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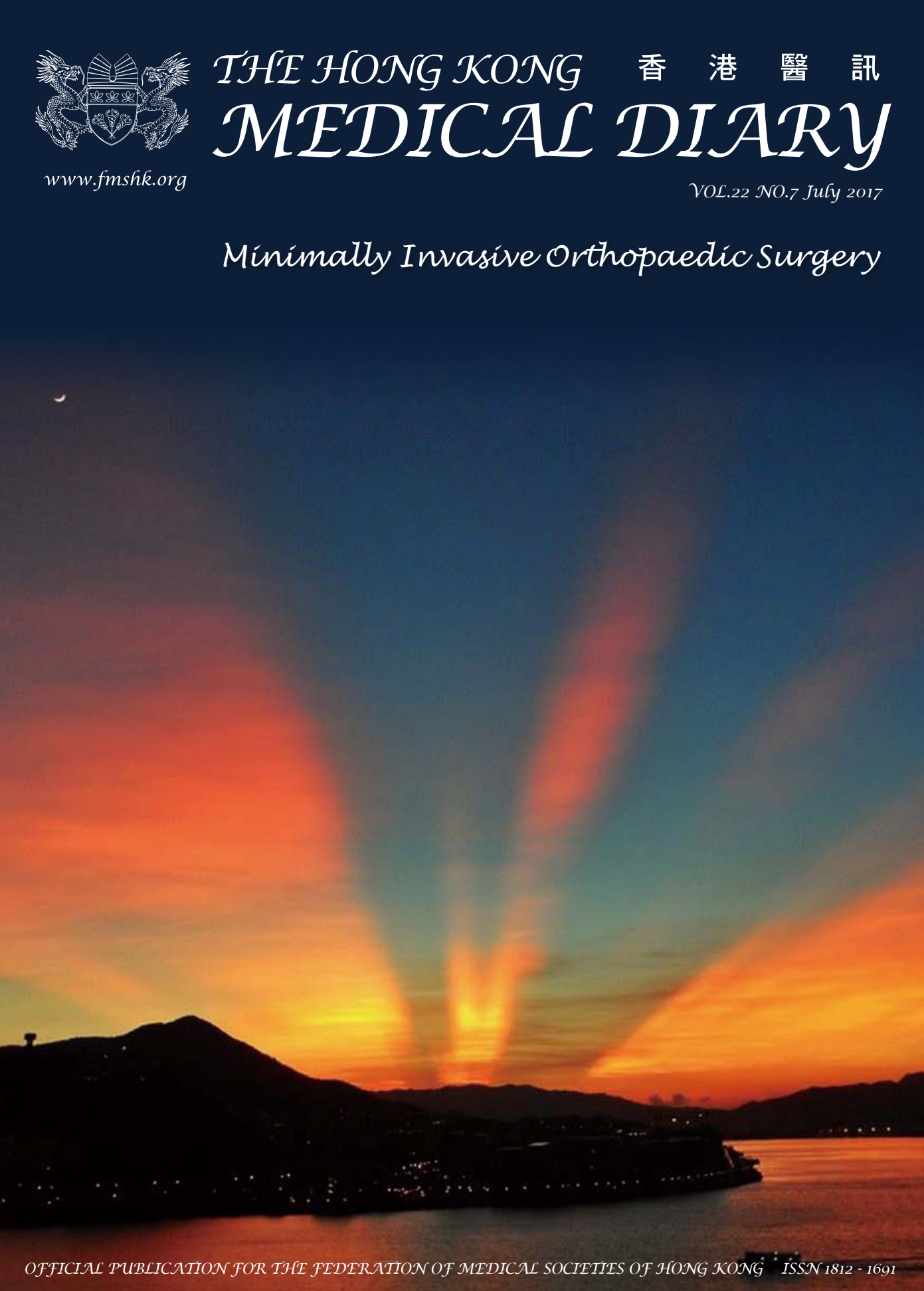
Minimally Invasive Orthopaedic Surgery



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FOR HER, THERE'S NO SUCH THING AS A SMALL FALL

Patients with osteoporosis face the danger of its consequences. With Prolia®, the risk of fracture at the hip and other key sites was reduced significantly vs. placebo at 3 years (P<0.05).[1] And because the 6-monthly subcutaneous injection[2] is well tolerated,[1] you can help protect them.

For the treatment of osteoporosis in postmenopausal women and in men at increased risk of fractures. Prolia® significantly reduces the risk of vertebral, non-vertebral and hip fractures.[2]

Prolia® (Denosumab) Abbreviated Prescribing Information

Prolia® (Denosumab) Solution for Injection in Pre-filled Syringe 60 mg/mL. **INDICATIONS** Prolia is indicated for: i) treatment of postmenopausal women with osteoporosis at high risk for fracture, defined as a history of osteoporotic fracture, or multiple risk factors for fracture; or patients who have failed or are intolerant to other available osteoporosis therapy; ii) treatment to increase bone mass in men with osteoporosis at high risk for fracture, defined as a history of osteoporotic fracture, or multiple risk factors for fracture; or patients who have failed or are intolerant to other available osteoporosis therapy; iii) treatment to increase bone mass in men at high risk for fracture receiving androgen deprivation therapy for nonmetastatic prostate cancer; and; iv) treatment to increase bone mass in women at high risk for fracture receiving adjuvant aromatase inhibitor therapy for breast cancer. **DOSAGE AND ADMINISTRATION** The recommended dose of Prolia is 60 mg administered as a single subcutaneous injection once every 6 months. Administer Prolia via subcutaneous injection in the upper arm, the upper thigh, or the abdomen. All patients should receive calcium 1000 mg daily and at least 400 IU vitamin D daily. **CONTRAINDICATIONS** Hypocalcemia and pregnancy, as well as hypersensitivity to any component of the product. **SPECIAL WARNINGS AND PRECAUTIONS FOR USE** *Hypersensitivity:* Clinically significant hypersensitivity including anaphylaxis has been reported with Prolia. Symptoms have included hypotension, dyspnea, throat tightness, facial and upper airway edema, pruritis, and urticaria. *Hypocalcemia and Mineral Metabolism:* Hypocalcemia may be exacerbated by the use of Prolia. Pre-existing hypocalcemia must be corrected prior to initiating therapy with Prolia. Hypocalcemia following Prolia administration is a significant risk in patients with severe renal impairment [creatinine clearance < 30 mL/min] or receiving dialysis. Adequately supplement all patients with calcium and vitamin D. *Serious Infections:* Serious infections leading to hospitalization were reported in clinical trial. Advise patients to seek prompt medical attention if they develop signs or symptoms of severe infection, including cellulitis. *Dermatologic Adverse Reactions:* Dermatitis, eczema, and rashes. Most of these events were not specific to the injection site. Consider discontinuing Prolia if severe symptoms develop. *Osteonecrosis of the Jaw (ONJ):* ONJ, which can occur spontaneously, is generally associated with tooth extraction and/or local infection with delayed healing. A dental examination with appropriate preventive dentistry is recommended prior to treatment with Prolia in patients with risk factors. Patients who are suspected of having or who develop ONJ while on Prolia should receive care by a dentist or an oral surgeon. *Atypical Subtrochanteric and Diaphyseal Femoral Fractures:* Atypical low-energy or low trauma fractures of the shaft have been reported in patients receiving Prolia. Patients should be advised to report new or unusual thigh, hip, or groin pain. *Suppression of Bone Turnover:* In clinical trials treatment with Prolia resulted in significant suppression of bone remodeling as evidenced by markers of bone turnover and bone histomorphometry. *Musculoskeletal Pain:* Severe and occasionally incapacitating bone, joint, and/or muscle pain. Consider discontinuing use if severe symptoms develop. **INTERACTIONS** In subjects with postmenopausal osteoporosis, Prolia (60 mg subcutaneous injection) did not affect the pharmacokinetics of midazolam, which is metabolized by cytochrome P450 3A4 (CYP3A4), indicating that it should not affect the pharmacokinetics of drugs metabolized by this enzyme in this population. **PREGNANCY AND LACTATION** *Pregnancy:* Category X. *Breast-feeding:* It is not known whether Prolia is excreted into human milk. **PEDIATRIC, GERIATRIC AND RENAL IMPAIRMENT** *Pediatric:* Prolia is not recommended in pediatric patients. *Geriatric:* No overall differences in safety or efficacy were observed in clinical studies between elderly patients and younger patients and other reported clinical experience has not identified differences in responses between the elderly and younger patients, but greater sensitivity of some older individuals cannot be ruled out. *Renal Impairment:* No dose adjustment is necessary in patients with renal impairment. **UNDESIRABLE EFFECTS** The most common adverse reactions reported with Prolia in patients with postmenopausal osteoporosis are back pain, pain in extremity, musculoskeletal pain, hypercholesterolemia, and cystitis. The most common adverse reactions reported with Prolia in men with osteoporosis are back pain, arthralgia, and nasopharyngitis. The most common (per patient incidence ≥ 10%) adverse reactions reported with Prolia in patients with bone loss receiving androgen deprivation therapy for prostate cancer or adjuvant aromatase inhibitor therapy for breast cancer are arthralgia and back pain. Pain in extremity and musculoskeletal pain have also been reported in clinical trials. The most common adverse reactions leading to discontinuation of Prolia in patients with postmenopausal osteoporosis are back pain and constipation. **OVERDOSE** There is no experience with overdosage with Prolia. Abbreviated Prescribing Information Version: US02/2015CDS13/IPI04

**Post-hoc* analysis. ARR, Absolute risk reduction.

References:
1. Boonen S *et al. J Clin Endocrinol Metab* 2011;**96**: 1727–1736.
2. Prolia® (denosumab), Summary of Product Characteristics, 2014.
3. Cummings SR *et al. N Engl J Med* 2009; **361**:756–765.

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The Cover Shot

Crepuscular Rays (曙暮暉)

In this photo, we can clearly see the strips of alternating bright and dark rays. This is an atmospheric Optics phenomenon called "Crepuscular Rays". Crepuscular rays are also known as a Jacob's Ladder, Gateways to Heaven, Buddha's Fingers, Jesus Beams, Angel lights, God's Rays, Sun rays, sunbeams, cloud breaks and many other names. Many of the names have religious connotations as crepuscular rays seem to be a message from the gods.

Crepuscular comes from the Latin word "crepusculum", meaning twilight. We are fascinated by this phenomenon although it happens infrequently. It is actually caused by sunlight being blocked by high-rise objects (such as clouds or high mountains), thus creating strips of alternating bright and dark rays. They are columns of sunlit air separated by darker cloud-shadowed regions. Despite seeming to converge at a point, the rays are actually near-parallel shafts of sunlight. This apparent convergence is a perspective effect only. It is similar to the way that parallel railway lines seem to converge at a point in the distance. Crepuscular rays can be seen when the sun is up in the sky or near the horizon around dawn or dusk i.e. during twilight hours.

The path of light through the atmosphere at sunrise and sunset passes through a much longer distance. Short wavelength blue and green light will be scattered through Rayleigh scattering by the particles in the air much more strongly than longer wavelength yellow and red light. This is the reason why crepuscular rays are usually orange in appearance.

In this photo, we can also see the crescent moon and the boat on its way back to the pier.

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Editorial

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Editor

Dr Kwai-ming SIU

As we all know, minimally invasive orthopaedic surgery (MIOS) is one of the major orthopaedic advances in the past 30 years. It becomes more and more commonly adopted in our current orthopaedic practice and has a significant positive impact on the management in a diversity of orthopaedic diseases.

Currently, minimally invasive surgery is regarded as the preferable approach for certain conditions in orthopaedics. As a result, patients could now benefit from a decrease in the infection rate, blood loss, post-operative pain, soft tissue and scar problems, to name just a few. Furthermore, there are better postoperative outcomes including faster bone healing, shorter hospital stay and recovery and improvement in patients' satisfaction while achieving a good safety track record.

At present, orthopaedic surgery can be performed better with improved visualisation and under magnification by means of arthroscopic and endoscopic techniques with the use of dedicated instruments. In addition, intra-operative fluoroscopy and 3D computer navigation or CT guided fixation can enhance our accuracy and capabilities during the application of MIOS.

In particular, minimally invasive orthopaedic surgery has been a hot topic in the recent few years. This year, the main theme of the Annual Congress of the Hong Kong Orthopaedic Association is also on minimally invasive orthopaedic surgery. I am privileged to be the cochairman of this Congress. You are most welcome to join the congress to update yourselves on the recent advances in MIOS.

In the current issue, the advanced MIOS applications in Foot and Ankle, Sports Medicine, Spine and Trauma are discussed. Highlights on the MIOS of Foot and Ankle are given by me. In particular, I feel very grateful to the following orthopaedic experts for their great contribution to this issue. Dr Yau-bun Wong enlightens us on the current status of minimally invasive sports surgery. The state-of-the-art use of minimally invasive spine surgery is illustrated by Dr Ying-kei Chan. Dr Christian Fang describes the latest usage of MIOS in trauma as well. I must also thank Dr Hin-keung Wong for sharing with us his experience about photography of sunset and his magnificent photos.

In conclusion, there will be further enhancement of surgical instruments, implants and techniques in the future. At the same time, more simulation training and workshops will be provided to our fraternities to overcome the steep learning curve of MIOS. Further research and prospective randomised clinical studies are expected to be conducted. Finally, our new generation will have more innovative ideas. I deeply believe that MIOS will be more and more popular and an increasing number of different orthopaedic conditions could be tackled by MIOS. The future will provide us the opportunity to make our dreams come true!

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• Course No. C301 • CME/CNE Course

Certificate Course on Complaint Management 2017

Jointly organised by

The Federation of Medical Societies of Hong Kong

Hong Kong Society for Healthcare Mediation

Objectives:

- Understand current regulatory system for healthcare professionals
- Recognise key elements in a fair complaint management process and system
- Familiarise with current developments in complaint management
- Gain confidence in management of adverse incident with media involvement
- Establish the patients' needs through questions and listening
- Appreciate key skills and qualities needed to handle patient complaints effectively

Date	Topics	Speakers
3 Jul	**Complaint system** The rights-, interest-, and power-based complaint system Complaint system design - with resolution and preventive focus	Dr Abraham WAI 衛家聰醫生
10 Jul	**Complaint – is somebody at fault?** Complaint system of Medical Council and other regulatory bodies	Dr Robert LAW 羅致廉醫生
17 Jul	**Media in complaint** Handling media in adverse events	Dr Carl LEUNG 梁家駒醫生
24 Jul	**Complaint – what's new** Just culture, open disclosure and apology handling	Dr Kai-ming CHOW 周啟明醫生
31 Jul	**Patients' complaint** Patients' complaint avenue in HK What motivate patients to complain What they want and deserve	Dr Kim-lian ONG 王金蓮醫生
7 Aug	**Complaint – how-to** Practical tips on handling complaints and how to survive a legal action	Mr TK IU 姚定國先生

Dates : 3, 10, 17, 24, 31 July & 7 August, 2017 (Every Monday)
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Minimally Invasive Foot and Ankle Surgery

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This article has been selected by the Editorial Board of the Hong Kong Medical Diary for participants in the CME programme of the Medical Council of Hong Kong (MCHK) to complete the following self-assessment questions in order to be awarded 1 CME credit under the programme upon returning the completed answer sheet to the Federation Secretariat on or before 31 July 2017.

