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THE HONG KONG 香港醫訊
MEDICAL DIARY

VOL.15 NO.3 MARCH 2010

Dentistry





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The Cover Shot



Nikon D80 with 18-55mm lens at 55mm, Auto at F/11, CPL, tripod.

I usually spend the Easter Holidays with my family in Japan. The Country extends over a long latitude so there are always cherry blossoms somewhere. I took this shot at Daiseki-ji (大石寺) in Shizuoka-ken (静岡県) last year. Quintessential Japanese spring: cherry blossoms, a Japanese style roof, and Mt. Fuji with a blue sky as the backdrop.



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Published by
The Federation of Medical Societies of Hong Kong

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Digital Dentistry

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Editor



Dr. Albert MP LEE

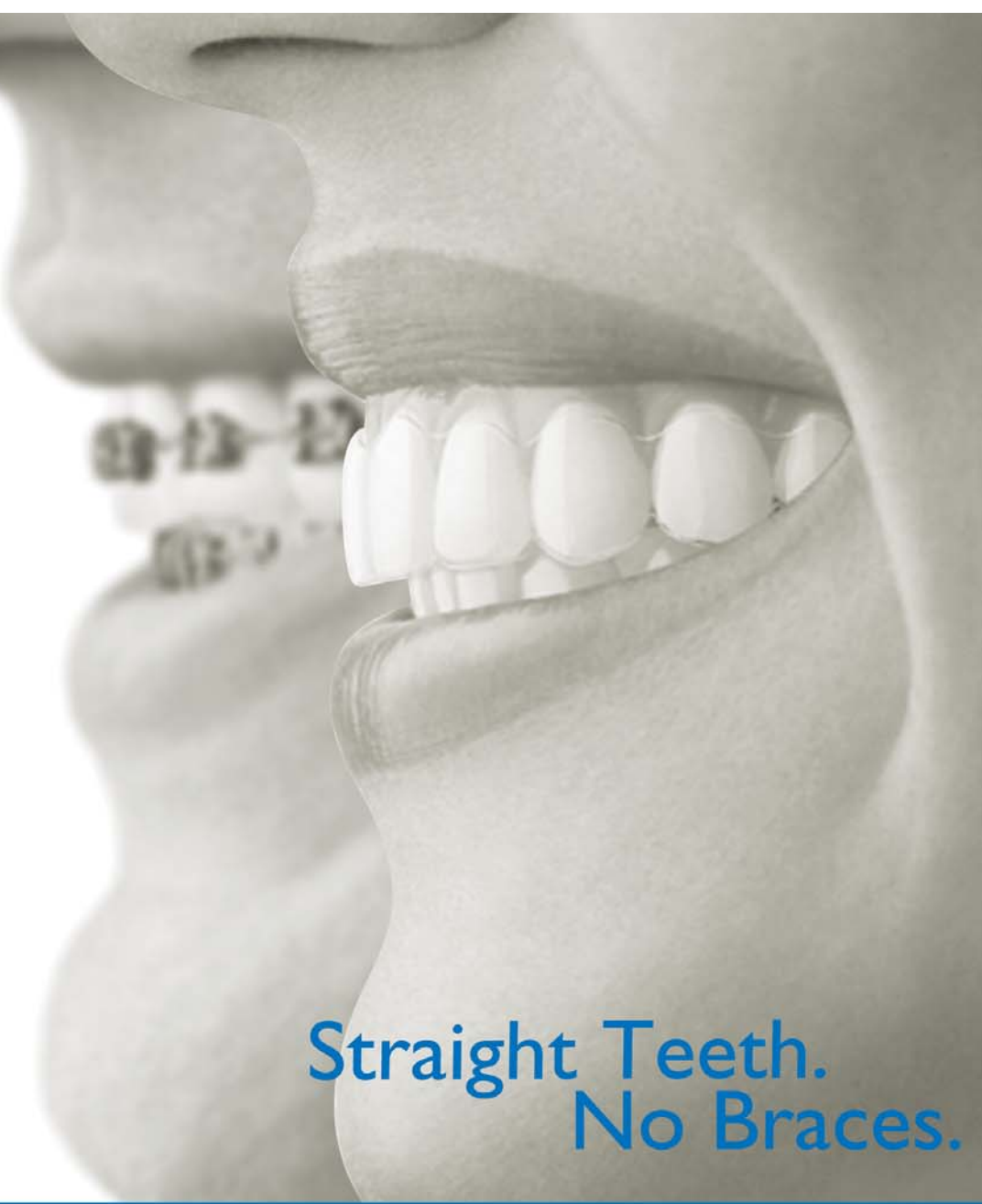
Computer technology, scanners and software have been developed in recent years for application in various aspects of dentistry. Nowadays many dental procedures can be assisted by these new technologies to facilitate dental clinicians in diagnosis, treatment planning, patient education and even delivery of treatment procedures. One of the remarkable applications is developed in orthodontics for the treatment of malocclusion. The procedures involve simply taking dental impressions of both the upper and lower arches. A computer scanner is then used to scan the impressions and a 3-D digital image of the dental arches is created by the computer software. According to instructions by the clinician, a 3-D virtual course of treatment is generated in the computer and custom-made aligners are made in a series of minor tooth movements until the set of teeth is moved to an ideal position.

The latest cutting edge technology using the conoscopic system or CAD/CAM system also involves in fabrication of dental prostheses like crowns & bridges and dental veneers. By combining high-precision scanning technology, intuitive design software and industrial manufacturing machines, excellent high quality metal-free dental prostheses can be produced to meet the demand of esthetic and strength for masticatory function. The working processes can be achieved within a few minutes after scanning the master dental models or impressions that minimise the complicated laboratory procedures in the conventional way.

In conjunction with cone-beam CT scans and software, high-quality 3-D images of dento-maxillofacial structures can be reproduced for patients within minutes of imaging. This technology is especially useful in the diagnosis of dental pathology, risk assessment in oral surgery and dental implant treatment planning. The technology is also applicable in the fields of periodontics and endodontics for bone loss assessment and treatment of complicated root canal morphology.

The developed computerised database technology also relieves the problems of limited storage space for patients' records in the dental office. Apart from recording the treatment records and radiographic films in a digitalised format, dental study models and casts that occupy a lot of office space can now be stored in a database form. By using the scanning system and software, all plaster dental casts can be converted to 3-D virtual study models on the computer. Hence a paperless and plasterless dental practice is now possible with the application of this technology.

Digital Dentistry is now becoming a reality and has changed the facets of practising dentistry in modern days. It is also a subject for study and development for all dentists in the years to come.



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The Roles of Dental Professionals in the Management of Obstructive Sleep Apnoea

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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 one CME credit under the programme upon returning the completed answer sheet to the Federation Secretariat on or before 31 March 2010.

Obstructive sleep apnoea (OSA) is a disturbance in normal sleep patterns. It is characterised by repetitive episodes of complete (apnoea) or partial (hypopnoea) upper airway obstruction occurring during sleep. By OSA definition, apnoeic and hypopnoeic events should last a minimum of 10 seconds. The common morbidities of OSA are hypertension,¹ depression,² stroke,³ angina,⁴ cardiac dysrhythmia,⁵ diabetes and severe cases can be a direct cause of death during sleep. Untreated OSA is also associated with motor vehicle accidents,⁶ poor work performance, occupational accidents and reduced quality of life.⁴

Epidemiology

OSA occurs in 2 to 4 percent of the adult population between the ages of 30 to 60 years, though evidence suggests that many more patients remain undiagnosed. In Hong Kong, its prevalence was found to be 4.1% in the middle-age Chinese males.⁷ There is a large pool of undiagnosed OSAs in the community and particularly in hypertensive patients, the prevalence can reach up to 17%.⁸

Signs and Symptoms

The common signs and symptoms associated with OSA are: loud, habitual snoring, apnoeic events witnessed by the spouse or others, daytime sleepiness, restless sleep, choking sensation or gasping during the night, morning headache, personality and mood changes, sexual dysfunction (impotence and decreased libido) and gastro-oesophageal reflux.

