disc	Posterior discectomy or anterior spinal decompression and fusion
Spinal stenosis	Partial laminectomy (fenestration) + undercutting of ligamentum flavum + medial fascetectomy
Fractures, Tumours	Anterior corpectomy and stabilisation or posterior laminectomy and stabilisation.
Infections	Anterior debridement and fusion
Spondylolithesis	Posterior laminectomy / pars resection and stabilisation or posterior lumbar interbody fusion (PLIF procedure)

Combined orthopaedic-physiotherapy specialist clinics - Streamlining management



Combined Clinic

As most patients with acute low back pain improve with conservative treatment alone, we are now running combined clinics with physiotherapists from the David Trench Rehabilitation Centre. All new patients with back pain presenting to our Sai Ying Pun Orthopaedic OPD are first screened by the physiotherapist according to a strict protocol. If they feel

these patients are suitable for physiotherapy, then appropriate arrangements are immediately made. By doing so, outpatient waiting time is reduced, unnecessary visits to the physiotherapy units are avoided, and specialists can concentrate on those patients who need more attention, thus improving the overall quality of the service provided.

Problem backs - the other end of the spectrum



Centre for Spinal Disorders at Duchess of Kent Children's Hospital

The Centre for Spinal Disorders at The Duchess of Kent Children's Hospital was established to provide a comprehensive service for the assessment, treatment and rehabilitation of patients with spinal disorders, particularly the problematic cases. This is brought about through a multidisciplinary team approach including the orthopaedic surgeon, bioengineer, clinical psychologist, nurse, occupational therapist, pain specialist, physiotherapist, prosthetist, interventional radiologist and social worker.

Programmes provided by the centre include the treatment of patients with chronic low back pain and failed back surgery. The cause of back pain in these patients is often multifactorial, with psychosocial factors contributing significantly to their pain behaviour. These patients are very carefully assessed by the whole team and then an individualised programme is agreed upon. Very often they do not have a surgically treatable cause for the pain and are entered into a 3 month vigorous multidisciplinary rehabilitation programme. The patients are told from the beginning that the aim of the program is not to abolish the pain, but to help them adjust to the pain and return to work.

Patients can be referred for assessment by this centre through our Sai Ying Pun Orthopaedic Outpatient Clinics.

Functional Rehabilitation Programme for Patients after Discectomy

By Aldous Cheng
Physiotherapist I
Physiotherapy Department
Centre for Spinal Disorders
Duchess of Kent Children's Hospital

Deconditioning after posterior discectomy and anterior spinal fusion is common, as such patients often have prolonged bedrest and reduced work demand before surgery, and then compounded by bracing after surgery. They have problems with residual back stiffness and weakness, as well as poor physical fitness. They are therefore at risk of recurrence of symptoms and further injury after they return to work.



Since March 1998, we have introduced a post-discectomy functional rehabilitation programme. The programme aims to restore spinal and neural tissue mobility, regain back muscle strength and endurance, and improve cardiovascular fitness, thus maximizing functional capacity before returning to work. Neurotension stretching is started soon after surgery to prevent post-operative scarring. This is followed by an 8-week rehabilitation programme commencing after the patients are free to mobilize. This usually starts 3 weeks after discectomy and 3 months after fusion. The programme consists of 2-hourly training sessions 3 times per week and includes back mobilizing and strengthening exercises, cardiovascular training and general fitness training. Home exercises are considered essential and are encouraged even after completion of the programme.

Care of patients in Spinal Units, Queen Mary Hospital

M.F. Hui, Nursing officer;
F.Y.T. Li, Department Operations Manager
Department of Orthopaedics and
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Queen Mary Hospital has a Spinal High Dependency Unit where patients with acute spinal cord injuries are cared for. Problems of spinal stability and neurological deficit make the care of these patients particularly demanding. Apart from the usual duties, the nurses take on the additional tasks which include: -

Log-roll Turning

To prevent pressure sores and to avoid further damage to the spinal cord in those with unstable spinal injuries.



Spinal High Dependency Unit.

Protective Devices

Most of the patients have some form of custom-made orthoses, such as neck collars, braces and halo-jackets. Proper instructions on wear to ensure correct positioning, and regular checking is required to ensure proper fitting and to

Lateral cervical spine radiograph shows the typical features of C6/7 unilateral facet dislocation. There is anterior displacement of C6 over C7 vertebral body by less than 50% of the vertebral body width. Widening of the C6/7 interspinous space is also present. One C7 superior articular process is posteriorly dislocated, while the other articular process is normally positioned. The C7 articular processes are obliquely projected compared with the true lateral profiles of the articular processes above, producing the characteristic 'bow-tie' appearance.

ANSWERS TO RADIOGRAPHIC QUIZ

avoid pressure sores. Patient education on the handling, care and precautions related to the orthosis is provided using illustrations and educational kits. An enquiry hotline will be established for patients with problems related to their orthoses.

Counselling and psychological support
This is an integral part of the patient care as adaptations and adjustments to their lifestyle are often required. They pose additional challenges to all parties concerned.

By Mr Kenny Yuen
Physiotherapist I, David Trench Rehabilitation Centre
Dr. K. M. C. Cheung - Associate Professor

East meets West: Acupuncture and Physiotherapy?

To date, there has been no good study looking at the effectiveness of acupuncture alone and in combination with physiotherapy in treating low back pain. The Department of Orthopaedic Surgery, The University of Hong Kong in collaboration with the Physiotherapy Department of the David Trench Rehabilitation Centre (DTRC) have commenced a randomised, controlled

prospective study specifically addressing these issues. Target subjects are those suffering from mechanical low back pain with an onset of less than 3 months and the acupuncture is performed by physiotherapists that have undergone diploma or certificate courses in acupuncture. Interested patients can be directly referred to DTRC for this purpose.



Radiographic Quiz

By Professor Wilfred Peh
Department of Diagnostic Radiology
Queen Mary Hospital

A 21 year old woman who was involved in a road traffic accident. She also sustained fracture of the pubis and tibia.

What injury does the lateral cervical spine radiograph show?



Letters to the Editors

Dr WAI Heung Wah Hayles wrote to us congratulating on launching of our Department Newsletter after the release of the first issue. He suggested that "the Newsletter should spare a couple issues on the overall review of development of orthopaedics in the last two decades and some introduction of the levels of

sub-specialty services available".

We welcome the suggestion by Dr Wai. The readers may find that there will be more information on the Department and its sub-specialty development in the future issues.

News in Flash

- The Department held its annual Departmental Research Day on 17th July 1999. The Dean of the Medical Faculty, Professor Grace Tang, was invited to give the opening remarks. Like the Research Day last year, it was academically fruitful and socially enjoyable.



Research Day

- The Department has been very successful in the application for major research funding from the Research Grants Council in securing more than \$2 million. We express our congratulations to Dr Kenneth Cheung and Dr Andrew Holmes on their successful research grants on their projects "the molecular basis of increased bone formation in transgenic mice expressing mutant collagen X" and "shear properties of the lumbar spine and their relationship to instability" respectively. In particular of interest, Professor John Leong has also been awarded an Outstanding Research Award, which is one of the most prestigious awards in research, in his project on "the role of the pineal gland in the causation of scoliosis: a bipedal rhesus monkey model".

- More congratulation to Professor John Leong, who has been elected as President-Elect of SICOT, which stands for "Societe Internationale de Chirurgie Orthopedique et de Traumatologie" and is perhaps the largest orthopaedic organization in the world, with members from 102 nations.