Introduction

With more and more orthopaedic surgeons devoted to foot and ankle surgery together with the development of innovative techniques and advent of better instrumentation, an increasing number of minimally invasive surgery (MIS) is adopted in the management of various foot and ankle conditions. These procedures performed by a minimally invasive technique will be of significant benefit to patients while maintaining a good safety profile. In this article, most of the advanced or common MIS procedures in the Foot and Ankle regions performed nowadays will be discussed.

A) Arthroscopy

1) Ankle Arthroscopy

There has been significant development of the application of ankle arthroscopy in an increasing number of conditions since the 1980's. In 1987, Guhl introduced a skeletal distraction device with pins in the tibia and calcaneum to facilitate more complicated procedures to be performed. Furthermore, Yates and Grana published an article about their technique for non-invasive distraction in 1988[1].

Techniques of the Ankle Arthroscopy

Non-invasive traction with a soft tissue distraction device is applied with the patient in the supine position (Fig 1). A thigh tourniquet is used to provide a bloodless field. Typically, two standard anterior portals are used. The anteromedial portal is placed between the anterior tibial tendon and the saphenous vein at the level of the ankle joint line. The anterolateral portal is located just lateral to the peroneus tertius. Special precautions should be observed to prevent any superficial peroneal nerve injury by the "Nick and Spread" technique. A posterolateral portal may be established to tackle the posterior lesion of the ankle.

i) Arthroscopic Treatment of Osteochondral Lesions of the Talus (OLT)

In general, osteochondral lesion of the talus is used to describe a local condition involving the articular cartilage of the talus. It ranges from a small defect to more severe injuries such as detachment of a segment of cartilage and its corresponding subchondral bone from an articular surface or formation of a large cyst. Other terms such as osteochondritis dissecans, osteochondral fractures and talar dome fractures have been used to describe this problem.

A history of trauma is documented in more than 85% of patients. Patients with OLT usually present with chronic ankle pain. Radiographs may reveal radiolucent posteromedial or anterolateral lesions of the talus. In magnetic resonance imaging (MRI), sclerosis of the bed of the chronic lesion is shown as area of low signal intensity on T1-weighted images. Moreover, if the lesion has a high signal rim in T2 weighted images, it signifies instability of the osteochondral fragment.

The objectives of treatment are the reduction of pain, improvement of function and limiting the progression of arthritis. Ankle arthroscopy is indicated for unstable lesions and those stable lesions that have failed conservative treatment. For most OLT, the usual surgical treatment is arthroscopic curettage and microfracture (Fig 2). The lesion is debrided to a stable articular rim. Microfracture is performed to stimulate the bone marrow to form fibrocartilage at the cartilage defect. Ferkel et al reported good to excellent results in 72% of 50 patients with an average follow up of 71 months[2].

For acute OLT with sizable fragments, arthroscopic reduction and fixation with absorbable pins is the treatment of choice.

Other arthroscopic techniques for large lesion >1.5cm^2 include autologous matrix-induced chondrogenesis (AMIC), osteochondral autograft transplantation and autologous chrondrocyte implantation.

ii) Arthroscopic Treatment of Soft Tissue Impingement Syndrome of the Ankle

As we all know, ankle sprains are one of the most common injuries. A generalised or localised synovitis and fibrosis can occur with ankle sprain. Anterolateral soft tissue impingement is the most common type of soft tissue impingement. Other types of impingement syndromes include impingement at the syndesmosis, at the medial and posterior part of the ankle.

In anterolateral soft tissue impingement syndrome, the patient typically complains of ankle pain, swelling, popping or limitation of ankle motion. On physical examination, there is usually localised tenderness.

Radiograph is usually negative. MRI may show soft tissue with low-intensity signal anterior to the fibula[3]. With failure to improve after conservative treatment, arthroscopic debridement of the inflamed synovium and fibrotic tissue is a recommended treatment. The surgical outcome was found to be good or excellent in 84% of 31 patients at 2 years[4].

iii) Arthroscopic Treatment of Anterior Ankle Bony Impingement Syndrome

a) Anterior ankle bony impingement is a cause of chronic ankle pain in athletes. It is also named as the 'Footballer's ankle'. There is formation of bony spurs on the anterior tibia or the neck of the talus. Typically, patients complain of generalised anterior ankle pain which is aggravated by forced ankle dorsiflexion or plantarflexion. Physical examination usually reveals tenderness and sometimes presenting with a palpable bony mass. The range of dorsiflexion may be limited. X-rays show bony spurs along the distal tibia in front +/- the talar neck. In most cases, arthroscopic excision of osteophytes is a preferred surgical option for symptomatic patients who do not respond to conservative treatment (Fig 3).

iv) Posterior Ankle Impingement Syndrome

The presence of an os trigonum or a prominent trigonal process of the talus is a common cause of posterior impingement syndrome. This syndrome is described to be common in ballet dancers as a result of impingement of the os trigonum against the posterior tibia and calcaneum in maximum plantarflexion at the 'en pointe' and 'demi-pointe' positions in ballet. Pain, weakness and catching are the main symptoms and they are worse in plantarflexion. Typically, pain is aggravated by forced ankle plantarflexion. Ankle X-rays usually reveal an os trigonum or a large trigonal process . MRI shows increase in signal of the os trigonum and adjacent tissue in T2 weighted images.

If the symptoms persist after conservative treatment, endoscopic excision of the os trigonum or bony prominence through the direct two-portal posterior (hindfoot) approach[5] with the patient in prone position is the preferred surgical option (Fig 4).

v) Intra-articular Loose Body

Loose bodies may be formed from chondral defects, detachment of osteophytes or, rarely, synovial chondromatosis. They can cause symptoms in a joint including pain, locking, catching or the sensation of instability. In most cases, radio-opaque loose bodies will be visible in the plain X-rays. In addition, CT scan can be used to delineate the number and exact location of them. Intra-articular loose bodies in the ankle joint can usually be retrieved arthroscopically .

vi) Arthroscopic Ankle Arthrodesis

In symptomatic degenerative or inflammatory arthritis with loss of articular cartilage, arthroscopic arthrodesis is the treatment of choice if the symptoms persist after conservative treatment. Comparing with open arthrodesis, arthroscopic ankle arthrodesis has the advantages of a decrease in morbidity including less pain and a decrease in the wound complication rate. Moreover, a higher union rate is also shown[6]. However, if the valgus or varus deformity is more than 15 degrees, traditional open surgery should be considered.

Firstly, the residual cartilage is removed in arthroscopic arthrodesis (Fig 5). Next, microfracture, burring or "feathering" of the subchondral bone is performed to improve the fusion rate. Finally, two to three cannulated screws are usually inserted under fluoroscopy to stabilise the arthrodesis site with the heel in 5° valgus or neutral alignment.

Fig 1. Standard setup of ankle arthroscopy with noninvasive traction device in the supine position.

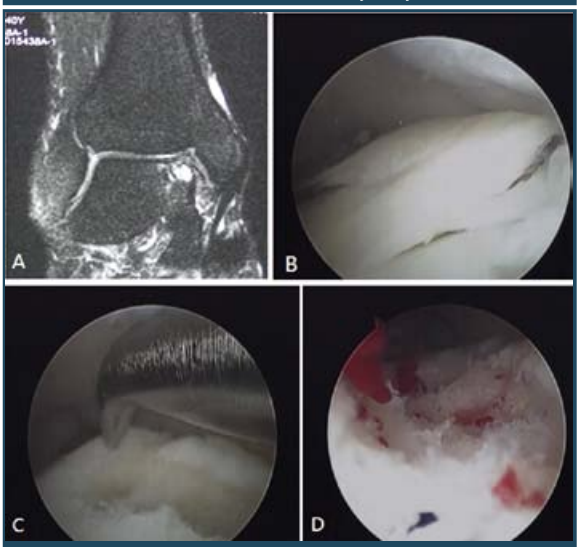

Fig 2. A: MRI showing increase in signal at the medial talar dome (OLT) in T2 weighted image. B: Arthroscopic view demonstrating loose cartilage flap of the OLT. C: Micro-fracture of the lesion after removal of the loose cartilage flap. D. Bleeding from the microfracture sites.

Fig 3. Anterior bony impingement syndrome A: A large osteophyte (Arrow) on the distal anterior tibia in the left ankle X-ray. B: X-ray showing no recurrence of osteophyte at 16 months post-op. C: Arthroscopic removal of an intra-articular osteophyte by a burr

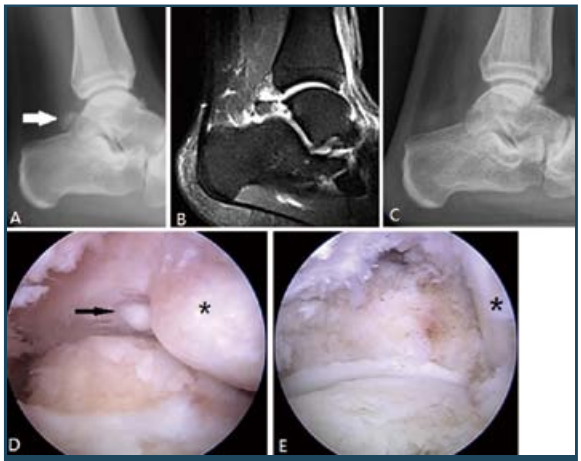

Fig 4. Endoscopic excision of an os trigonum. A: X-ray revealing a large os trigonum posterior to the talus. B: MRI (STIR sequence) demonstrating Increase in signal of the os trigonum with fluid and synovitis.C: Post-op X-ray after excision of the os trigonum. D: Endoscopic view showing a loose body (Arrow) on the left side of the os trigonum (*). E: The os trigonum was excised (Flexor hallucis longus tendon (*)).

Fig 5. Arthroscopic ankle fusion. A: X-rays of the left ankle demonstrating late stage osteoarthritis.B: Insertion of two cannulated screws under fluoroscopy for compression and stabilisation of the fusion site. C: X-rays showing bony fusion at 10 weeks post-op

2) Subtalar Arthroscopy and Hindfoot Endoscopy

With the continued refinement of surgical techniques and instruments, arthroscopy of the subtalar joint has become more commonly performed and the indications for subtalar arthroscopy will increase as the number of expertise in this area rises.

i) Osteoarthritis of Subtalar Joint

If the patient has failed conservative treatment, arthrodesis of the subtalar joint can be done arthroscopically by using 3 portals on the lateral side of the foot (Anterolateral, middle and posterolateral portals) with the patient in lateral position. Alternatively, two-portal posterior approach with the patient in prone position is another common surgical approach.[5] After preparation of the joint surface as described in the session of 'Arthroscopic Ankle Arthrodesis', one cannulated screw or two are inserted from the posterolateral calcaneum to the talus percutaneously with the heel in 5° valgus or neutral alignment under fluoroscopy.

ii) Haglund Deformity

Haglund deformity, a bony prominence on the calcaneal tuberosity may rub against the distal Achilles tendon and the retrocalcaneal bursa resulting in retrocalcaneal bursitis. Endoscopic excision of the chronically inflamed bursa and bony prominence through two-portal posterior approach with the patient in prone position[5] is the treatment of choice if the patient does not respond to non-operative treatment (Fig 6).

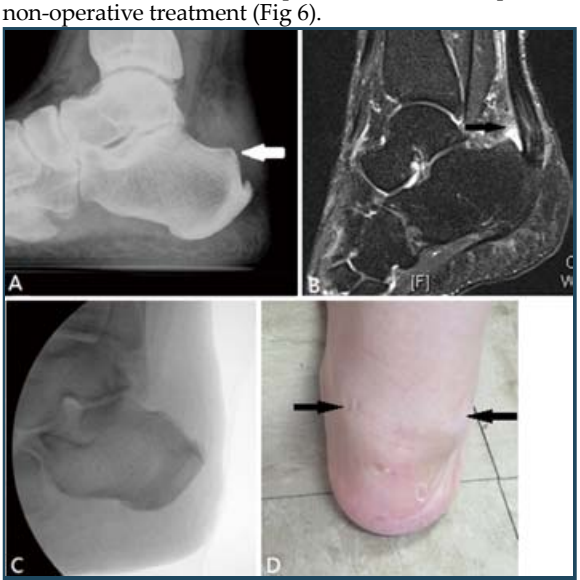

Fig 6. Haglund deformity and retrocalcaneal bursitis. A: X-ray showing bony prominence (Arrow) at the superoposterior tuberosity of the calcaneum. B: MRI (STIR sequence) showing fluid in the retrocalcaneal bursa (Arrow) and hyperintensity and thickening of the distal Achilles tendon (Achilles tendinosis). C: X-ray after endoscopic excision of the bony prominence. D: Two small inconspicuous surgical scars (Arrow) on the posterior heel.

3) Arthroscopic Treatment of Acute Fractures and their Complications

Everyone knows that foot and ankle fractures are one of the most common fractures. The majority of these fractures are reduced and fixed by conventional open surgery. Nevertheless, certain types of displaced fractures can be treated by MIS.

i) Minimally Invasive Surgery of Calcaneal Fractures

Extra-articular 'Tongue' type calcaneal fractures can be reduced closely and fixed by percutaneous screws under fluoroscopy (Fig 7).

For intra-articular fractures of the calcaneum, minimally invasive arthroscopic-assisted reduction with percutaneous fixation is one of the options. Precise anatomical restoration of the posterior facet is confirmed by direct visualisation via an arthroscope. A Sanders Type II fracture with a single fracture line through the posterior facet is easier to visualise than multiple fracture lines. The lateral fragment and tuberosity fragment are manipulated by k-wires or shanz screws. Furthermore, the depressed fragment may be tamped to restore a normal articular surface. (Fig 8).[7,8]

Nonetheless, this type of surgery is technically demanding. Thus, if there are difficulties in reducing the articular fracture or confirming the congruity of the joint, a small sinus tarsi incision may be used.

ii) Minimally Invasive Surgery of Ankle Fractures

In my experience, ankle arthroscopy has an important role in the management of certain intra-articular fractures and their complications. Therefore, I would like to describe some of the ankle conditions that MIS can provide benefits for.