Initial Evaluation

The presence and severity of OSA should be determined first before any therapy is given. When the patient presents for a consultation, a health history evaluation should be completed. The important components of the evaluation include a health history, physical examination, imaging studies and polysomnography.

Health history

A thorough sleep-related history and comprehensive medical history are essential components of this

evaluation. The primary indication for initiation of the evaluation process is the presence of OSA symptoms. A comprehensive medical history must be obtained because OSA is associated with a wide spectrum of medical conditions. The health history may reveal findings associated with obesity, hypertension, stroke or other cardiopulmonary or neurologic conditions linked to a high risk of OSA.

Physical examination

For each patient, the clinician should perform a comprehensive head and neck examination and assess the respiratory, cardiovascular and neurologic systems. A body mass index (BMI) of greater than 28 is known to be associated with a 5-fold increase in the probability of moderate to severe OSA in Caucasians. It should also be noted that a neck circumference of greater than 17 inches (43cm) in men and 16 inches (40.6cm) in women are highly associated with OSA. The most common orofacial characteristics encountered include retrognathic mandible, narrow palate, long soft palate, hypertrophic tonsils, nasal septal deviation and relative macroglossia.

Imaging studies

Imaging studies including a panoramic radiograph and lateral cephalograph should be part of the initial investigations. In the lateral cephalograph, the position of the maxilla and mandible in relation to the cranial base can be assessed. These findings are useful in planning treatment for the improvement of upper airway patency. Other imaging studies such as CT scan, MRI or sleep endoscopy may also be useful.

Polysomnography

The gold standard for diagnosing OSA is by polysomnography (PSG), which needs to be conducted at a sleep laboratory. The aims of polysomnography are to evaluate any abnormal sleep breathing, sleep architecture and oxygen saturation. A typical 8 hours nocturnal laboratory PSG involves measurements of multiple physiological functions including electro-encephalography, electro-oculography, chin or leg movement via electromyography, electrocardiography, sleep positioning, respiratory activity and oxygen saturation. The primary measure of sleep-disordered breathing is the apnoea-hypopnoea index (AHI), which is the number of apnoeas and hypopnoeas per hour of sleep. Apnoea is defined as the cessation of airflow



(complete obstruction) for at least 10 seconds with a concomitant 2 to 4 percent drop in arterial oxygen saturation. Hypopnoea is defined as a reduction in airflow of at least 30 to 50 percent with a drop in oxygen saturation. The severity of OSA is commonly classified according to a patient's AHI score: mild (AHI score between 5 to 15); Moderate (AHI score between 15 and 30); and severe (AHI score greater than 30). Other factors that also influence the severity of OSA include oxygen desaturation, quality of life and the level of daytime sleepiness

Management

There are multiple specialties involved in the management of OSA. These would include internal medicine, family medicine, paediatrics, otorhinolaryngology, psychiatry, neurology, and dentistry. Currently, in the United States, Sleep dentistry qualifies for board certification by the American Board of Dental Sleep Medicine (ABDSM). Qualified dentists collaborate with sleep doctors at different sleep centres and provide treatments. There is no such certification for dentists in Hong Kong. The dental specialists commonly involved in the management are oral and maxillofacial surgeons and orthodontists.

Non-surgical

Possible treatment options for adult patients diagnosed with OSA are based on the severity of the sleep disorder, patient's preference and his/her overall health status. Positional therapy involves nocturnal aids to prevent patients from sleeping in a supine position. Sleeping in the lateral position is generally recommended, as it will displace the tongue from the posterior airway such that it is less likely to cause airway obstruction during sleep. Weight loss is universally recommended for obese patients. However, it is not known how much weight loss is required to eliminate OSA, and both the patient's gender and weight distribution may contribute to his or her OSA in an unpredictable manner. The most commonly recommended non-surgical intervention is continuous positive airway pressure (CPAP). The concept of nasal CPAP is to maintain upper airway patency during sleep. This treatment can be administered via either a nasal or oral mask. Due to its effectiveness, CPAP is the first-line treatment and the primary form of therapy for OSA, although its success is limited by the patient's level of compliance. About 20 to 30 percent of patients experience problems using CPAP, and the device is ineffective if it is not regularly used. The common problems associated with CPAP are nasal dryness, facial ulceration at the mask interface and claustrophobia.

Oral appliances gain recent recognition as an effective treatment option for mild to moderate OSA. The design is similar to an orthodontic functional appliance with the aim of maintaining a patient's lower jaw in a protruded position during sleep, hence enlarges the oro-pharyngeal airway. Many commercial devices offer treatment for snoring; however a device designed to treat OSA should be fabricated by a dental practitioner or specialist familiar with device design, maintenance and therapeutic efficacy. A multitude of oral appliances for OSA are available, but not all patients find the same

appliance effective. Patient's compliance with oral appliances appears to be adequate but not all studies agree. Difficulty with the device, owing to temporary or persistent occlusal disturbance, temporomandibular joint or individual tooth discomfort or perceived lack of efficacy may cause compliance issues.

Surgical

The main surgical treatments offered for OSA often target the anatomical areas of the posterior airway where collapse is suspected to occur. Treatment is designed to enlarge the posterior airway space, reduce airway collapsibility and stabilise the airway in the long term. The type of surgical procedure would include uvulopalatopharyngoplasty, palatal suspension via a lateral inversion flap. These types of surgical procedures are usually performed by otorhinolaryngologists. Successful surgical outcomes have also been reported with less invasive techniques such as radiofrequency thermal ablation, and palatal implants. Orthognathic surgery has the advantage of correcting any craniofacial abnormalities that may have caused the OSA. Maxillomandibular advancement surgery (MMA), which is based on conventional orthognathic surgery techniques, has been proven effective in retrospective studies for a range of OSA patients over 90% long term success.⁹

Distraction osteogenesis (DO) is a clinical biomedical tissue engineering method that generates new bone by gradual stretching of the divided bone segments. Since its first application in the cranio-maxillofacial region in 1992, patients with severe facial deformities benefit by the large surgical movement achievable with minimal morbidities and is particularly useful for children and infants suffering from OSA. The main benefits of distraction for OSA are enlargement of the posterior airway space, improved oxygen saturation, improved respiratory disturbance index and accelerated growth of infants and children. From our evidence-based review, distraction has been reported a cure of OSA in 97% of children and 100% of adults.¹⁰

Roles of Dental Professionals

It is of utmost importance for dental professionals to be aware of the prevalence and possible outcomes of OSA if left untreated. Screening of patients by general dentists or specialists, by conducting a thorough examination can aid in the diagnosis and treatment of OSA patients. Orthodontists can provide oral appliances as well as perform pre and post-surgical orthodontic treatments. Prosthodontists are also able to help in the construction of oral appliances. Oral and maxillofacial surgeons on the other hand can perform orthognathic surgeries for maxillomandibular advancement and distraction osteogenesis.

Conclusion

Management of OSA patients is recommended to be by multi-disciplinary teams dedicated to OSA. The dental professionals have a significant role to play as a team member in identifying potential OSA patients, making the appropriate referrals and assisting in the management of these patients. The dental specialists



can actively contribute to the management by provision of oral appliance therapy, orthognathic surgery and distraction osteogenesis.

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MCHK CME Programme Self-assessment Questions

Please read the article entitled "The Roles of Dental Professionals in the Management of Obstructive Sleep Apnoea" by Dr. Hannah Daile CHUA and Prof. Lim K CHEUNG and complete the following self-assessment questions. Participants in the MCHK CME Programme will be awarded 1 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 March 2010. 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. A person who habitually snores has obstructive sleep apnoea (OSA).
2. Polysomnography is recommended for a person who presents with excessive daytime sleepiness.
3. OSA is a potentially lethal condition.
4. Factors that influence the severity of OSA are oxygen saturation, obesity and level of daytime sleepiness.
5. Oral appliances are the most common non-surgical intervention for patients with OSA.
6. Persons with retrognathic mandible and chin are common features of OSA.
7. CPAP keeps the airway open during sleep by pumping oxygen into the lungs.
8. The gold standard for diagnosing OSA is by polysomnography.
9. Maxillo-mandibular advancement is more effective than distraction osteogenesis in the surgical management of OSA.
10. The dental specialists and general dentists can contribute to the management of OSA.

ANSWER SHEET FOR MARCH 2010

Please return the completed answer sheet to the Federation Secretariat on or before 31 March 2010 for documentation. 1 CME point will be awarded for answering the MCHK CME programme (for non-specialists) self-assessment questions.

The Roles of Dental Professionals in the Management of Obstructive Sleep Apnoea

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Answers to February 2010 Issue

Management of Obesity - From Life Style Modification to Weight Reduction Surgery

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



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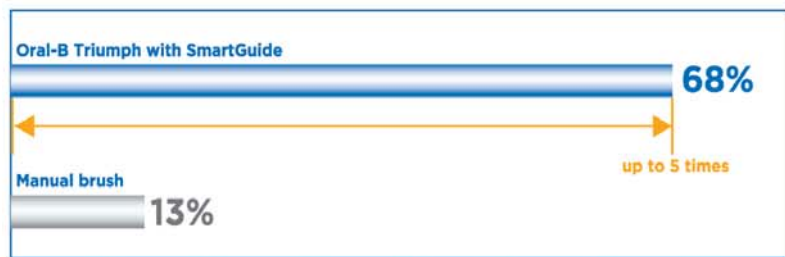
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*Study measured thoroughness as the time spent brushing lingual vs buccal surfaces and amount of time spent brushing in each quadrant. * vs a regular manual brush.

References: 1. Data on file, P&G. 2. Walters PA, Cugini M, Biesbrock AR, et al. A novel oscillating-rotating power toothbrush with SmartGuide™: designed for enhanced performance and compliance. *J Contemp Dent Pract.* 2007;8:1-9.



New Approach in Extraction of Impacted Wisdom Teeth

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Neurosensory deficit is a significant risk in lower wisdom tooth surgery. Due to the anatomical positions, the lingual nerve (LN) and inferior dental nerve (IDN) are at risk in the procedure, resulting in tongue numbness with taste disturbance in LN injury, or lower lip numbness in IDN injury on the affected side. The prevalence of LN and IDN deficits in the literature are 0.1-22% and 0.3-8.4%, respectively. As there were no local data, our centre has initiated a series of studies to determine the local prevalence of neurosensory deficit after wisdom tooth surgery, the relevant risk factors contributing to the neurosensory deficit, and to investigate the safety of coronectomy, which is a new technique of wisdom tooth surgery to prevent IDN injury.

Local Prevalence of Neurosensory Deficit after Wisdom Tooth Surgery

We conducted a prospective cohort study of 4338 wisdom tooth surgeries between 1998 and 2005 in the Prince Philip Dental Hospital, which is by far the largest study reported in the literature¹. All surgeries were performed in the Local Extraction Clinic by operators of various grades from undergraduate students to specialists. The prevalence of LN and IDN injuries were 0.69% and 0.35%, respectively. These figures were relatively low when compared to those reported in the literature. 66.7% of IDN deficit and 72.0% of LN deficit recovered fully within the follow-up period of 24 months. It was also noticed the recovery of the neurosensory deficit was most significant in the first 6 months after the injury.

Significant Risk Factors Contributing to Nerve Deficit

The next question is what factors contribute to the risk of neurosensory deficit?

To investigate the risk factors of nerve deficit after wisdom tooth surgery, we have conducted a systematic review on prospective studies on this clinical issue, which is considered as a study design with the highest level of evidence in the era of evidence-based medicine². Without any limitation of languages and years of publication, 3 literature data-bases were searched. Additional reference search was performed and the articles were evaluated by 2 independent judges with pre-set criteria. 32 articles were qualified to enter the final review. We concluded in our study that increased age, unerupted wisdom tooth and the "old-fashion" lingual split technique are significant risk factors

and LN deficit. Raising of the lingual flap, which is supposed to protect the LN from rotary instruments, is also a risk factor to LN deficit at least on a temporary basis. In contrast, the risk of IDN deficit is increased with the depth of the impaction or exposure of IDN intra-operatively, which is easily explained by the proximity of IDN to the tooth roots and the increased difficulty of the surgery. Several radiographic signs, e.g. darkening of wisdom tooth root and deflection of ID canal, are also positively related to the risk to IDN deficit. The prevalence of IDN deficit happened more on operators with more surgical experience in our study, which is due to the case selection bias because of the fact that specialist oral surgeons need to manage wisdom teeth of higher difficulties, yet this also reflects IDN deficit may not be totally avoidable even in the hands of experienced surgeons. In cases where the wisdom tooth root is lying in close proximity to the IDN, or occasionally the nerve even creates a groove onto the tooth root, taking the tooth out will likely compress or even transect the IDN, leading to permanent IDN deficit.

Coronectomy: A New Method of Wisdom Tooth Surgery

Coronectomy literally means cutting off the crown from a tooth. It is a new method of wisdom tooth surgery in selected cases aiming to remove the crown of the wisdom tooth while leaving the root in situ. The crown of the wisdom tooth is usually the cause of various oral health problems, such as pericoronitis or dental caries of the wisdom tooth itself or the second molar in front of it. By removing the crown can resolve these problems, yet leaving the root behind can avoid injury to the IDN which is in close proximity. It had been a taboo in dentistry that leaving the tooth roots in the jaw was believed to be a source of dentoalveolar infection. The technique was first described by Knutsson et al. in 1989 but was not popularised due to the reported complications of root exposure and infection from the technique³. Several articles have reported this technique with less complications and more promising results, yet it was understandable that dentists and oral surgeons would not be convinced until a well-designed study can show its safety in terms of reduced risk of IDN and other surgical complications. Therefore our centre has conducted a randomised clinical trial to compare coronectomy with the traditional total removal of lower wisdom teeth⁴. The study included patients with wisdom tooth root lying in close proximity to ID canal as shown with one or more radiographic sign on an orthopantomogram. The radiographic signs were:

1. Darkening of the root
2. Abrupt narrowing of the root
3. Interruption and loss of the white line representing the ID canal
4. Displacement of the ID canal by the roots
5. Abrupt narrowing of one or both of the white lines representing the ID canal

The study excluded patients whose wisdom teeth were not in close proximity to IDN, with systemic or local factors that predisposes to infection, or any pulpal caries, cystic or neoplastic pathology relating to the wisdom tooth.

The procedure of coronectomy included flap raising and bone guttering down to the cemento-enamel junction of the impacted wisdom tooth. The crown was sectioned off from the root. Minimal stress to the root during crown elevation was required to avoid any root dislodgement. The root was further trimmed down 3-4mm below the crestal bone (Figure 1). Primary closure was then performed. No antibiotics were prescribed post-operatively.