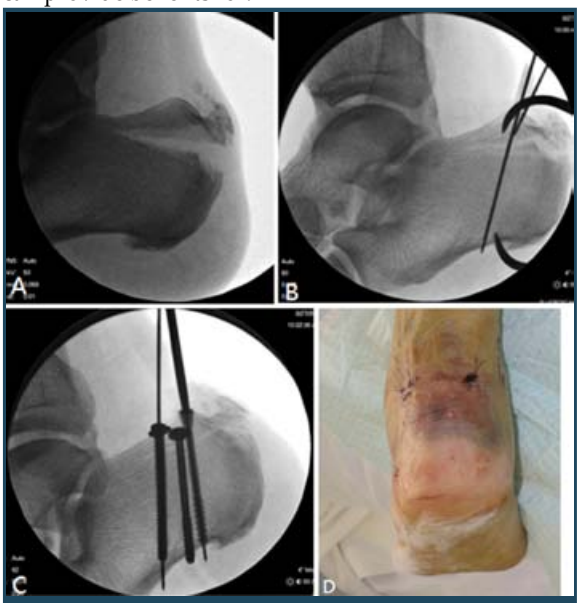

Fig 7. A: X-ray demonstrating displaced extra-articular fracture of the calcaneum. B,C: Closed reduction followed by insertion of three cannulated screws over the guide wires under fluoroscopy. E: Post-op photo showing three small surgical wounds

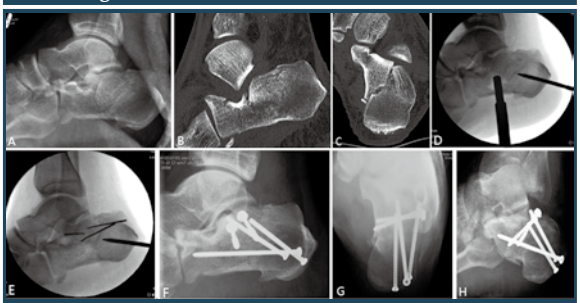

Fig 8. A, B and C: X-ray and CT scan demonstrating displaced intra-articular calcaneal fracture. D: Intra-op X-ray showing insertion of a shanz screw for manipulation of the fracture. The depressed fragment was tamped to restore a normal articular surface. E: Insertion of multiple k-wires to stabilize the fracture sites. F,G,H: Post-op X-rays revealing satisfactory alignment and congruous subtalar joint after fixation by both cannulated and non-cannulated screws.

a) Ankle Fractures with Significant Soft Tissue Injury

In certain circumstances, open reduction and internal fixation may further jeopardise the soft tissue viability which may result in full thickness skin necrosis. Arthroscopic-assisted fracture reduction and fixation cause much less soft tissue morbidity than the open approaches. In addition, it can provide direct visualisation of the quality of the articular reduction. Hence, anatomical reduction can be confirmed more easily than using fluoroscopy alone. After reduction, insertion of percutaneous cannulated screws under fluoroscopy can provide the necessary stable and satisfactory fixation (Fig 9). [9]

Fig 9. Arthroscopic assisted ankle fracture fixation. A: Crushing injury resulting in skin necrosis over the medial malleolus of the right ankle. B: X-rays showing Type C Pott's fracture. C: Satisfactory alignment of the medial malleolus after arthroscopic-assisted reduction and percutaneous screw fixation. D and E: Arthroscopic views of the intra-articular medial malleolar fracture before (D) and after reduction (E).

b) Presence of Intra-articular Bony Fragment after Fracture Fixation Surgery

Occasionally, free intra-articular bony or osteochondral fragments of significant size are noticed after operation for ankle fracture fixation. Arthroscopic retrieval of such fragments is considered to be the best management option as the surgical trauma is minimal and it can also provide excellent assessment of the intra-articular condition at the same time.

c) Unsatisfactory Reduction of Syndesmotic Injury

In a scenario that the fibular fracture is reduced satisfactorily but the syndesmosis is mal-reduced and fixed (eg. widening or mal-rotated) during the index operation, arthroscopic-assisted reduction of syndesmosis is recommended.[10] At first, the syndesmosis is reduced under direct arthroscopic visualisation. Then, re-insertion of syndesmotic screws under fluoroscopy is performed percutaneously.

d) Posterior Pilon Fractures

In the uncommon cases of comminuted Pilon fractures involving the posterior tibial plafond, open reduction and internal fixation is preferably performed by

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posterior approach eg. posterolateral, posteromedial or in combination. Arthroscopic-assisted fracture reduction through the anteromedial portal will provide accurate assessment of the fracture reduction.

B) Foot Deformity

Percutaneous osteotomy is used to correct various types of foot deformities such as hallux valgus and bunionette deformities. A specially designed burr called 'Isham' burr (Fig 11A) could be used via a small incision to perform osteotomy under fluoroscopy.[15] Typically, percutaneous cannulated screws are inserted to stabilise the osteotomy site in normal alignment (Fig 10 and 11).

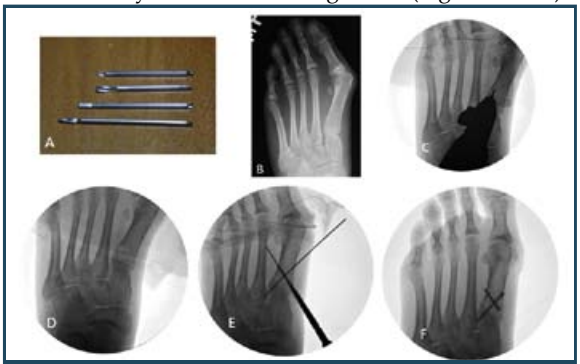

Fig 10. A: Isham burrs. B: X-ray showing hallux valgus deformity. C, D: Percutaneous lateral closing wedge osteotomy using an Isham burr under fluoroscopy to correct the varus deformity of the first metatarsal. E and F: insertion of two cannulated screws over the guide wires with the metatarsal in normal alignment.

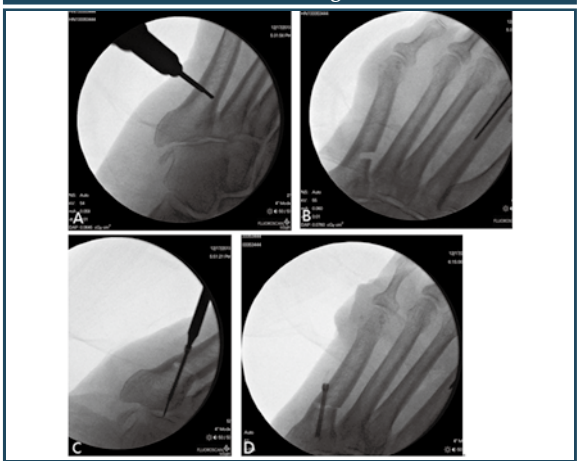

Fig 11. A ,B: Percutaneous medial closing wedge osteotomy at the base of the fifth metatarsal using an Isham burr under fluoroscopy. C and D: insertion of a cannulated screw over a guide wire after correction of the 4-5 intermetatarsal angle.

C) Tendons and Ligaments

1) MIS Achilles Tendon Repair

It is a well known fact that ruptures of the Achilles tendon is one of the most common tendon injuries in the foot and ankle regions. The rupture site is usually 2-6 cm proximal from the calcaneal insertion at the relative avascular region of the tendon. In patients with a complete Achilles tendon rupture, squeezing of the calf muscle will not lead to passive plantarflexion of the foot (positive Thompson test).

Operative repair of the tendon is usually recommended for young and active patients. When comparing with conservative treatment, operative treatment is more likely to restore muscle strength, faster return to sport and minimise the risk of re-rupture.[11,12]

There are different techniques of minimally invasive repair of the Achilles tendon. One of the common techniques is the use of a medical device called 'Achillon' which can involve the use of much smaller incisions (Fig 12) resulting in a shorter operative time and hospital stay. Moreover, the infection rate and wound complication rates are both lowered.

Fig 12. A small surgical scar on the posterior heel after minimally invasive repair of Achilles tendon

Fig 13. Endoscopic gastrocnemius recession. A: Endoscopic view of the gastrocnemius aponeurosis. B Gastrocnemius aponeurosis released by an endoscopic retrograde knife. C. Soleus muscle seen after division of the gastrocnemius aponeurosis.

2) Endoscopic Gastrocnemius Recession for Tight Heel Cord

It is common knowledge that the Achilles tendon is composed of tendons of the gastrocnemius and soleus. A contracture of the Achilles tendon will lead to equinus deformity. Achilles tendon lengthening is the treatment of choice for this condition. For an isolated gastrocnemius contracture, recession of the gastrocnemius will minimise the complication of weakness in ankle plantarflexion, calcaneal gait and wound problems. Additionally, endoscopic gastrocnemius recession is a safe procedure to achieve this goal. Both two-portal and one-portal techniques are effective means to release the aponeurosis of the gastrocnemius (Fig 13).[13,14]

Conclusion

The applications of MIS in the foot and ankle are increasing in popularity due to development of new innovative surgical techniques, more dedicated instruments, better training and increase in recognition of its benefit to patients. In the future, MIS will play a more and more important role in the foot and ankle conditions.

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MCHK CME Programme Self-assessment Questions

Please read the article entitled "Minimally Invasive Foot and Ankle Surgery " by Dr Kwai-ming SIU and complete the following self-assessment questions. Participants in the MCHK CME Programme will be awarded CME credit under the Programme for returning completed answer sheets via fax (2865 0345) or by mail to the Federation Secretariat on or before 31 July 2017. Answers to questions will be provided in the next issue of The Hong Kong Medical Diary.

Questions 1-10: Please answer T (true) or F (false)

1. **Superficial peroneal nerve injury is one of the complications of ankle arthroscopy.**
2. **Microfracture is performed to stimulate the bone marrow to form hyaline cartilage at the cartilage defect of the osteochondral lesion.**
3. **Ankle sprains may result in anterolateral soft tissue impingement syndrome of the ankle.**
4. **Posterior impingement syndrome of the ankle is also named as Footballer's ankle.**
5. **Typically, pain is aggravated by forced ankle plantarflexion in posterior impingement syndrome of the ankle.**
6. **Arthroscopic ankle arthrodesis was shown to have a higher union rate than the conventional open ankle arthrodesis.**
7. **In retrocalcaneal bursitis with Haglund deformity, endoscopic excision of the chronically inflamed bursa alone without removal of the bony prominence is the recommended surgery.**
8. **In general, arthroscopic-assisted ankle fracture reduction and fixation cause much less soft tissue morbidity than the traditional open approaches.**
9. **The infection rate of minimally invasive Achilles tendon repair is found to be lower than conventional open repair.**
10. **For an isolated gastrocnemius contracture, recession of the gastrocnemius has a higher complication rate of weakness in ankle plantarflexion than Achilles tendon lengthening.**

ANSWER SHEET FOR JULY 2017

Please return the completed answer sheet to the Federation Secretariat on or before 31 July 2017 for documentation. 1 CME point will be awarded for answering the MCHK CME programme (for non-specialists) self-assessment questions.

Minimally Invasive Foot and Ankle Surgery

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Answers to June 2017 Issue

Practical Use of Immune Checkpoint Inhibitors: Challenges and Opportunities

1. T 2. T 3. F 4. F 5. T 6. F 7. T 8. F 9. T 10. T

Dermatological Quiz

Dr Chi-keung KWAN

MBBS(HK), MRCP(UK), FHKCP, FHKAM(Med)
Specialist in Dermatology and Venereology

Dr Chi-keung KWAN

Fig.1: Multiple black dots on the back

This 35-year-old lady complained of a brownish patch with multiple black spots on the back. The patient knew the presence of the lesion since her teenage as told by her parents. However, the lesion was asymptomatic and did not bother her. Actually, her husband noticed the lesion a few years ago and claimed that the colour was getting darker and seemed to have increased in size. Physical examination reviewed a pale brown macule with multiple black papules speckled on the surface (Fig. 1). There was no ulcer or erosion on the lesion.

Questions

1. What is the diagnosis of the skin lesion?
2. What is the underlying pathology?
3. How do you manage this lady?

(See P.36 for answers)

Minimally Invasive Orthopaedic Sports Surgery

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Dr Yau-bun WONG

Introduction:

The development of the arthroscopy was started from the 19th century. In 1918, Professor Takagi (1888-1963) from the Tokyo University first started using a cystoscope to visualise the knee joint. The development of this technology was then hindered by World War II. Takagi's student, Watanabe (1921–1994), continued Takagi's work in the development of the arthroscope after World War II. He introduced an arthroscopy operative technique in 1957 with the publication of the Atlas of Arthroscopy. In 1958, Dr Watanabe developed the no. 21 arthroscope, which proved to be the first successful arthroscope.

In the 1960's, awareness of arthroscopic surgeries rose again. Many surgeons from North America were interested in this technique and participated in its development. They published their clinical experience in English publications and hastened the spreading of this new technology. The developments of other technologies (including computers, miniature cameras, fibre-optics, electronics, lasers, etc.) also contributed to the development of this new modality of surgery. Arthroscopic surgery is now one of the major treatment modality in the field of orthopaedic surgery. The application and indication of arthroscopic surgery are expanding with time and advancement of instrument technology.

With the help of arthroscopy, the same operation can be done in a minimally invasive way.

Generally, the wound from arthroscopic surgery is minimal when compared with the traditional open surgery. Extended wound and scarring around the joints will cause much pain and affect future functions. Such pain related to the wound can now be reduced by arthroscopic surgery. Besides, the extensive scarring can now be avoided. As a result, the recovery of the patient could be faster if the same operation can be done in a minimally invasive way.

Arthroscopy can also offer a magnified image and close-up view of the lesion in the joint. It can help in the diagnosis of the cartilage lesion and assist the fracture fixation of intra-articular fractures.

Patients with minimally invasive surgery done usually suffer from less post-operative pain and less post-operative wound problems (e.g. bleeding and swelling). This can facilitate the development of day surgeries and reduce the medical costs to our health care system.

Knee Arthroscopy
Meniscal surgery

Meniscus tears are the most common injury to the knee that requires surgery. The medial meniscus tear is about 3 times more common than the lateral counterpart. However, when there is an associated anterior cruciate ligament tear, the lateral meniscus is more commonly injured. It is common in young patients with sports related injuries.

The meniscal tears can be classified according to the location and position (posterior horn, body and anterior horn), the pattern and appearance (radial, horizontal, bucket-handle etc.) of the tear. The innermost 1/3 with relative poor vascularity has poor healing potential and the outermost 1/3 with relative good vascularity has good healing potential. The middle 1/3 with intermediate vascularity therefore has intermediate healing potential.

Patients with meniscal tears usually present with intermittent swelling, catching and locking.