Figure 1. Coronectomy: Crown removed and root trimmed down 3-4mm below crestal bone

231 patients with 349 lower wisdom teeth were randomised, with 178 wisdom teeth underwent total removal (as control group) and 171 wisdom teeth underwent coronectomy. 16 coronectomies (9.4%) were considered failed as the roots were dislodged during the procedure and were removed in total. The prevalence of IDN deficit was significantly lower in the coronectomy group (0.65%) when compared to the control group (5.1%) ($p=0.023$). The prevalence of pain and dry socket in the first week were also significantly lower in the coronectomy group than the control group. The infection rate in the first week showed no statistical difference between the two groups, and of note there was no infection in the patients who had coronectomy from post-operative 3 months onwards until the last review of 2 years. Serial radiographs showed significant root migration within the alveolar bone after coronectomy up to 3mm, and then gradually stopped at 1 year post-operatively (Figure 2a-d). There was only one case of root exposure into the oral cavity and required subsequent re-operation to remove the root.

The result of the coronectomy study was fascinating as it proved that this technique can significantly reduce the prevalence of IDN deficit in lower wisdom tooth surgery for the high risk group. The safety of coronectomy is

promising at least in the short term. A phase IV clinical trial of coronectomy is on-going in our centre to evaluate the long term safety of the technique.



Figure 2a. Pre-operative: Lower wisdom tooth in close proximity to IDN



Figure 2b. Post-operative 1 week: Crown removed and the root left in situ



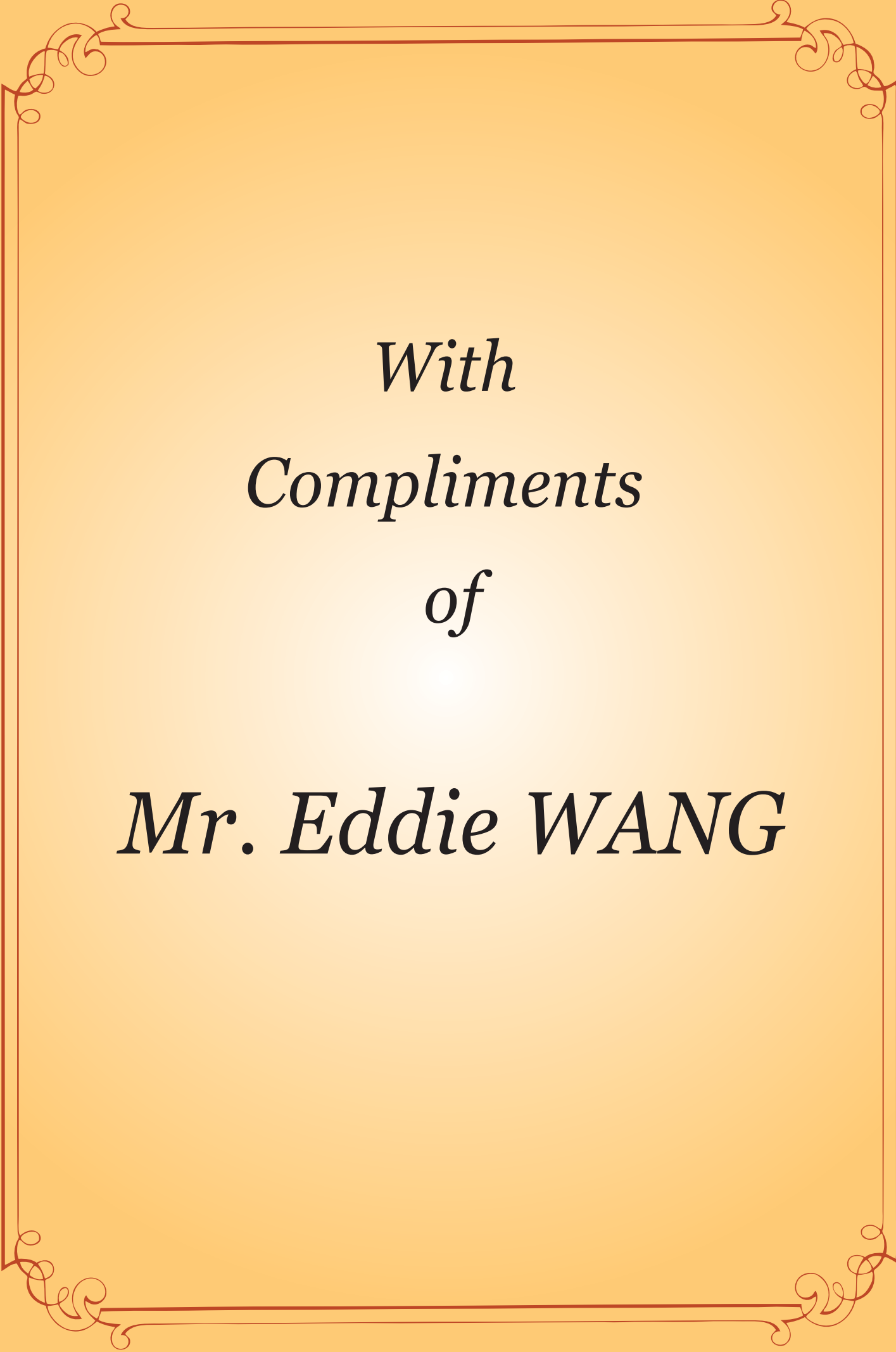
Figure 2c. Post-operative 1 year: Coronal migration of the root by around 3mm



Figure 2d. Post-operative 2 years: No further migration of the root noticed.

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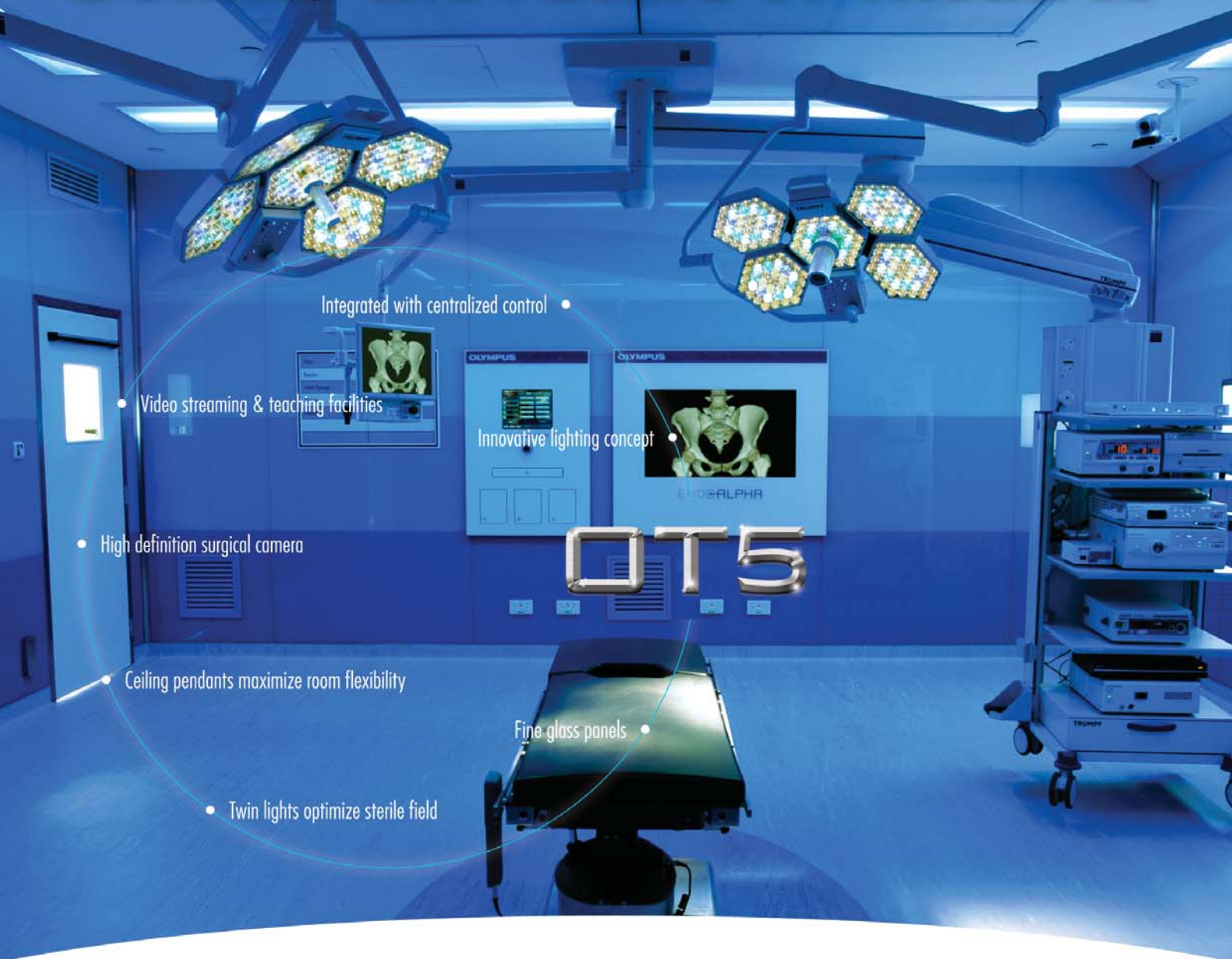
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Intra-oral Autogenous Bone Grafting for Dental Implant Site Preparation