Diagnosis of a meniscal tear is usually clinical. Physical examination will reveal joint line tenderness, positive McMurray test and Thessaly test. However, during the time of an acute injury, such provocative tests usually cannot be performed due to pain and effusion. It is particularly true when there is an associated anterior cruciate ligament injury.

MRI scan can be performed to confirm the diagnosis when there is any clinical suspicion. It can help locate the suspected tear and provide hints on the pattern of the tear. Although MRI is a powerful tool in the diagnosis of meniscal tears, one should be careful in integrating the information with the overall clinical picture during interpretation. Studies have shown that positive MRI findings were noted in asymptomatic subjects with a normal physical examination.

When a patient with meniscal tear is symptomatic and affects his/her daily activities, work or sport with positive clinical findings, he/she may benefit from the arthroscopic intervention.

It is known that the meniscus plays an important role in joint stability, load sharing and shock absorption. Reduction in the meniscus size after meniscectomy will cause an increase in contact pressure. The post meniscectomy knee will have degenerative changes

in X-ray including squaring of the femoral condyle, ridging and narrowing of the joint space (Fairbank changes). In view of the importance of the meniscus, surgeons will try their best to preserve the meniscal tissue by arthroscopic repair. However, in cases that the chronicity, vascularity and pattern are unfavourable, arthroscopic partial meniscectomy is performed to alleviate the clinical symptoms.

Historically, the meniscal surgery needs to be done with a formal arthrotomy either with a single anteromedial incision or a two incisions technique. Nowadays, we can perform the meniscal surgeries (repair or partial meniscectomy) with the use of knee arthroscopy using the standard anteromedial and anterolateral portals. Additional posteromedial and/or posterolateral portals are used when dealing with lesions in the posterior compartment.

Concerning arthroscopic repair of the meniscus, several techniques are commonly used.

The "inside-out" technique is usually used in tears over the body. A long needle with suture is inserted though the portal into the tear of the meniscus. A skin incision is required to tighten the suture over the surface of the capsule.

"Outside-in" technique is usually used in tears over the anterior horn and body region. A suture is inserted through the skin into the tear. Knotting of the suture can be done with a separate skin incision or extension of the portal in cases of anterior horn tear.

"All inside" technique make use of special meniscal repair instruments to repair the tear intra-articularly. This technique is usually used in posterior horn tears. One can use the curved suture passer to repair the tear and tighten the knot intra-articularly. However, this technique is technically demanding and cannot be applied in certain patterns of tears. Another option will be using commercially developed suture devices, darts and arrows to repair the tear.

For large size tears involving more than one location of the meniscus, several stitches may be necessary to provide a stable repair. In this situation, usually there will be combination use of the above-mentioned techniques.

Anterior cruciate ligament (ACL) reconstruction

In the United States, the prevalence of ACL injuries is about 1 in 3,000 and about 250,000 new injuries each year. Many of these injuries occur during sport activities involving deceleration, twisting, cutting and jumping movements. The excessive valgus stress, forced external rotation of the femur on a fixed tibia with the knee in full extension, or forced hyperextension, could be a cause of ACL injury.

The ACL injury can range from a partial to a complete tear. Most of the diagnosed ACL injuries are complete ruptures (85%). ACL injury may occur in isolation (25%) or in combination with injury to other knee joint structures including menisci, articular cartilage, collateral ligaments or joint capsule.

Clinically, patients usually sprain their knees in sport activities with an audible "POP" sound and immediate haemarthrosis. Immediate examination is usually limited by pain. A detailed examination of the knee after the acute pain and swelling have subsided may reveal laxity in the Lachman test, anterior drawer test and positive Pivot shift test. There will be meniscal tear signs if the injury is associated with a meniscal tear. Varus and valgus stress tests may reveal associated collateral ligament injury.

ACL is an intra-articular structure. Its synovial envelope is usually torn with the ligament during injury. There will not be any haematoma/ blood clot formation after injury. Without the blood clot formation, the normal healing sequence of soft tissue healing cannot be initiated. This may explain why ACL has poor healing potential. Kaplan and Clancy have reported a 17% failure rate and 42% abnormal laxity with primary surgical repairs.

Multiple operative techniques have been developed to re-establish the ACL functions (rotatory stability and AP translational stability of the knee). An extra-articular procedure with the use of iliotibial band tenodesis (MacIntosh) was once a popular treatment option. However, extensive surgical wounds and arthrotomy are inevitable in this procedure. With the advancement of graft fixation techniques and more understanding in graft placement, intra-articular procedures under the assistance of arthroscopy have become the main stay of treatment.

The ACL deficient knee can result in further articular damage and meniscal injury. These intra-articular deteriorations may increase the subsequent risk of joint degeneration. However, the success of surgical ACL reconstruction in preventing the development of arthrosis has not been demonstrated.

Patient selection for ACL reconstruction should be individualised according to the degree of laxity, patient's age, activities level, symptoms and presence of associated injuries.

Graft selection depends on patient factors and surgeon preferences and usually includes bone-patella tendon bone (BPTB) autograft, hamstring autograft (STG), quadriceps tendon autograft and allograft.

With the understanding of the double bundle structure (anteromedial and posterolateral) of the ACL, double bundle reconstruction of ACL has been developed. In double bundle ACL reconstruction, 2 smaller grafts are used instead of placing just one large graft. There are 2 additional bone tunnels to accommodate a second graft. Theoretically, the double bundle reconstruction should have better clinical stability and function. However, there is insufficient evidence to support the superiority of double bundle over single bundle reconstruction for anterior cruciate ligament rupture in adults.

Post-operative rehabilitation is an important part of the treatment to achieve favourable results. Early mobilisation and weight bearing are encouraged in most protocols. Closed-chain rehabilitation has been emphasised because it allows physiologic co-contraction of the musculature around the knee.

Shoulder region: Shoulder instability

Shoulder instability is generally divided into 2 groups (TUBS and AMBRI).

TUBS stands for traumatic unilateral dislocation with Bankart lesion. This group of patients are typically of younger age and have recurrence of dislocations up to 80-90% if treated non-operatively.

AMBRI stands for atraumatic multidirectional bilateral shoulder dislocation/subluxation. This group of patients often respond to rehabilitation and sometime require capsular plication/shift procedures.

To treat the TUBS patients operatively, an open procedure with repair of the inferior glenohumeral ligament and capsulolabral structure to the glenoid rim (Bankart repair) is the standard procedure. The success rates ranged from 80-97%. The operations are usually performed with a delto-pectoral approach and involve either splitting or taking down of the subscapularis.

However, the problem of an open procedure is related to the loss of motion and affects the ability to return to high-level activities.

In the early development of arthroscopic Bankart repairs, the recurrence of dislocation and instability is not comparable to the open procedure. With the advances of technology and arthroscopic instruments, arthroscopic Bankart repairs are now more frequently performed. With the use of more advanced suture anchors for repair of capsulolabral lesions, comparable results to the conventional open Bankart repair are noted. The advantages of performing arthroscopic procedures include less surgical morbidity and improved range of motion. One may also perform the arthroscopic procedure as a day case in day surgery centres.

However, in patients engaged in collision sports, some surgeons still perform open procedures for anterior instability. When there is significant bone loss in either the glenoid (bony Bankart) or the humeral head (Hill-Sach's lesion), there may be indications of a bony procedure or combination of bony and soft tissue procedures. The choice of treatment needs to be individualised in each case and may not be amenable with an arthroscopic approach.

Superior labrum from anterior to posterior (SLAP) lesions

A SLAP lesion is a tear in the superior labrum. It always includes the area of the biceps tendon anchoring onto the superior labrum. The labrum in this area is large and has a meniscoid appearance.

The SLAP lesion is classified according to their arthroscopic appearances and associated lesions in the biceps tendon. It has been postulated that a fall with an abducted and forward flexed arm may cause the lesion. Another theory is due to a fall or direct blow to the involved shoulder. For throwing athletes, they may have injured the superior labrum by the pull of the biceps during the follow through phase of throwing. During the cocking phase of throwing, there may also be the "peel back" phenomenon. This may cause the posterior superior labrum to rotate medially over the corner of the glenoid.

Patients with SLAP lesions may complain of pain with associated cracking, locking and/or snapping. Many patients will have signs of biceps irritation and pain (Speed and Yergason test) and positive active compression test (Obrien's test).

Plain MRI scan may not be able to diagnose SLAP lesions. To improve the visualisation, MR arthrograms will be preferred in patients suspected to have SLAP lesions. However, one cannot rely on MRI scan alone to make the diagnosis.

Ultimate diagnosis may rely on the shoulder arthroscopy. One can make the diagnosis with probing of the labrum and stretching the biceps tendon under arthroscopy. A "peel back" sign can be elicited during the arthroscopic examination.

The SLAP can be treated arthroscopically according to the pathology (repair, debridement). A suture anchor is inserted over the superior position of the glenoid and the superior labrum can be reattached to the superior glenoid rim. Surgeons can also attend and treat the associated pathology (including cuff tear, labral tear and para-labral cyst) in the same operation.

Fig. 1 Arthroscopic meniscal repair with "all inside" technique

Fig. 2 Arthroscopic single bundle ACL reconstruction

Fig. 3 Arthroscopic SLAP lesion repair with suture anchor

Fig. 4 Arthroscopic Bankart repair with reattachment of the capsulolabral tissue over the anteromedial glenoid rim.

Fig. 5 Humeral head becomes centralised after arthroscopic Bankart repair

Fig. 6 Delto-pectoral wound compared with arthroscopic wound

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The Current Role of Minimally Invasive Fracture Repair

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Introduction

Minimally invasive surgery (MIS), when applied to fracture repair, is called minimally invasive osteosynthesis (MIO) or closed reduction and internal fixation (CRIF). It is a general concept applicable to a wide range of fracture scenarios. The aim of MIO is to minimise further damage to the compromised soft tissue envelope and local blood supply. Cosmesis of surgical scars are improved and the duration of recovery is reduced. The practice of MIO should not compromise clinical outcomes and increase complication rates. The bonuses of MIO are reduced surgical duration, reduced blood loss and expanded interventional possibilities. In this article, we will describe a general overview of various MIO techniques covering a wide range of fracture types and anatomical locations.

MIO for long bone fractures

The two main types of surgical treatment for long bone fractures are intramedullary (IM) nailing and minimally invasive plate osteosynthesis (MIPO). The aim of treatment is to restore the native mechanical alignment of the joint above and below in the 3D space. Smoothness and congruity of the articular surface must be restored. The fracture is stabilised internally with minimal disturbance to the soft tissue envelope and bony blood supply. Fracture healing is by callus formation. Provided that there is sufficient stability, patients are commonly allowed to mobilise and bear weight soon without the need for an external brace or cast.

Lower limb interlocked Intramedullary nailing

IM nailing is the standard of care for shaft fractures of the femur and tibia supported by robust clinical evidence. Reaming enlarges the IM canal and allows insertion of large diameter nails with superior mechanical stability and marginally reduces the risk of non-union. IM nailing carries reduced risk of wound and soft tissue complications compared to plating[1]. Early IM nailing is advocated for open tibial fractures, circumventing pin tract problems, patient discomfort and reoperations related to external fixation[2]. Early IM nailing in the multiply injured patient with chest trauma does not increase the risk of fat embolism and acute respiratory distress syndrome[3].

Because the IM canal is wider at the metaphyseal region, nailing of fractures in this area is technically demanding and implants with advanced locking options are needed. The most typical example being the cephalomedullary IM nail for inter-trochanteric and sub-trochanteric fractures. Despite a lack of clear cost-effectiveness advantage[4], its use has increased more than threefold within the past ten years in Hong Kong. Newer evidence will soon define whether recently introduced interlocked IM nails for the fibula, clavicle, forearm and calcaneus are beneficial.

Upper limb interlocked intramedullary nailing

Humerus IM nailing is a feasible alternative to plate fixation where advocates claim a smaller incision and rapid recovery. However, a systematic review of randomised studies[5] indicated slight increased risk of complications, shoulder pain and mechanical studies have indicated inferior rotational control compared to plating. Modern angle stable, straight IM nailing of proximal humerus fractures is popular with reduced incidence of rotator cuff dysfunction[6]. With careful patient selection, patients with simpler two part fractures of the surgical humerus neck may enjoy a rapid functional recovery compared to plate fixation and non-operative treatment.

Elastic stable intramedullary nailing (ESIN)

Percutaneous Titanium elastic nailing (TEN) is a popular technique applicable to diaphyseal long bone fractures that can heal rapidly and do not require anatomical reduction. The smooth nails act as an intramedullary splint. There is no control on the rotation and axial length, and stability relies on direct contact between the main fragments. The incision is minimal and implant removal is carried out though the same wound after fracture union. ESIN is used for adult clavicle and fibula shaft fractures with reduced skin and surgical wound complications compared to plate fixation.

ESIN is the standard of care for paediatric long bone fractures[7] including forearm fractures because of strong skeletal remodelling potential. The utility of ESIN is less in adolescents approaching skeletal maturity. ESIN is discouraged for adult forearm fractures because anatomical restoration of the relationship between the proximal and distal radioulnar joint is mandatory, therefore reduction and fixation by open technique remains to be the standard.

Minimally invasive plate osteosynthesis (MIPO)

The MIPO technique is a direct evolution of open reduction and internal fixation (ORIF) by compression plating popularised by the AO group. In MIPO, the fracture is not opened. The ends of the bone aligned and bridged by plating 'slid' underneath soft tissue and screws placed via small incisions. The fracture

haematoma and periosteal blood supply is preserved. Rapid fracture healing is encouraged by callus formation. The concept is called biological fracture fixation with relative stability and most applicable to fractures with comminution.

MIPO is indicated for metaphyseal[8] and shaft fractures. The implants have seen considerable improvements over the past decade, providing improved fixation in osteoporotic bone and expanded surgical indications. The most important invention is the angular stable locking screw and evolution of anatomically shaped plates. The current generation of plates are designed specifically for numerous anatomical regions. Such implants require minimal contouring and are of lower profile, reducing prominence and patient discomfort.

Fig.1. Minimally invasive plate osteosynthesis of a distal femur fracture. A long plate is inserted sub-muscularly using a larger lateral distal incision and stab wounds for screw placement. Fracture reduction is by a condylar reduction clamp monitored under fluoroscopy.

Advanced adjunctive MIO techniques

The adjunctive MIO techniques listed below are not routine but are increasing in popularity. Driven by technology, arthroscopy, computer navigation and 3D printing enables expanded interventional options for both acute and chronic post traumatic scenarios.