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Background

Reconstruction of our patients' dentition is a very rewarding and fulfilling aspect of dentistry. Our abilities as dentists in enabling patients to chew appropriately or smile confidently can at times be life changing for the patient. Dental implants are an exciting portion of our armamentarium with which to reconstruct the partially or fully edentulous jaws. Many patients present after tooth loss with alveolar defects that will not accommodate a dental implant prosthesis. The defect may range in size from that seen with a small loss of the buccal cortex from an avulsed tooth to a resected jaw as a result of cancer or an odontogenic tumour.

Autogenous bone remains the "Gold Standard" for grafting. Although allogenic bone, xenogeneic bone, bone substitutes, and alloplasts have shown some promise over the years, they do not transplant any osteocompetent cells¹. Patients are often concerned when presented with the need for bone grafting and tend to become nervous when learning how and where the new bone will come from. I have found that patients usually become more acceptive of an autogenous graft when presented with the other option of using bone from a human tissue (cadaver) bank or bovine bone.

Treatment Planning

Prior to bone graft harvesting and augmentation of the defect, one must have a full appreciation of the defect. A preoperative 3-D CT scan is often imperative and some would argue the standard of care. This enables the clinician to have a full map of the missing bone volume, i.e. the vertical and horizontal nature of the defect. The scan can also be used to evaluate the cortical thickness from the potential donor sites. Study models and a diagnostic wax-up with the final crown or prosthesis morphology are important so that you "know where you are going." This permits the surgeon to appreciate how much bone augmentation is needed so that the final prosthesis is in the correct location.

A thorough past medical history should be obtained. Poorly controlled Insulin Dependent Diabetes Mellitus, cigarette smoking, and history of IV Bisphosphonate therapy are a few examples of contraindications².

The patient should exhibit good oral hygiene. A

patient presenting with atrophy of the alveolar ridges with remaining moderate to severe periodontitis will likely later develop peri-implantitis. Why put this type of patient through extensive grafting if the future implant is destined to fail?

It is of paramount importance for the surgeon to know all potential risks and complications of the grafting procedures and fully explain these to the patient preoperatively. No one desires complications but without informed consent the clinician may be open to litigation.

Donor Site Selection

The graft may be harvested from many intra-oral sites. The maxillary tuberosity, anterior nasal spine, and zygomatic buttress have been reported for the upper jaw^{3,4,5}. The mandibular symphysis, ascending ramus, coronoid process, and horizontal ramus are useful sites from the lower jaw⁶.

The harvested bone may be placed in an extraction site, an implant site defect, a buccal alveolar defect, and the maxillary sinus^{7,8,9,10}. It may also be used for a vertical onlay graft of the ridge or as an inlay graft¹¹. Particulate grafts may be stabilised with a membrane whereas block grafts should be secured to the recipient site with screws.

Ideally, the surgeon would like to harvest bone from a site that is close to the defect site. This essentially affords the possibility of one surgical site rather than two. Examples of this would be a tuberosity graft in conjunction with an ipsilateral sinus lift or bone from the anterior nasal spine for a maxillary central incisor site. In reality, the patient's bone quality or quantity often necessitates grafting from another area and precludes the surgeon's ability to have the donor bone come from a nearby area.

Case Presentation

A 38 YO Chinese male presented with a periapical abscess and fractured upper right central incisor #11. The tooth had Class I mobility and was deemed non-restorable by an endodontist. The tooth was atraumatically extracted and a periapical granuloma was curetted from the apex of the extraction site. The patient wore a flipper partial denture as an interim prosthesis. The patient was treatment planned for

future bone grafting and implant restoration of the #11 site.

Six weeks post-extraction a CT scan was taken which revealed full loss of the buccal cortex. [see Figures 1 and 2]. A cortico-cancellous block graft from the ascending ramus was deemed suitable for augmentation of the defect. [see Figure 3 for pre-op view]. The ramus graft harvest is as described by Misch¹².



Figure 1



Figure 2



Figure 3

Graft Procedure:

A sulcular incision is placed from the right canine to the left lateral incisor. A palatal "finger extension" is placed at the edentulous central incisor site. Vertical releases are placed to include the papillae. A full-thickness flap is repositioned apically to fully expose the defect. [see Figure 4]. The periosteum is incised horizontally to help

release tension for later primary closure over the bone graft. Sterile aluminum foil is adapted into the defect to simulate the size of the graft needed. The flap is adapted/extended over the foil so that closure may proceed in a quicker fashion after the graft is placed. Once it is determined that a tension free closure may be obtained, the graft is harvested.



Figure 4

A buccal "hockey-stick" incision is placed and the ramus is exposed. This is almost identical to the flap design to remove an impacted 3rd molar. [see Figure 5]. A surgical hand piece with a small fissure bur is used to create a "block" through the cortex into the bleeding cancellous bone. A periosteal and 301 elevators are used to greenstick fracture the graft from the ascending ramus. [see Figures 6 and 7].



Figure 5



Figure 6

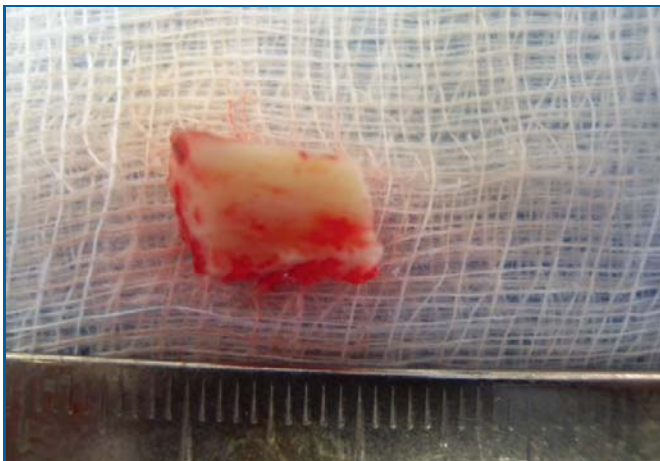


Figure 7

The graft is modified and secured to the defect with bone screws (Osseofix, Bio-met 3i, Jacksonville, Florida, USA). [see Figure 8]. The remainder of the defect is packed with cortico-cancellous chips and cancellous bone curretted from the ramus. The graft is covered with an adapted resorbable membrane (Biomend Extend, Zimmer Dental, Carlsbad, California, USA).



Figure 8

Both wounds are closed primarily with interrupted sutures.

The patient was placed on analgesics, antibiotics, and an antimicrobial mouthrinse for 1 week.

The site will be re-entered after 6 months for removal of the fixation screws and placement of the implant.