Arthroscopic assisted fracture fixation

Arthroscopy is advocated in intra-articular fractures because of the magnified view in which fracture reduction can be more accurate while avoiding an arthrotomy. The technique is studied in fractures involving large joints with good outcomes. The most popular indications are for less comminuted intra-articular fractures in the tibial plateau, ankle plafond, calcaneus[9] and the distal radius.

Arthroscopic treatment allows diagnosis and management of concomitant soft tissue injuries, common in intra-articular fractures[10], such as the meniscus of the knee and the triangular fibrocartilage complex (TFCC) of the wrist. Arthroscopic treatment is successful for post traumatic joint stiffness, osteophyte impingement and osteochondral injuries in the shoulder, elbow, knee and ankle.

Percutaneous fracture repair and computer navigation

Percutaneous screw fixation is indicated for fractures with good intrinsic stability and minimal displacement so that patients can mobilise early. The technique is traditionally indicated for undisplaced femoral neck fractures. Surgery is performed under fluoroscopic guidance. Similar treatment can be applied to undisplaced periarticular fractures of the distal humerus, scaphoid, acetabulum, pelvic ring, distal femur and proximal tibia. Because of significantly reduced soft tissue complications in the calcaneus, percutaneous screw MIO combined with arthroscopic or small incision reduction techniques is increasingly popular.

Computed navigation percutaneous screw placement is widely studied in the 2000s, useful in regions with a narrow margin of error. The most common being the sacroiliac screw for sacrum fractures and sacroiliac joint disruptions. The screw is inserted percutaneously from the ilium across the sacroiliac joint into the S1 or the S2 vertebra. The need for fluoroscopy is reduced and incidence of screw misplacement into neurovascular danger zones is decreased. Likewise, the pelvic ring has multiple corridors for screw placement in the ilium body, anterior and posterior acetabular columns and the pubic rami. Navigation assisted MIO of pelvic fractures[11] after early reduction and stabilisation by external fixator may lead to significantly reduced surgical trauma, less bleeding and rapid recovery. The limitation of computer navigation is its inability to assess fracture reduction and proneness to error in unstable fractures. Intraoperative 3D fluoroscopy or the "O-arm" may be used to assess reduction and implant placement with increased accuracy[12]. However, such equipment is costly and time consuming to set-up, limiting their widespread adoption.

Patient specific instrumentation by 3D printing

The decreasing cost of 3D printing in the last decade has led to increased use for surgical planning for acute fracture repair and malunion correction. The concept is called pre-operative navigation and patient specific instrumentation (PSI). For extra-articular deformities, PSI can guide highly accurate osteotomy cuts, fragment reduction and implant placement[13]. The mathematically guided single cut osteotomy is made technically feasible with 3D printed guides where there is minimal bone loss and no fracture gap as opposed to conventional opening or closing wedge osteotomies. For intra-articular malunions, a large arthrotomy is avoided as PSI jigs allow the correction to be done purely from outside the joint[14]. 3D printed bone models allow for better implant selection and templating, especially in the deformed skeleton[15]. Computer aided modelling skill is needed for 3D planning and PSI. Despite issues with costs, material biocompatibility and sterilisation standards, the best practices for PSI in trauma surgery is rapidly being defined.

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Example indications:
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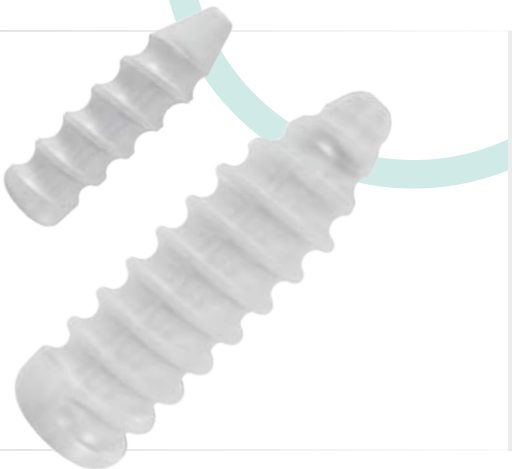

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Various ActivaPin™ product sizes between
1.5 mm x 20 mm and 3.2 mm x 70 mm
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1.5 mm x 10 mm and 2.0 mm x 30 mm
Example indications: Fractures of the distal radius Fractures of the radial head, Humeral condylar fractures and OCDs

ActivaScrew™ and ActivaScrew™ Cannulated

The special characteristic of the Bioretec screws is Auto-Compression™ to reduce the risk of unstable fixation.

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3.5 mm x 20 mm and 4.5 mm x 90 mm
Example indications: Fractures of the talus
Uni- and bimalleolar fractures, Pilon tibial fractures and Arthrodesis of the 1st MTP joint

FDA cleared and CE approved

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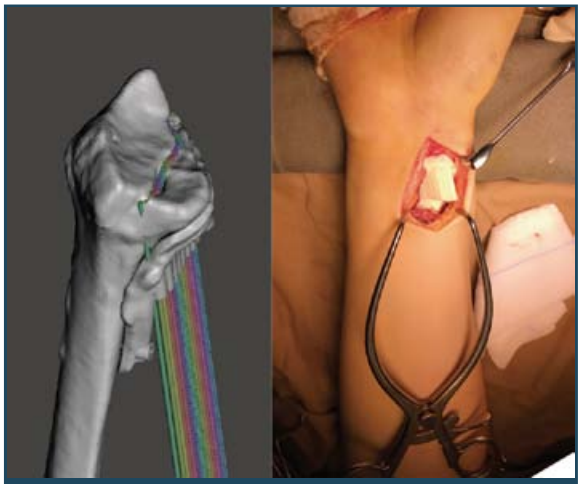

Fig. 2. PSI corrective osteotomy of a malunited intra-articular Barton fracture of the distal radius

Limitations and conclusion

MIO is widespread but not applicable to all surgical situations. Complex unstable intra-articular fractures, simple transverse humerus shaft fractures, forearm fractures, distal radius fractures and ankle malleolar fractures seem to be optimally managed by conventional open reduction internal fixation (ORIF).

In MIO, fracture reduction and implant placement is typically monitored by fluoroscopy. The operating room staff have to bear increased radiation risks. Percutaneous techniques require comprehensive knowledge of nearby neurovascular structures. Fracture reduction is technically demanding and the risk of malunion and nonunion may be increased. Although superficial surgical wound related complications are reduced, deep infections are not significantly reduced by MIO techniques. The current practice of MIO remains to be highly dependent on surgeon preferences. Good outcomes are usually guaranteed provided that the principles of fracture repair are followed and the procedure skilfully executed. In conclusion, MIO is widely applicable and fundamental for any practising orthopaedic trauma surgeon. It is certain that MIO techniques will continue to evolve in a direction with less surgical trauma and better precision.

Common MIO options and indications

Interlocked IM nailing

- Femur and tibia shaft and meta-diaphyseal junction fractures
- Intertrochanteric and sub-trochanteric fractures
- Proximal humerus and humerus shaft fractures
- Pathological fracture fixation and impending fracture prophylaxis
- Open fractures or fractures with significant soft tissue compromise

Elastic stable intramedullary nailing (ESIN)

- Paediatric long bone fractures including the forearm
- Simple clavicle shaft fractures
- Fibular shaft fractures

Minimally invasive plate osteosynthesis

- Metaphyseal and periarticular fractures of proximal humerus, femur and tibia
- Bridge plating of comminuted long bone shaft fractures

Adjunctive MIO options

Arthroscopic assisted fracture repair

- Less comminuted intra-articular fractures of wrist, knee, ankle and calcaneum

Percutaneous fixation (fluoroscopic, navigation or CT guided)

- Minimally displaced periarticular fractures of humerus, femur and tibia.
- Pelvic and acetabular fractures, undisplaced or readily reducible by indirect (closed) means
- Paediatric periarticular fractures (by closed reduction and K-wires)

3D printed patient specific instrumentation

- Intra-articular malunions and extra-articular malunions
- Complex acute fractures or pre-existing deformity

Fractures typically treated by conventional open reduction internal fixation (ORIF)

- Moderate to severely displaced intra-articular fractures
- Adult forearm fractures
- Ankle malleolar fractures

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History and development of lumbar minimally invasive spinal (MIS) surgery

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The aims of spinal surgery are decompression of compressed neural tissue, reduction of spinal deformity, fixation and fusion of unsteady or incompetent spinal segments. Spine surgeons strive not only to treat the pathology effectively with minimal disturbance of normal anatomy, but also to maintain the long term stability and function of patients with sound clinical evidence.

From laminectomy to fenestration: A great step forward

The effective surgical treatment for refractory sciatica and lumbar radiculopathy secondary to disc prolapse without instability is discectomy. In 1829, Smith started to use laminectomy to treat disc ruptures. In 1909, Oppenheim and Krause reported the successful removal of a ruptured disc. In 1934, Mixter and Barr treated radicular pain with exploratory laminectomy for lumbar disc prolapse[1]. Laminectomy includes excision of the spinous process, interspinous and supraspinous ligaments. The drawback of laminectomy is midline ligament complex destruction which can cause epidural scarring and loss of flexion stability. These ligaments were shown to be able to resist 19% of flexion forces[2]. In 1967, Yaşargil used a microscope in lumbar discectomy. Using an operative microscope, a magnified illuminated binocular operative field can be visualised despite a smaller wound. Caspar then refined the original laminectomy into an open microdiscectomy in 1977[3]. In 1978, William popularised open microdiscectomy with soft-tissue retraction through a small surgical corridor[4]. In 1988, Young described microsurgical fenestration. Limited laminar and facet bone removal is required[5]. The spinous process, midline ligamentous structures and laminar muscle attachment are preserved. Fenestration is an important modification in the surgical technique that has markedly reduced iatrogenic tissue damages.

The importance of multifidus muscle and the development of posterior muscle sparing approach

The next focus in lumbar MIS surgery is the sparing of muscle dissection, especially the multifidus. The multifidus muscle is uniquely short and stout which contracts to create large forces for relatively short distances. From erect standing to forward bending, the multifidus produces more force as the spine flexes protecting the spine. In open posterior lumbar exposure, sub-periosteal elevation and wide retraction of the multifidus will result in muscle atrophy and reduce strength[6]. A muscle sparing tubular retractor was developed to reduce muscle trauma. With fluoroscopy, the paraspinal muscles directly in line with the disc space on the symptomatic side are sequentially dilated rather than dissected. A tubular retractor is then placed over the dilators. The dilators are removed and either a microscope or an endoscope is directed to visualise the operative field allowing the subsequent procedures.

A muscle sparing approach was started in 1991 when Caspar developed tubular retractor systems and low profile instruments[7]. In 1997 Foley and Smith reported microendoscopic discectomy (MED) procedures using endoscopes and cameras[8]. In 1999, Destandau described the use of specific endoscopic devices for lumbar disc surgeries with success[9]. Since the use of self-retaining retractors can induce crush injuries to adjacent tissues, table-mounted tubular-type retractors were developed to minimise this trauma. In 2005, Ruetten described a full endoscopic percutaneous endoscopic interlaminar discectomy, further reducing surgical trauma[10].

Transforaminal percutaneous endoscopic lumbar discectomy (PELD)

Open discectomy or microdiscectomy has been associated with good results. Nonetheless, dorsal muscle trauma in creating a surgical corridor; fenestration of laminar and facet bone, removal of ligamentum flavum to open up the spinal canal, cutting of the posterior longitudinal ligament and annulus to remove the prolapsed disc fragment were required. Innocent tissues including the nucleus pulposus anterior to the prolapsed disc fragment are sacrificed. One consequence is epidural scarring which might be clinically symptomatic or makes revision surgery difficult. Dorsal approach discectomy is also difficult in tackling herniation lateral to the pedicle. Extended facetectomy is required. Instability will result. A paramedian muscle splitting approach to treat extraforaminal herniation is effective with less facet resection and muscle elevation. However, bone resection and muscle retraction, handling of the exiting nerve root and its dorsal root ganglion is still needed. This may cause irritating dysesthesia, reflex sympathetic dystrophy, and chronic back pain. PELD was developed since 1970's to tackle the above mentioned problems (Figure 1).

In 1975 the first percutaneous nucleotomy technique was reported by Hijikata[11]. Kambin is credited with the first percutaneous lumbar discectomy with fluoroscopy assistance in 1987[12]. In 1994, Hoogland introduced

special reamers enabling enlargement of the foramen, so that the spinal canal could be accessed with an endoscope and instruments[13]. In 2002, Yeung and Tsou reported favourable outcomes with transforaminal endoscopic discectomy using an inside-out technique[14]. Later in the 2000's, an outside-in technique as described by Ruetten using a far lateral approach[15] and by Choi advocating a targeted fragmentectomy[16] was popularised. Direct placement of instruments to reach the target disc fragment without damage to the mother disc structure anteriorly is advocated.

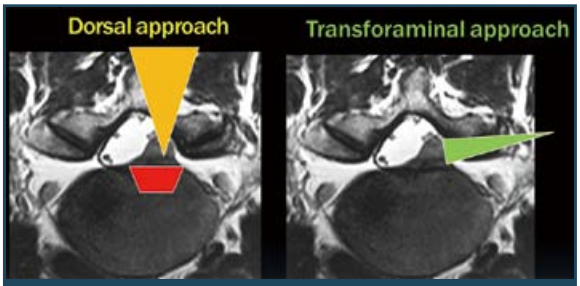

Figure 1. Dorsal vs. Transforaminal approach: different surgical corridors

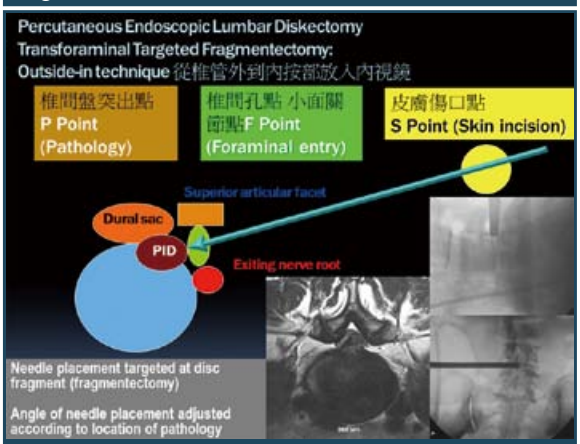

Figure 2. Transforaminal Percutaneous Endoscopic Lumbar Discectomy (PELD)

PELD employs a direct transforaminal approach to reach the prolapsed disc fragment (Figure 2). An atraumatic spinal cannula is inserted from the far lateral position through the intervertebral foramen, directly towards the target prolapsed disc and yet avoiding the nerve structures dorsal to the posterior annulus. A lead wire will then be inserted. A 1cm skin incision is then made. A cannulated dilator followed by a bevelled sheath will be pushed to the intervertebral foramen. The nerves are protected with the sheath. A small diameter (<8mm) long rigid endoscope is inserted inside the sheath. The endoscope and the sheath are gradually advanced to the medial pedicle line visualising the spinal canal. The prolapsed disc fragment is then identified and directly removed with long forceps through the single working channel inside the endoscope under endoscopic vision (Figure 3 & Figure 4).