Future Possibilities and Alternative Treatment Options

Many studies and clinical trials show promise for the future. Recombinant bone morphogenetic protein (rhBMP-2) has been used with great success in clefts, large reconstructions, ridge augmentation, and sinus lift procedures^{13,14,15}. Initially this was used in spinal fusion surgery before its benefits were realised for the oral cavity. It is known as INFUSE and manufactured by Medtronic (Memphis, TN, USA). This technique utilises synthetic BMP in a liquid form mixed with an absorbable collagen sponge. The sponge is placed into the defect site and closed primarily. After six months

healing, the site is re-entered and implants may be placed into newly formed bone. Utilising this technique avoids a donor site. The material does have cost limitations.

Other tissue-engineered materials have been tried with some success¹⁶.

Alternative treatment plans include distraction osteogenesis for vertical defects, ridge-splitting techniques, short implants, and angled implants^{17,18,19,20}. Cadaver bone may be used for patients who do not mind the idea of it²¹. Chen et al describe success in sinus lifts without grafting and simultaneous implant placement²².

In conclusion, there are many tools to be used for this patient population. The clinician must stay within his or her scope of training as well as his or her comfort zone when performing these grafting techniques.

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Cone Beam Computed Tomography in Endodontics

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Introduction

Conventional (both chemical and digital) radiography renders a three-dimensional (3-D) anatomical structure two dimensionally with inherent distortions. This limitation posts a steep learning curve for novice operators to interpret information from the resulting images. In many incidences, it becomes a matter of guesswork even to the experienced user, like the relationship of the maxillary molars with the maxillary sinus.

Cone beam computed tomography (CBCT) has been used in dentistry since 1998. Unlike medical CT, which captures the image in slices, CBCT data are captured in a 3-D pixel unit called voxel. As these voxels are isotropic, the object is accurately measured in different directions. This enables the rendering of geometrically undistorted images of the maxillo-facial skeletal structure and allows viewing at different angles.

In addition to providing higher resolution image, CBCT has a much reduced radiation dosage than medical CT. The exposure, at about three to ten times the radiation of a digital panoramic radiograph, is more comparable to routine diagnostic imaging with panoramic and periapical radiography. CBCT is available with different fields of view (FOV) to suit different applications. In endodontics, a machine with limited FOV should suffice. CBCT has become a routine tool in oral surgery and especially implant dentistry. With increasing affordability of the computer and less expensive CB X-ray tube, CBCT will have enormous potential in endodontics. The following case reports illustrate some of these endodontic applications.

Summary

The advantages of CBCT includes

1. Three dimensional rendition
2. Geometrically accurate images
3. Increased sensitivity and specificity for caries, periodontal and periapical lesions
4. Patient comfort - no intra-oral placement of film or sensor.
5. Soft tissue rendition

Disadvantages

1. Increased radiation
2. Expensive
3. Inferior resolution
4. Beam scatter and hardening by high density materials cause artifacts
5. Dentist/DSA needs to be computer savvy

Case Reports

Case 1 - C Shaped Mandibular Second Molar Teeth

Approximately 42% of fused-root mandibular second molars of Hong Kong Chinese patients might be associated with a C-shaped root canal system². This common anatomical variation presents a challenge to root canal treatment. The difficulties include locating and cleaning of the canal system³, and instrumentation mishaps⁴. Periapical radiograph alone is not adequate to distinguish c-shaped root canal pattern from fused roots with separate canals.

This Chinese patient had what looked like a two-rooted 47 (Fig 1a). Symptoms persisted despite instrumentation of both canals (Fig 1b). The case was referred and treated under the operating microscope, which revealed the c-shaped canal pattern (Fig 1c). The symptom was relieved after completion of treatment (Fig 1d). If a pre-operative CBCT were taken, a couple of treatment visits could be saved.

Fig 1e shows another case with c-shaped root canals in both 37 and 47.



Fig 1a Tooth 47 appeared to have conical root with 2 root canals.

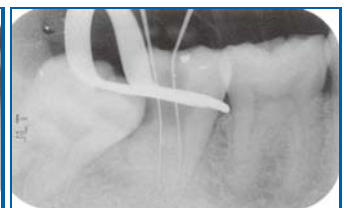


Fig 1b Both canals identified and cleaned



Fig 1c C-shaped canal pattern revealed under the operating microscope



Fig 1d Final obturation of the C-shaped canal system

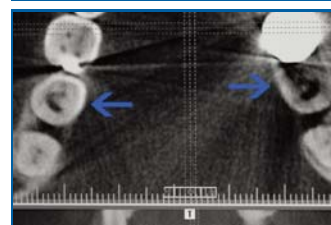


Fig 1e CBCT showing C-shaped canal pattern in both 37 and 47

Case 2 - Extra Root/Canal

This patient complained of persistent discomfort from tooth 24 despite apparently satisfactory root canal treatment. The periapical radiograph revealed satisfactory root canal fillings without periapical change (Fig 2a). As the pain radiated to the cheek and zygoma area, a CBCT was taken to check for missing root canal and possible sinus problem.

The CBCT revealed an untreated MB root canal (Fig 2b). The symptom was relieved after retreatment was performed (Fig 2c).

Maxillary molars, particularly the MB roots, present problems frequently. The MB2 canal should be considered as the norm rather than the exception. They are revealed readily with the CBCT (Fig 2d).



Fig 2a Symptomatic tooth 24 despite apparently satisfactory root canal fillings and absence of periapical lesion.

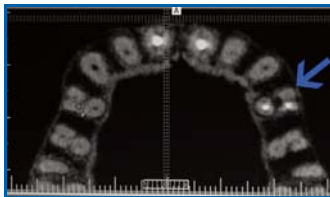


Fig 2b Untreated MB root revealed



Fig 2c Retreatment of all canals



Fig 2d Untreated MB2 canals in both 16 and 17. Note 16MB canal was stripped perforated

Case 3 - The "Hidden" Radiolucencies

The CBCT gives improved sensitivity and specificity in diagnosis of periapical lesions over conventional radiographs⁵. The analyses of diagnostic methods showed that apical periodontitis was detected more frequently when CBCT was used, compared with periapical radiograph⁶.

This patient complained of persistent poorly located discomfort from his lower right posterior teeth. Tooth 47 was heavily restored but responsive to pulp tests. The tooth appeared normal on periapical radiograph (Fig 3a). No crack tooth was suspected in the region and the opposing dentition. There was hesitation to remove the filling for further investigation due to the potential cumulative pulpal injury from repeated operative procedure⁷.

A CBCT revealed a periapical lesion that was not evident on the periapical radiograph (Fig 3b). Root canal treatment was instituted. The pulp was confirmed necrotic on opening. The treatment was completed uneventfully and the pre-operative symptom was cured (Fig 3d). The confronting post-operative problem is whether CBCT will be required for periodic reviews. This will imply high radiation and cost. A radiologist will be consulted.



Fig 3a Normal bone around tooth 47



Fig 3b CBCT shows the periapical lesion at the mesial root



Fig 3c and a large distal lesion



Fig 3c and a large distal lesion Fig 3d 47 completed root treatment

Case 4 - Cervical Resorption

This patient was referred by his general dentist for the management of the two non-vital upper central incisors. The teeth suffered traumatic injury more than 20 years ago and became discoloured over the last few years. Both teeth did not respond to pulp tests. The periapical radiograph showed there was pulpal sclerosis, together with small periapical lesions with both teeth (Fig. 4a). There were radiolucent lesions in the root of 11. It was difficult to determine the nature of the resorptive lesions.

A CBCT was acquired and revealed multiple resorptive lacunae inside the pulp chamber of 11 (Fig. 4b). The diagnosis was cervical resorption of 11 and internal resorption of 21.

Treatment of 11 would be challenging due to the co-existence of cervical resorption and total pulpal sclerosis. Substantial tooth tissue has to be removed to gain access to these lacunae. The surgical procedure would be traumatic and destructive. As the tooth has been asymptomatic over these many years and the resorption process was slow, the patient decided not to take treatment but to keep the tooth under periodic reviews. The root treatment of 21 was completed uneventfully (Fig 4c).



Fig 4a Non-vital 11 and 21 with pulpal sclerosis and resorption



Fig 4b Multiple resorptive lacunae and widened periodontal ligament space at 11 suggest cervical root resorption. Internal resorption in 21



Fig 4c Root treatment of 21



Case 5 - Internal Resorption

This patient presented with buccal and lingual sinuses at tooth 36. The periapical radiograph showed radiolucent patches in and around the mesial root (Fig 5a). The CBCT revealed extensive root perforations due to internal resorption (Fig 5b, c, d). The prognosis of the tooth was poor and it was extracted.



Fig 5a Radiolucency at 36 mesial root



Fig 5b CBCT showing perforating defects and perio-endo lesion (arrows)

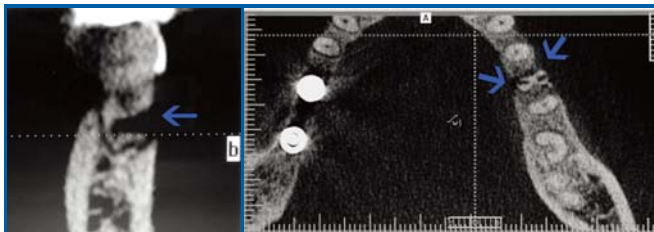


Fig 5c
CBCT showing perforating defects and perio-endo lesion (arrows)

Fig 5d

Case 6 Pre-surgical Assessment for Apicectomy

This patient was referred by her general dentist for the management of a deteriorating periapical lesion at 36. The tooth was root filled to a high standard under rubber dam isolation a few years ago. However the periapical lesion increased in size, together with the emergence of a buccal discharging sinus (Fig 6a, b).

It would be less likely to achieve a successful outcome if conventional retreatment was attempted in failed cases with technically satisfactory treatment⁸. An apicectomy with retrograde filling was planned, as the case could be infected by more resistant bacteria/fungi, or suffering from an extra-radicular infection⁹, a radicular cyst^{10, 11}, or a foreign body reaction¹². Furthermore the possibility of apical root fracture¹³ could be explored at the same time.

The periapical radiographs showed the mental foramen was in close proximity with the mesial root and the periapical lesion. A CBCT was acquired to provide a geometrically accurate assessment of the relationship between them and the 'space' available for surgical manipulation¹⁴ (Fig 6c). It would also show any potential missed canal.

After apicectomy and curettage, an anastomosis between the mesial canals was identified. It was prepared with endosonics and retrofilled with MTA (Fig 6d). The patient experienced minimal mental paraesthesia, which recovered completely six weeks after surgery. The case is under active review.



Fig 6a
36 periapical lesions increase in size despite adequate root fillings, a) at 4/2008, and b) at 4/2009

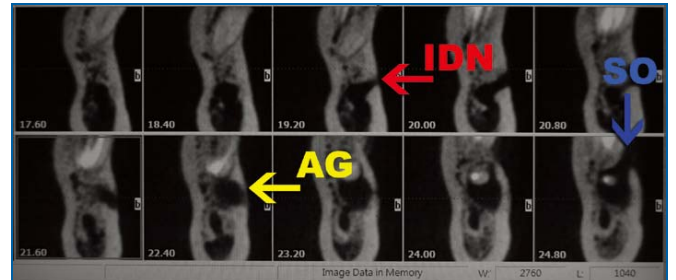


Fig 6c Coronal section showing mental foramen (IDN), apical granuloma (AG) and sinus tract opening (SO)



Fig 6d Immediate post operative radiograph showing resected roots and retrograde fillings

Other Related Applications

Simon et al¹⁵ claimed that the CBCT could distinguish between periapical granuloma and radicular cyst in 13 out of 17 cases. However this has not been substantiated by others.

CBCT is superior to conventional radiography for the diagnosis of horizontal root fractures¹⁶, and is proved valuable for real time assessment in maxillo-facial trauma diagnosis and treatment¹⁷. The resolution of the CBCT is low at 2 lines per mm (lpmm)¹⁸ compared with conventional (chemical and digital) intraoral periapical film with 15-20 lpmm¹⁹. This is not adequate to reveal except the more extensive vertical root fractures (VRF) (Fig 7).

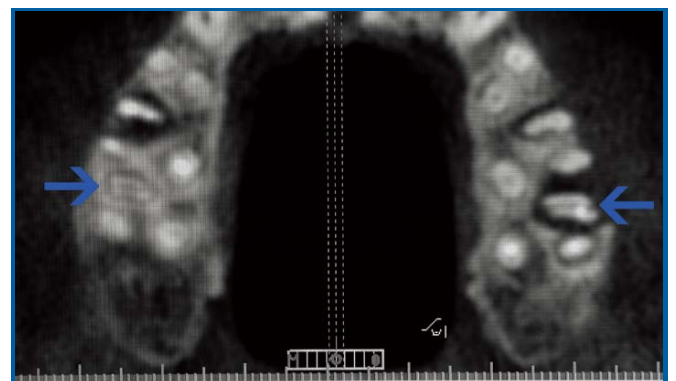


Fig 7 VRF of 17MB and 27MB. Detection of VRF with CBCT is exception rather than the rule

This lack of resolution, however, does not affect the superiority of CBCT in the assessment of periodontal regeneration, caries and bone lesions^{20, 21, 22}. The image on the scan is well demarcated and provides better sensitivity and specificity than conventional radiograph. However the scatter and beam hardening could significantly affect the image occasionally (Fig 8).

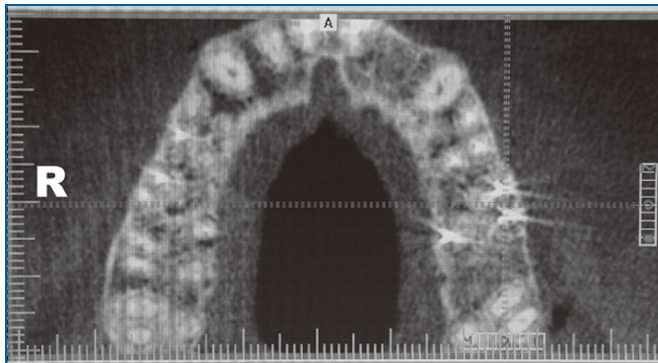


Fig 8 In this case of an endo perio lesion of tooth 26, beam scattered from the root fillings render this scan useless in revealing the untreated MB2 canal and vertical root fracture

Conclusion

The CBCT is a valuable adjunct to the endodontists' armamentarium. The learning curve is not steep and variability of clinical interpretation is low. However it is a sophisticated tool, requiring special skills for operating the machine and the image manipulation afterwards. Like any equipment in the digital age, continuous evolution and refinement is anticipated. Extra hidden expenses in depreciation and upgrades have to be added to the initial installation cost.

In conclusion the CBCT is a useful tool for the diagnosis and management of endodontic problems. Its use is becoming increasingly popular but some machines are better suited for endodontic purposes than others. The operators should consider their specific needs before making the move to acquiring one in the office.