PELD preserves normal anatomy. The posterior spinal muscle, lamina, the supraspinous and interspinous ligaments & the ligamentum flavum are all preserved (Figure 5). Limited foraminoplasty is only required when facet joint hypertrophy is present. Only the ventral part of the superior articular facet is partially trimmed. The prolapsed disc fragment is reached tangential to the intervertebral disc. The innocent remaining disc will not be breached. The procedure is performed under local anaesthesia. Patients could be discharged on the same operative day. However, the learning curve for PELD is extremely steep. Iatrogenic damages and dysesthesia to exiting nerve roots due to blind endoscope placement and incomplete removal of the disc fragment can happen. The reported failure rates ranged from 7%[15] to 11%[16].

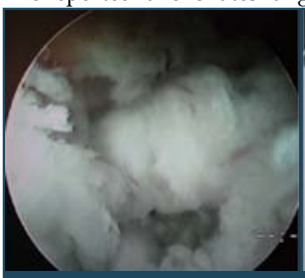

Figure 3. Endoscopic view of prolapsed disc fragment at the centre, cranial and dorsal side at 9 o'clock and 12 o'clock positions respectively

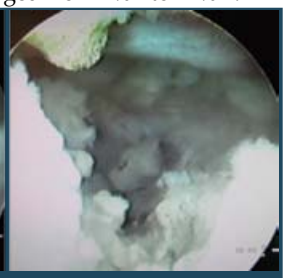

Figure 4. Endoscopic view after prolapsed disc fragment removal; transversing nerve root running from 11 o'clock to 2 o'clock position is free from compression

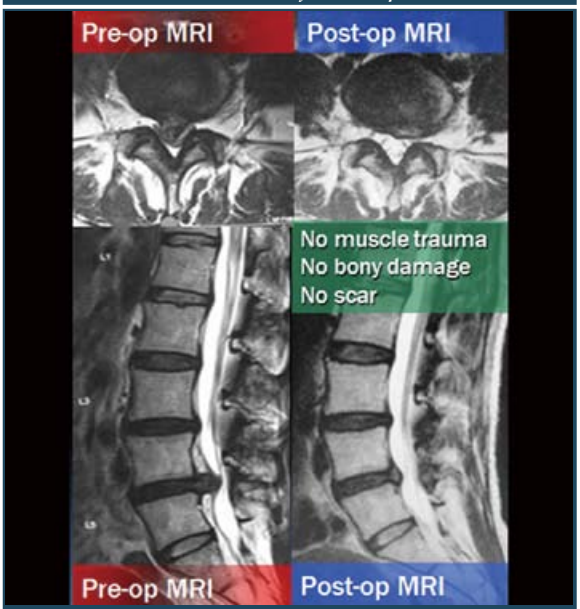

Figure 5. PELD: Pre-operative and Post-operative lumbar spine MRI: prolapsed disc fragment removal without muscle and bony damage

Minimally Invasive decompression for lumbar spinal stenosis

The traditional treatment for refractory spinal claudication due to facet joints and ligamentum flavum hypertrophy and disc protrusion without instability was wide laminectomy and medial facetectomy. In 1988, Young described microsurgical fenestration preserving the midline ligamentous structures and muscle attachments to the lamina[5]. This is sufficient for most patients. In 1991, McCulloch devised microsurgical bilateral decompression[18] via a unilateral

approach which preserves the facet joints, muscle and neural arch of the contralateral side and protects the nervous structure against posterior scarring. Ipsilateral laminotomy was performed first, the ligamentum flavum and the contralateral hypertrophic facet joint and capsule were then undercut. Successful results with this technique were reported[19]. However, the risk of dural tears with this technique can be as high as 13.6%[20, 21]. During contralateral bony decompression with undercutting, ipsilateral laminotomy was done and the ligamentum flavum was removed. The transversing nerves at the midline were unprotected and at risk from the passage and pressure of surgical instruments. To reduce such risks, contralateral bony decompression could be done first through a bone tunnel at the junction of the lamina and spinous process of the cranial vertebra. The ligamentun flavum is kept intact protecting the nerve structures during the contralateral facet joint decompression. Only after the contralateral bony decompression was completed, ipsilateral laminotomy and then removal of the ligamentum flavum and contralateral joint capsule will be performed (Figure 6). The author has experience of using this modified technique with no dural tears and nerve injuries occurred so far.

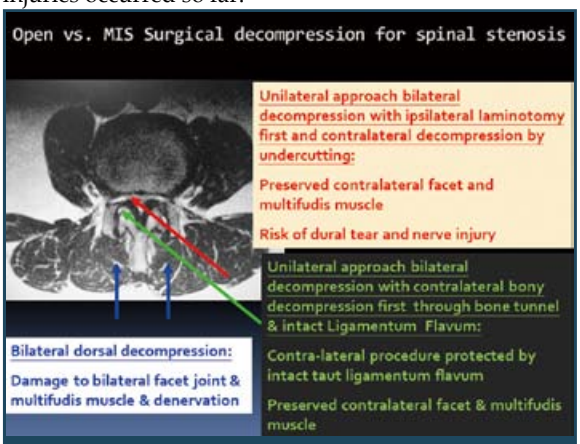

Figure 6. Different MIS surgical techniques in treating spinal stenosis

Minimally invasive lumbar spinal fusion and fixation

Minimally invasive spinal fixation and fusion were also increasingly performed. This MIS technique employed radiological guided or 3-dimensional navigation for hardware placement. Direct visualisation of anatomic landmarks with significant muscular dissection is not required. Complications like wound infections can be reduced. In 2002, Khoo described a minimally invasive percutaneous posterior lumbar interbody fusion (PLIF) technique without sacrificing effectiveness in spinal fusion[22]. In 2003, Foley described the first minimally invasive trans-facet lumbar interbody fusion (mTLIF)[23]. However, the initial learning curve of such technique is steep which can lead to increased complications, neurological deficits, CSF leakage and screw/cage complications[24,25]. The increased use of fluoroscopy also raised the concerns of increased radiation exposure to the patient, surgeon, and operating room staff.

Is there any scientific evidence of better clinical outcome with Minimally Invasive Spine Surgery?

Despite the theoretical advantages of the minimally invasive spinal technique, its clinical superiority is still controversial. High level evidence is still lacking.

In the 2010 systematic review written by Fourney on the use of tubular retractor assisted lumbar MISS, only 13 out of 361 English language literatures met the stringent inclusion criteria[26]. The single large randomised study showed less favourable results for MIS discectomy, but no significant difference in complication rates. The quality of the other studies was low. Overall, the reoperation rate, dural tears, cerebrospinal fluid leakage, nerve injuries and infections were similar between MIS and open surgery. Blood loss was reduced in MIS fusion. In 2016, a meta-analysis comparing minimally invasive unilateral laminectomy for bilateral decompression (ULBD) versus open laminectomy was performed by Phan[27]. From the pooled data, there is moderate quality evidence supporting superior satisfaction rates, reduced hospitalisation, and blood loss, but longer procedures for ULBD.

In a review of 23 studies on the fusion rate for MIS vs open transforaminal lumbar interbody fusion written by Wu in 2010[28], the open and MIS TLIF fusion rates were both high (90.9% vs. 94.8%). The complication rate was similar (12.6% and 7.5% for open and MIS TLIF, respectively) but with a trend towards reduced complications with MIS TLIF surgery. Bone morphogenic protein (BMP) was used more frequently in the MIS TLIF group (50% vs. 12% in open TLIF group) which might influence the outcome.

In the 2016 systematic review and meta-analysis written by Christina[29] comparing studies of open versus minimally invasive fusion (TLIF/PLIF) for degenerative conditions, all studies, including 1 RCT, were found of low quality. It identified the equivalent 2-years patient-reported clinical outcomes with improvements in perioperative measures including the estimated blood loss and the length of hospital stay in patients undergoing MIS surgery. There was no significant difference in the operative time, surgical adverse events, union rate and reoperation rate between the surgical techniques.

Recently, minimally invasive lateral lumbar interbody fusion (LLIF; XLIF) was increasingly performed. It is performed through a lateral, retroperitoneal, transpsoas approach to the anterior spinal column, and uses real-time neuromonitoring to ensure safe passage of tubular retractor and instruments through the psoas muscle, aiming to avoid the nerves of the lumbar plexus. The proposed benefits include the avoidance of vascular, visceral and sexual dysfunction complications associated with open anterior procedures, and paraspinal denervation, dural tears, and neural injuries in posterior approaches, while allowing for a broad discectomy and large graft placement. The anterior and posterior longitudinal ligaments remain intact, providing inherent spinal stability. However, in the 2015 systematic review by Joseph[30], although the

intraoperative and wound complications were less for LLIF (1.93% and 0.8%) compared with the minimally invasive TLIF group[MI-TLIF] (3.57% and 1.63%), the total complication rates (19.2% MI-TLIF group and 31.4% LLIF group) and complications related to nerve function (sensory, temporary and permanent) were significantly higher for the LLIF group. No significant differences were noted for medical complications or reoperations.

Conclusion

With improvements of intraoperative radiological or navigation guide localisation, endoscopic and microscopic illumination and visualisation, retractor and surgical instruments designs, fixation implant and biologic bone fusion alternatives, minimally invasive spinal surgery has advanced tremendously. However, there exists no randomised controlled comparisons of clinical and radiological outcomes, and complications between MIS and open procedures. There is a need for high level multicentre RCTs or multicentre observational studies to definitively address the question of the relative safety and effectiveness of minimally invasive spinal surgery.

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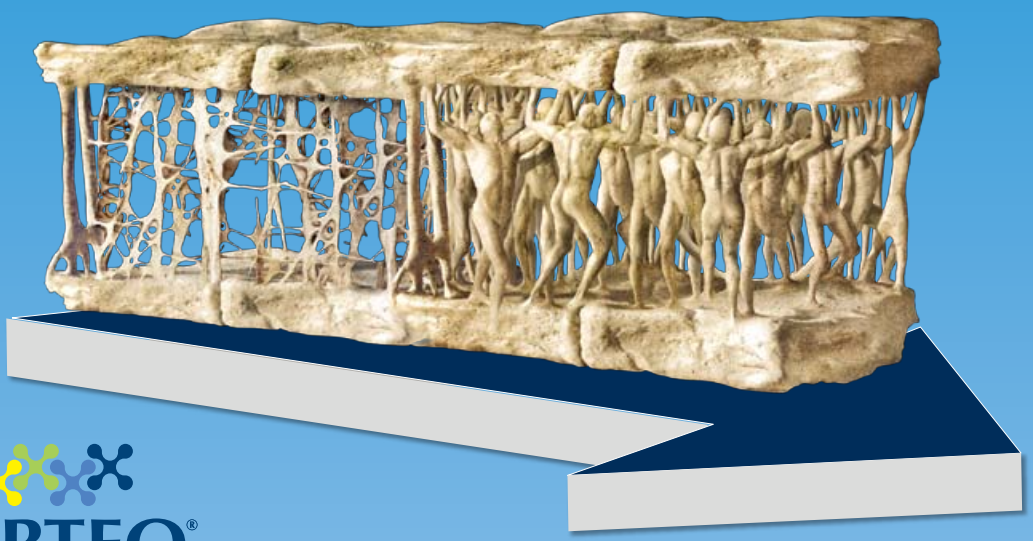

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How to take photos of sunset

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Consultant Orthopaedic Surgeon, Department of Orthopaedics and Traumatology, Princess Margaret Hospital

Dr Hin-keung WONG

The moment of sunset is always attractive to everyone. We are amazed by the beauty of Nature. However, the moment goes away rapidly despite it is usually very colourful and magical. This is the reason why it is so attractive. It is a great temptation to capture the precious moment by taking some photos.

How can we take a good photo of the precious moment of sunset? In the past, we used film cameras to take the photos and print them out later. We need to wait before we can see the result. We have surprises sometimes and disappointments most of the time. It is not difficult anymore nowadays. In the era of digital photography, we just need to use our digital cameras or smartphones to take the photos. It is much easier for us to capture the precious moment by ourselves. We do not need to wait anymore since we can see the result immediately. However, how can we take a nice photo in front of the beautiful scene?

You do not need very expensive or special tools. You can set your camera or smartphone to the sunset mode to take the photos. This is the easiest way to take a sunset photo with reasonable quality. If you use the auto mode, the photos are usually too bright (i.e. they are over-exposed) and not colourful enough. If you want to take better photos, you need to set your cameras or smartphones to the manual mode and reduce the exposure by -1 or -2 in order to get photos with suitable exposure with good saturation of the colours. Sometimes, we need to use neutral density (ND) to reduce the amount of light going into the cameras. The photos will be over-exposed even if we use the smallest aperture and the highest shutter speed to take the photos when the environment is still very bright. We can also use a circular polariser (CPL) instead of an ND filter. It can make the colours of the photos more saturated in addition to reduce the amount of light going into the cameras.

Another very import tool is a tripod. It can prevent blurring of the photos by eliminating the shaking of the cameras when the environment becomes dark. Furthermore, we can use a piece of black card to make differential exposures of different parts of the same photo (usually upper part and lower part). In this situation, we need to use very low shutter speed e.g. 10 seconds so that we can have enough time to "shake" the black card to prevent over-exposure of the upper part of the photo by blocking some light going into the upper part of the photo.

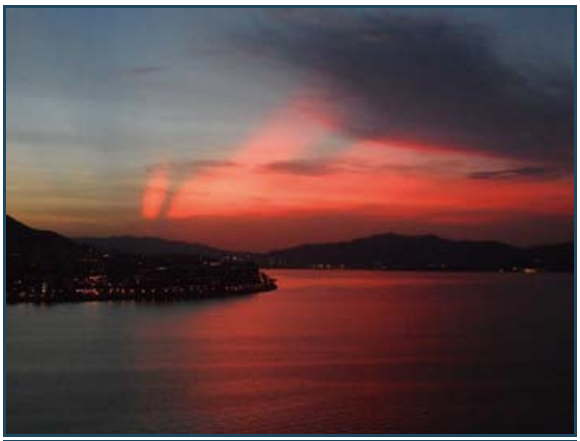
If you want to do selfie to include you and your friends in the sunset photos, usually the images are very dark in the form of silhouette. It is not bad. However, if you want to show people's faces clearly in colours, you need to use a flash to provide some artificial light.

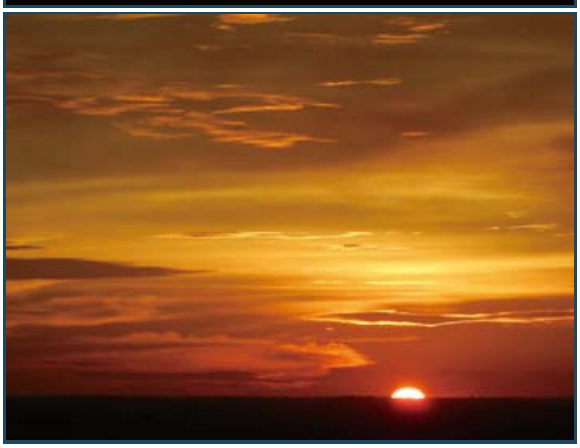
Of course, if you want to take sunset photos with professional quality, you need to use cameras with larger sensors and exchangeable lenses.

To improve your technique of taking sunset photos, you must see more photos taken by other people and learn from them. You can also take a formal photography course. You must practise and practise to improve your technique and seize the precious moment when you encounter it.

Some good and easy accessible places for taking sunset photos in Hong Kong include the Ocean Terminal, Wu Kai Sha Beach, Pak Nai, Hong Kong International Airport (South Perimeter Road), Sai Wan Public Pier, Sandy Bay, The Peak, Kwun Tong Public Pier and Kai Tak Cruise Terminal etc.

Enjoy your sunset photography and share your beautiful photos with us in the future.





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• Course No. C297 • CME/CNE Course

Certificate Course on

Best Practices in Quality of Life Evaluation and Assessments

Jointly organised by

The Federation of Medical Societies of Hong Kong

World Association for Chinese Quality of Life

Objectives:

This course equips participants the know-how of evaluating and assessing quality of life (QoL) in both healthy and ill individuals. Since the development of an index for assessing quality of life in the 60's, the measurement of health-related quality of life has made a phenomenal impact on the evaluation of health care and medical interventions. Nowadays, numerous measures have been developed across a wide range of clinical areas, including but not limited to neurology, oncology, cardiology, and palliative care. The best use of these tools is hinged on a good understanding of their developmental framework, extent of evaluation, and use in practice. In response to this need, this course provides the necessities for healthcare professionals to choose, evaluate and conduct QoL assessment in practice.

(The World Association for Chinese Quality of Life (WACQOL) is a non-profit organization dedicated to the education and research of quality of life in the Chinese population. Please do learn more of us at http://wacqol.org)

Date	Topics	Speakers
5 Jul	Principles and Concepts of Quality of Life (QoL)	Dr Wendy Wong Assistant Professor, Hong Kong Institute of Integrative Medicine, School of Chinese Medicine The Chinese University of Hong Kong
12 Jul	Linguistic Validation and Basic Psychometric Evaluation of QoL Measures	Dr Daniel Fong Associate Professor, School of Nursing The University of Hong Kong
19 Jul	Further Psychometric Evaluation of QoL measures	Dr Daniel Fong Associate Professor, School of Nursing The University of Hong Kong
26 Jul	Interpreting QoL in Practice	Dr Daniel Fong Associate Professor, School of Nursing The University of Hong Kong
2 Aug	Using QoL in Chinese Medicine	Dr Zhao Li Chief of Chinese Medicine Service The Hong Kong Tuberculosis Association Chinese Medicine Clinic cum Training Centre The University of Hong Kong
9 Aug	Using QoL in Health Economic Evaluation	Dr Carlos Wong Research Assistant Professor, Department of Family Medicine and Primary Care The University of Hong Kong

Dates : 5, 12, 19, 26 July 2017 and 2, 9 August, 2017 (Every Wednesday)
Time : 7:00 pm – 8:30 pm
Venue : Lecture Hall, 4/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong
Language Media : Cantonese (Supplemented with English)
Course Fee : HK$750 (6 sessions)
Certificate : Awarded to participants with a minimum attendance of 70%
Enquiry : The Secretariat of The Federation of Medical Societies of Hong Kong
Tel: 2527 8898 Fax: 2865 0345 Email: info@fmshk.org

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Adult ADHD Symposium

On 29 May 2017, a lunch symposium on Adult Attention Deficit Hyperactivity Disorder (ADHD) was held at the World Trade Centre Club, Causeway Bay. The symposium was well attended by doctors, nurses and allied health professionals.

The lecture topic was "Adult ADHD". The Federation was glad to have Dr. Candy LIN, Specialist in Psychiatry, as our speaker; with Dr. Yin-kwok NG, Executive Committee member of the Federation as the chairman of the symposium. Dr LIN provided us with a comprehensive understanding of the characteristics of ADHD across the lifespan and shared with us her experience in diagnosis and treatment. The lecture ended with questions from participants and much fruitful discussion. The Federation would like to thank Eli Lilly for sponsoring this event, and looks forward to organizing more educational activities on various topics for our professionals in the future.

The Hong Kong College of Paediatricians (HKCPaed) and the Royal College of Paediatrics and Child Health (RCPCH) will be holding a Joint Diploma in Child Health Clinical Examination in Hong Kong in October 2017, awarding DCH (HK) and DCH (International) to successful candidates.

The DCH Clinical Examination will be held on **26th October 2017 (Thursday).**

The DCH Clinical Examination is open to registered medical practitioners in Hong Kong. Candidates should have at least 6 months of Paediatric practice (resident medical officer or intern within 5 years prior to the date of the DCH Clinical Examination) in a recognized institution with acute hospital admissions.

The DCH Syllabus, which has been introduced since November 2009, will serve as the basis for assessments for the DCH Clinical Examination to be held in Hong Kong in October 2017. The Syllabus is available for viewing at the following link on the RCPCH Website:
http://www.rcpch.ac.uk/training-examinations-professional-development/assessment-and-examinations/examinations/syllabus-and

Application:
Candidates who wish to sit the DCH Clinical Examination in Hong Kong MUST apply through the Hong Kong College of Paediatricians. Application form, details of application and the format of examination can be found on the HKCPaed website at http://www.paediatrician.org.hk/index.php?option=com_content&view=article&id=45&Itemid=46 . Examination Fee is HK$ 9,000. Available places are limited and will be allocated on *a 'first come first served' basis.*

Opening date: 19 June 2017 ***Closing date: 17 July 2017***

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	★ FMSHK Officers' Meeting ★ HKMA Council Meeting 4	★ HKMA Shatin Doctors Network - Pain Management for CV Risk Patients 5	★ Certificate Course for GPs 2017 - Contraception Update ★ HKMA Hong Kong East Community Network - Certificate Course on Pain Management (Session 1) - Updates in Treatment Guideline and Assessment on OA Knee and Hip 6	★ Joint Surgical Symposium – Persistent Bronchopleural Fitsula ★ HKMA Shatin Doctors Network - Update on Management of Non-Alcoholic Fatty Liver Disease 7	8
9	10	★ HKMA Yau Tsim Mong Community Network - Imaging in Common Primary Malignancies & Comparison of US, CT, MRI and PET in Detecting Metastases ★ HKMA Kowloon West Community Network – Medical Nutrition Therapy of Early Stages Alzheimer's Disease 11	★ Hong Kong Neurosurgical Society Monthly Academic Meeting – Life before Birth: Antenatal Diagnosis, Counselling and Treatment Outcomes ★ HKMA Central, Western & Southern Community Network - Optimal Control of Diabetes Mellitus and Prevention of DM Complications 12	★ HKMA Kowloon East Community Network - Update in Joint Pain Management ★ HKMA New Territories West Community Network – Diagnosis and Management of Attention Deficit Hyperactivity Disorder (ADHD) in Children ★ FMSHK Executive Committee Meeting 13	14	15
16	17	★ Annual General Meeting 18	19	★ HKMA Hong Kong East Community Network - Certificate Course on Pain Management (Session 2) - Overview of Common Back Pain ★ HKTS Clinical Meeting ★ FMSHK Foundation Meeting 20	★ HKMA Kowloon City Community Network - How to Help Children Eat Well - Transition to Eating Family Meal 21	22
23	24	★ HKMA Kowloon West Community Network – Management on Insomnia: Update and New Approaches 25	★ HKMA Central, Western & Southern Community Network - Imaging in Common Primary Malignancies & Comparison of US, CT, MRI and PET in Detecting Metastases 26	★ HKMA Kowloon East Community Network - Three Non-Drug Pillars in Dementia Management ★ HKMA New Territories West Community Network - New Approaches to Improve Asthma Care 27	★ HKMA Yau Tsim Mong Community Network - How to Help Children Eat Well -Transition to Eating Family Meal 28	29
30	31					

Date / Time	Function	Enquiry / Remarks
4 TUE 8:00 PM	**FMSHK Officers' Meeting** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Gallop, 2/F, Hong Kong Jockey Club Club House, Shan Kwong Road, Happy Valley, Hong Kong	Ms. Nancy CHAN Tel: 2527 8898
9:00 PM	**HKMA Council Meeting** Organiser: The Hong Kong Medical Association; Chairman: Dr. CHOI Kin; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road, HK	Ms. Christine WONG Tel: 2527 8285
5 WED 1:00 PM	**HKMA Shatin Doctors Network - Pain Management for CV Risk Patients** Organiser: HKMA Shatin Doctors Network; Chairman: Dr. MAK Wing Kin; Speaker: Dr. LO Oi Lam, Irene; Venue: Jasmine Room, Level 2, Royal Park Hotel, 8 Pak Hok Ting Street, Shatin, N.T.	Ms. Ivy LEE Tel: 2895 9730 1 CME Point
6 THU 1:00 PM	**Certificate Course for GPs 2017 - Contraception Update** Organiser: HA-United Christian Hospital; HK College of Family Physicians; HKMA-KLN East Community Network; Chairman: Dr. MA Ping Kwan, Danny; Speaker: Dr. CHOI Sze Ngar, Sylvia; Venue: Lecture Theatre, G/F, Block K, United Christian Hospital	Ms. Polly TAI Tel: 3949 3430 1 CME Point
1:00 PM	**HKMA Hong Kong East Community Network - Certificate Course on Pain Management (Session 1) - Updates in Treatment Guideline and Assessment on OA Knee and Hip** Organiser: HKMA Hong Kong East Community Network; Chairman: Dr. AU Chi Lap; Speaker: Dr. LI Ching Fan, Carina; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road, HK	Ms. Candice TONG Tel: 2527 8285 1 CME Point
7 FRI 8:00 AM	**Joint Surgical Symposium – Persistent Bronchopleural Fitsula** Organiser: Department of Surgery, the University of Hong Kong & Hong Kong Sanatorium & Hospital; Chairman: Dr. CHUI Wing-hung; Speaker: Dr. CHENG Lik-cheung, Dr. Oswald LEE; Venue: Hong Kong Sanatorium & Hospital	Department of Surgery, Hong Kong Sanatorium & Hospital Tel: 2835 8698 Fax: 2892 7511 1 CME Point
1:00 PM	**HKMA Shatin Doctors Network - Update on Management of Non-Alcoholic Fatty Liver Disease** Organiser: HKMA Shatin Doctors Network; Chairman: Dr. MAK Wing Kin; Speaker: Dr. SZE Wan Chee; Venue: Jasmine Room, Level 2, Royal Park Hotel, 8 Pak Hok Ting Street, Shatin, N.T.	Ms. Candice TONG Tel: 2527 8285 1 CME Point
11 TUE 1:00 PM	**HKMA Yau Tsim Mong Community Network - Imaging in Common Primary Malignancies & Comparison of US, CT, MRI and PET in Detecting Metastases** Organiser: HKMA Yau Tsim Mong Community Network; Chairman: Dr. FONG Chun Yan, Julian; Speaker: Dr. Lawrence TEE; Venue: Diamond Room, 5/F, The Cityview Hong Kong, 23 Waterloo Road, Kowloon	Ms. Candice TONG Tel: 2527 8285 1 CME Point
1:00 PM	**HKMA Kowloon West Community Network – Medical Nutrition Therapy of Early Stages Alzheimer's Disease** Organiser: HKMA Kowloon West Community Network; Chairman: Dr. LAM Ngam, Raymond; Speaker: Dr. CHUANG Lai, Lily; Venue: Crystal Room IV-V, 3/F., Panda Hotel, 3 Tsuen Wah Street, Tsuen Wan, N.T.	Mr. Ziv WONG Tel: 2527 8285 1 CME Point
12 WED 7:30 AM	**Hong Kong Neurosurgical Society Monthly Academic Meeting – Life before Birth: Antenatal Diagnosis, Counselling and Treatment Outcomes** Organiser: Hong Kong Neurosurgical Society; Chairman: Dr. ZHU Xian Lun, Cannon; Speaker: Dr. CHAN Yuen Chung, David; Venue: Seminar Room, G/F, Block A, Queen Elizabeth Hospital	Dr. LEE Wing Yan, Michael Tel: 2595 6456 Fax: 2965 4061 1.5 CME Point (CSHK)
1:00 PM	**HKMA Central, Western & Southern Community Network - Optimal Control of Diabetes Mellitus and Prevention of DM Complications** Organiser: HKMA Central, Western & Southern Community Network; Chairman: Dr. POON Man Kay; Speaker: Dr. TONG Chun Yip, Peter; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road, HK	Mr. Ziv WONG Tel: 2527 8285 1 CME Point
13 THU 1:00 PM	**HKMA Kowloon East Community Network - Update in Joint Pain Management** Organiser: HKMA Kowloon East Community Network; Chairman: Dr. LEUNG Wing Hong; Speaker: Dr. YUEN Wai Hong; Venue: Lei Garden Restaurant, Shop No. L5-8, apm, No. 418 Kwun Tong Road, Kwun Tong, Kln	Mr. Ziv WONG Tel: 2527 8285 1 CME Point
1:00 PM	**HKMA New Territories West Community Network – Diagnosis and Management of Attention Deficit Hyperactivity Disorder (ADHD) in Children** Organiser: HKMA New Territories West Community Network; Chairman: Dr. TSUI Fung; Speaker: Dr. CHUNG Kwok Hang; Venue: Pak Loh Chiu Chow Restaurant, (百樂潮州酒樓), Shop A316, 3/F, Yoho Mall II, 8 Long Yat Road, Yuen Long	Mr. Ziv WONG Tel: 2527 8285 1 CME Point
8:00 PM	**FMSHK Executive Committee Meeting** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windsor Social Service Building, 15 Hennessy Road, HK	Ms. Nancy CHAN Tel: 2527 8898
18 TUE 9:00 PM	**Annual General Meeting** Organiser: The Hong Kong Medical Association; Chairman: Dr. LAM Tzit Yuen, David; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road, HK	Ms. Christine WONG Tel: 2527 8285
20 THU 1:00 PM	**HKMA Hong Kong East Community Network - Certificate Course on Pain Management (Session 2) - Overview of Common Back Pain** Organiser: HKMA Hong Kong East Community Network; Chairman: Dr. AU YEUNG Shiu Hing; Speaker: Dr. WAN Siu Ho; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road, HK	Ms. Candice TONG Tel: 2527 8285 1 CME Point
6:30 PM	**HKTS Clinical Meeting** Organiser: Hong Kong Thoracic Society Ltd, CHEST Delegation HK & Macau Ltd; Chairman: Dr. YU Chin Wing, Dr. CHAN Chi Kuen; Speaker: Dr. WONG Fung Yee, Dr. HUANG Shan Shan, Dr. LEUNG Pui Yi; Venue: Lecture Theatre, LG1, Ruttonjee Hospital	Dr. Grace LAM Email: lamsm2@ha.org.hk 2 CME Points (HKCFP) 1.5 CME Points (HKCP, CSHK)
8:00 PM	**FMSHK Foundation Meeting** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windsor Social Service Building, 15 Hennessy Road, HK	Ms. Nancy CHAN Tel: 2527 8898
21 FRI 1:00 PM	**HKMA Kowloon City Community Network - How to Help Children Eat Well - Transition to Eating Family Meal** Organiser: HKMA Kowloon City Community Network; Chairman: Dr. CHIN Chu Wah; Speaker: Dr. LUK Wai Yin; Venue: Queen's Ballroom 1, Spotlight Recreation Club (博藝會), 4/F., Screen World, Site 8, Whampoa Garden, Hunghom, Kln	Ms. Candice TONG Tel: 2527 8285 1 CME Point
25 TUE 1:00 PM	**HKMA Kowloon West Community Network – Management on Insomnia: Update and New Approaches** Organiser: HKMA Kowloon West Community Network; Chairman: Dr. LEUNG Kin Nin, Kenneth; Speaker: Dr. CHANG Chi Lok; Venue: Crystal Room IV-V, 3/F., Panda Hotel, 3 Tsuen Wah Street, Tsuen Wan, N.T.	Mr. Ziv WONG Tel: 2527 8285 1 CME Point

Date / Time	Function	Enquiry / Remarks
26 WED 1:00 PM	**HKMA Central, Western & Southern Community Network - Imaging in Common Primary Malignancies & Comparison of US, CT, MRI and PET in Detecting Metastases** Organiser: HKMA Central, Western & Southern Community Network; Chairman: Dr. CHAN Hau Ngai, Kingsley; Speaker: Dr. LAU, Kevin Chung Hang; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road, HK	Mr. Ziv WONG Tel: 2527 8285 1 CME Point
27 THU 1:00 PM	**HKMA Kowloon East Community Network - Three Non-Drug Pillars in Dementia Management** Organiser: HKMA Kowloon East Community Network; Chairman: Dr. MA Ping Kwan, Danny; Speaker: Dr. CHAN Chun Chung, Ray; Venue: V Cuisine, 6/F., Holiday Inn Express Hong Kong Kowloon East, 3 Tong Tak Street, Tseung Kwan O, Kln	Mr. Ziv WONG Tel: 2527 8285 1 CME Point
1:00 PM	**HKMA New Territories West Community Network - New Approaches to Improve Asthma Care** Organiser: HKMA New Territories West Community Network; Chairman: Dr. TSANG Yat Fai; Speaker: Dr. LO Chi Wai; Venue: Atrium Function Rooms, Lobby Floor, Hong Kong Gold Coast Hotel, 1 Castle Peak Road, Gold Coast, Hong Kong (香港黃金海岸酒店大堂樓層中庭會議貴賓廳)	Mr. Ziv WONG Tel: 2527 8285 1 CME Point
28 FRI 1:00 PM	**HKMA Yau Tsim Mong Community Network - How to Help Children Eat Well -Transition to Eating Family Meal** Organiser: HKMA Yau Tsim Mong Community Network; Chairman: Dr. HO Lap Yin; Speaker: Dr. Vinci MA; Venue: Crystal Ballroom, 2/F, The Cityview Hong Kong, 23 Waterloo Road, Kowloon	Ms. Candice TONG Tel: 2527 8285 1 CME Point

Upcoming Meeting

3 Sept 2017 8:50 AM	**Li Shu Pui Symposium 2017 – Recent Developments of Medical Practice (Oncology)** Organiser: Hong Kong Sanatorium & Hospital; Speakers: Various; Venue: Ballroom, JW Marriott Hotel Hong Kong	Hong Kong Sanatorium & Hospital Tel: 2835 8800 CME Point TBC

HONG KONG SANATORIUM & HOSPITAL

LI SHU PUI SYMPOSIUM 2017

RECENT DEVELOPMENTS OF MEDICAL PRACTICE (ONCOLOGY)

Date : Sunday, 3 September 2017
Venue: Ballroom, JW Marriott Hotel Hong Kong

08:50 – 09:00	Welcome		Dr. Walton LI
09:00 – 09:30	**Keynote Lecture 1: New Direction in Cancer Therapy**		Dr. Raymond LIANG
Symposium 1	**Role of Surgery**	Chairperson	Dr. WONG Wai Sang | Dr. Joyce CHAI
09:30 – 09:45	Liver Cancer		Dr. CHAN See Ching
09:45 – 10:00	Kidney and Prostate Cancer		Dr. YIU Ming Kwong
10:00 – 10:15	Gynaecology Cancer		Prof. Hextan NGAN (HKU)
10:15 – 10:30	Skin Cancer		Dr. Gordon MA
10:30 – 10:40	Q & A		
10:40 – 11:00	Coffee Break		
Symposium 2	**Breast Cancer**	Chairperson	Dr. Thomas LEUNG | Dr. LAW Chun Key
11:00 – 11:15	Comprehensive Management Service of Breast Cancer		Dr. Polly CHEUNG
11:15 – 11:30	Management of Breast Cancer with "Medication"		Dr. KWAN Wing Hong
11:30 – 11:45	Genetic Testing for Cancer of the Breast – Current Applications		Dr. Ava KWONG (HKU)
11:45 – 12:00	Reconstruction after Surgery for Breast Cancer		Dr. Vincent KWAN
12:00 – 12:10	Q & A		
12:10 – 13:00	**Li Shu Pui Lecture** **Expanded Roles of Radiotherapy in Modern Day Cancer Treatment**	Chairperson	Dr. YAU Chun Chung **Dr. Joost NUYTTENS**
13:00 – 14:00	Lunch		
Symposium 3	**Diagnosis & Therapy of Cancer**	Chairperson	Dr. Jamie LAM | Dr. Axel HSU
14:00 – 14:15	Diagnosis of Early Lung Cancer		Dr. LAM Bing
14:15 – 14:30	Early Diagnosis of Nasopharyngeal Carcinoma		Dr. Ambrose HO
14:30 – 14:45	Advances in Lung Cancer Management		Prof. Tony MOK (CUHK)
14:45 – 15:00	Gastric Cancer: Early Diagnosis and Treatment		Dr. SIU Wing Tai
15:00 – 15:10	Q & A		
15:10 – 15:40	**Keynote Lecture 2 : A New Generation of CyberKnife**		Dr. Rico LIU
15:40 – 16:00	Coffee Break		
Symposium 4	**GP Forum**	Chairperson	Dr. LEE Koon Hung | Dr. Billy CHIU
16:00 – 16:15	Health Problems in Chinese Children are Different		Dr. YEUNG Chap Yung
16:15 – 16:30	Prenatal Ultrasound – What Can We See		Dr. Danny LEUNG
16:30 – 16:45	Recent Advances in the Management of Macular Diseases		Dr. Alvin KWOK
16:45 – 17:00	Periodontology – Current Status in Dental Care		Dr. Oscar TSE

**Content is subject to change without prior notice*

REGISTRATION IS ON A FIRST COME, FIRST SERVED BASIS

Reserve your place by phone: 2835 8800 or at www.hksh.com/lsp-registration

CME Accreditation Pending | CNE 6 Points | CPD (Allied Health) 6 Points

Registration Deadline: Friday, 18 August 2017 | For Medical Professionals Only

Answers to Dermatological Quiz

Answer:

1. Spilus Naevus
   The diagnosis is spilus naevus or speckled lentiginous naevus. The diagnosis is often made clinically. The typical presentation is a patch of hyperpigmentation containing a variable number of darkly pigmented macules or papules. (Fig 1). It can occur at any site and equally in both sexes. Most of the spilus naevi appear at birth or during early infancy. They may present as lightly coloured café au lait macules at birth then develop a hyperpigmented background and darkly pigmented macules and papules over months, years or even decades. The differential diagnoses include agminated naevus and partial unilateral lentiginosis.

2. Some authorities consider that spilus naevus is a subtype of congenital melanocytic naevus (CMN). Histology finds increased pigmentation in the basal layer of the epidermis and lentiginous epidermal hyperplasia is present in the background macules. These findings are similar to those of lentigo simplex. The speckled regions show variable findings including junctional, compound, intradermal or blue naevi.

3. As spilus naevus is a subtype of CMN, the risk of developing melanoma within the lesion is thought to be similar to classic CMN of the same size. Therefore, photography and observation are the usual approach for monitoring and assessing for the development of atypical features or the transformation of cutaneous melanoma. Surgical removal of the suspicious region or even the entire lesion is needed in case of atypical features developed or malignant transformation. Laser treatment for melanocytic naevi including spilus naevus remains controversial.

Dr Chi-keung KWAN
MBBS(HK), MRCP(UK), FHKCP, FHKAM(Med)
Specialist in Dermatology and Venereology

投資健康 創造財富

Invest in Health Create Wealth

Hong Kong College of Health Service Executives
Annual Conference 2017

Date : 22 July 2017 (Saturday) **Time :** 2pm – 9pm
Venue : Shanghai Room, Level 8, Cordis Hong Kong, 555 Shanghai Street, Mongkok, Kowloon (Mongkok station exit C3 or E1)

Officiating Guests:

- **Dr KO Wing Man, BBS , JP**
- **Dr LEI Chin Ion** *Director of Health Bureau, Macau*

Speakers: (in alphabetical order)

- **Ms Elaine CHAN**
  Chief Health Officer, Zurich Insurance Company Limited
- **Ms Eleanor KAM**
  Head of Ageing Innovation,
  New World Development Company Limited
- **Mr Alex LAM**
  Chairman, Hong Kong Patients' Voices
- **Dr Walton LI**
  Medical Superintendent, Hong Kong Sanatorium & Hospital
- **Mr Albert Wong**
  Chief Executive Officer,
  Hong Kong Science and Technology Parks Corporation
- **Mr John WONG**
  Regional President, Boston Consulting Group

Moderator

- **Mr Stephen LEUNG**
  Country Manager, Pfizer Corporation Hong Kong Limited

Programme Rundown

1:30pm	Registration (Shanghai Room, Level 8)
2:00pm	Opening Ceremony
2:15pm	Annual Conference
5:15pm	AGM & Fellowship Conferment
6:00pm	Dinner Reception (Star Room, Level 42)
7:00pm	Annual Dinner

Registration fee (including dinner)

Paid-up member	HK$500
Non-member	HK$1,000

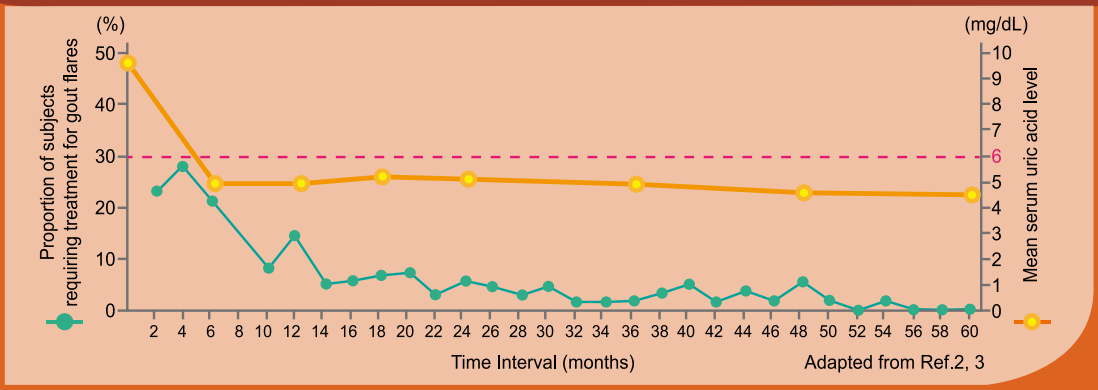
Deadline for registration: 22 June 2017 (Thursday)

Language

Cantonese (Supplement with English)

Please send the registration form and a cheque payable to
"**Hong Kong College of Health Service Executives Ltd**" to
FMSHK, 4/F Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai
Enquiry: (Tel) 2527 8898 (Fax) 2865 0345 (Email) eva.tsang@fmshk.org
Conference Secretariat: The Federation of Medical Societies of Hong Kong
Please visit www.hkchse.org for update

Potent urate-lowering effect in achieving serum uric acid (sUA) levels of 6.0 mg/dL[1], which can reduce gout flares eventually to zero on long-term treatment.[2]



Mean sUA Level and % of Subjects Requiring Treatment of Gout Flares in FOCUS STUDY [2, 3]

Reference :
1. Becker MA et al. N Engl J Med 2005;353(23):2450-2641 2. Schumacher HR Jr. et al. Rheumatology 2009;48:188-194 3. Whelton et al. J Clin Rheumatol 2011;17(1):7-13

FEBURIC© 80mg Abridged Prescribing Information
Indication: Chronic hyperuricaemia in conditions where urate deposition has already occurred (including a history, or presence of, tophus &/or gouty arthritis.) **FEBURIC®**is indicated in adults. **Dosage and Adminstration**: 80 mg once daily. May be taken w/o regard to food or antacid use. **Contraindications**: Hypersensitivity. Pregnancy & lactation. **Special Precautions**: Ischaemic heart disease, Congestive heart failure, rare serious hypersensitivity reactions, gout flare, malignant disease, Lesch-Nyhan syndrome. Concomitant mercaptopurine, azathioprine, theophylline. Altered thyroid function. Organ transplantation. Galactose intolerance, glucose-galactose malabsorption, Lapp lactase deficiency. Severe renal impairment. Moderate to severe hepatic impairment. May impair ability to drive or operate machinery. Childn & adolescents. **Adverse Reactions**: Gout flares, headache, diarrhoea, nausea, rash, oedema, liver function test abnormalities. **Interactions**: Mercaptopurine, azathioprine, NSAIDs, probenecid, glucuronidation inducer.

(Full prescribing information is available upon request)

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