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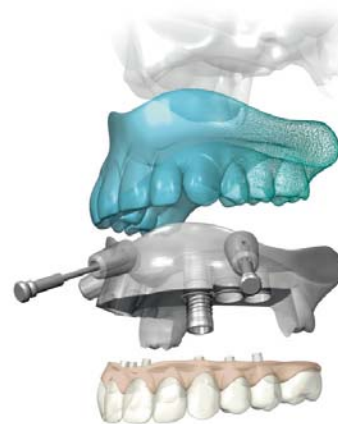
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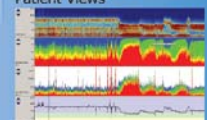
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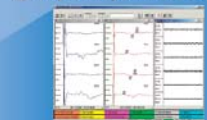


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Management of Dentine Hypersensitivity

Dr. Chun-hung CHU

BDS, PhD

Associate Professor, Faculty of Dentistry, The University of Hong Kong



Dr. Chun-hung CHU

Dentine Hypersensitivity in Hong Kong

Dentine hypersensitivity may be defined as short, sharp pain arising from exposed dentine typically in response to chemical, thermal or osmotic stimuli that cannot be explained as arising from any other forms of dental defect or pathology.¹ Dentine hypersensitivity is a common problem found in many adult populations. A study on 226 patients attending a dental hospital in Hong Kong in 2003 found about two third of the patients (68%) had dentine hypersensitivity.² The commonest initiating factor for dentine hypersensitivity among them was cold drinks. While many studies reported the commonest teeth affected are the premolars, the study found the commonest teeth affected were the lower incisors; and the majority of hypersensitive dentine surfaces were present on the facial surface of the teeth. The study also showed that dentine hypersensitivity peaked between 40 and 50 years of age, followed by a decline with age. The probable reason for this drop in dentine hypersensitivity after the fifth decade may be related to the pulpal changes with increasing age, particularly dentinal sclerosis and the laying down of secondary or tertiary dentine.

Causes of Dentine Hypersensitivity

Dentine is generally covered by enamel in a tooth crown and by a protective layer called cementum in the tooth root. It contains many thousands of microscopic tubular structures that radiate outwards from the pulp (Figure 1); these dentinal tubules are typically 0.5-2 microns in diameter containing plasma-like biological fluid that is connected to the pulp. The cause of hypersensitivity is loss of enamel on the tooth crown (Figure 2) and gum recession exposing the tooth root (Figure 3). Enamel can be lost as a result of aggressive or incorrect tooth brushing, over consumption of acidic food and tooth grinding caused by stress and para-functional behaviours. A recent study in Hong Kong found many people frequently took fruits and lemon tea as their food and beverage (Figure 4).³ The frequent intake of these can cause tooth erosion and dentine hypersensitivity. When the root of the tooth is exposed to the mouth due to gum recession, the cementum covering the tooth root can easily be removed and dentine is exposed resulting in dentine hypersensitivity. Gum recession may occur as a result of aggressive and incorrect tooth brushing, ageing, gum diseases and some dental operative and surgical procedures which lead the gum to move away from its normal position.

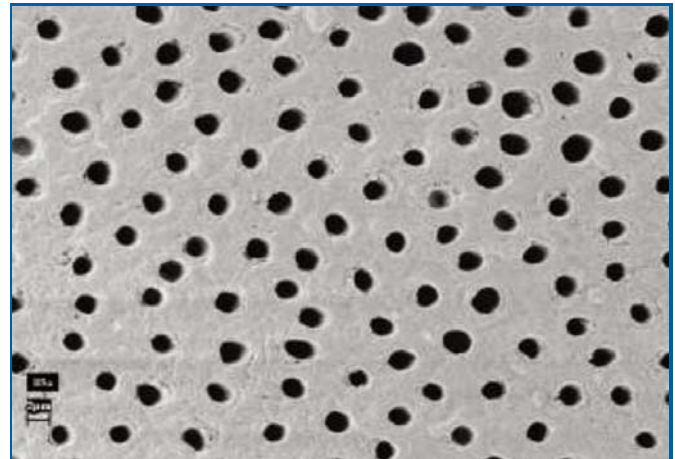


Figure 1 SEM Images of dentine surface (2000x)



Figure 2 Enamel loss exposing dentine



Figure 3 Gum loss exposing dentine

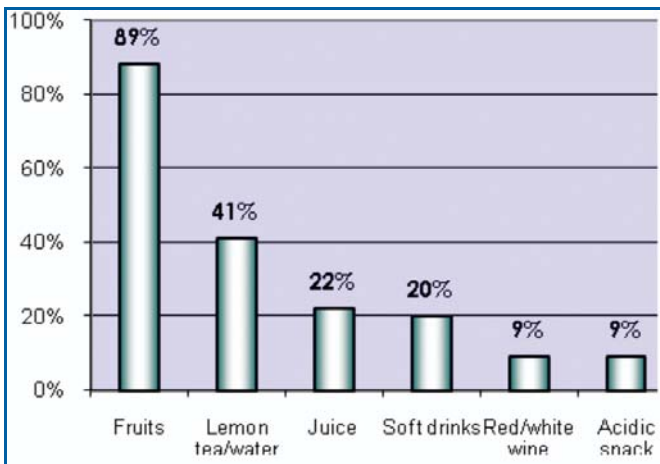


Figure 4 Common acidic food and beverages taken by Hong Kong people

The Hydrodynamic Theory of Dentine Hypersensitivity

The exact mechanism of dentine hypersensitivity is still under research. The hydrodynamic theory suggests that changes in the flow of the fluid present in the dentinal tubules can trigger receptors present on nerves located at the pulpal aspect thereby eliciting a pain response (Figure 5).⁴ This hydrodynamic flow can be increased by changes in temperature, humidity, air pressure and osmotic pressure, or forces acting onto the tooth. Hot or cold food or drinks, and physical pressure are typical triggers in those individuals with dentine hypersensitivity.

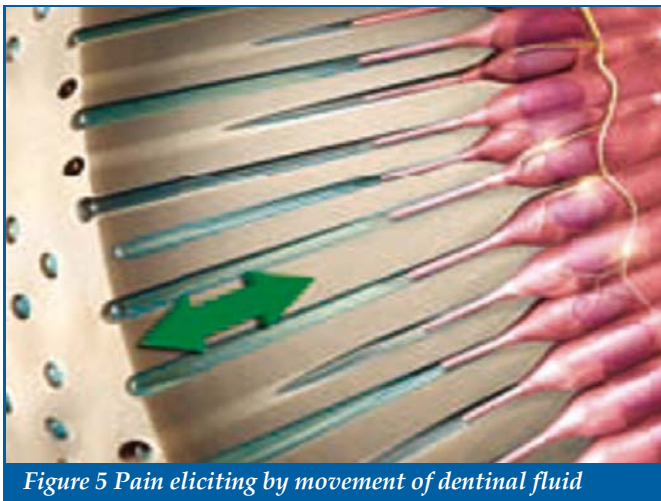


Figure 5 Pain eliciting by movement of dentinal fluid

Management of Dentine Hypersensitivity

It is essential to consult a dentist when a person suffers from pain with nature similar to the symptoms of dentine hypersensitivity. Dentinal hypersensitivity has all the criteria to be considered a true pain syndrome.⁵ It may share similar symptoms with dental decay and gum disease. In addition, the cause of dentine hypersensitivity should be identified and a diagnosis by exclusion must be made for dentinal hypersensitivity, ruling out other conditions requiring different treatments. Once the diagnosis of dentine hypersensitivity is confirmed, the dentist often needs to

discuss with his/her patient regarding his/her oral hygiene habits and diets. Changes and behaviour modifications such as decreasing the intake of acid-containing foods are often necessary to manage dentine hypersensitivity. The patient should also be shown correct brushing techniques because improper tooth brushing has often been associated with dentine hypersensitivity. It has been shown that both a manual and a power brush used with desensitising toothpaste are almost equivalent in effectiveness.⁶

Home Management with Desensitising Toothpaste

Use of desensitising toothpaste is considered by many as the "first option" recommendation. It is effective but often takes 4 to 8 weeks for pain relief. Two treatment approaches have been used to provide relief of dentine hypersensitivity. The first approach is to interrupt the neural response to pain stimuli (Figure 6); and the other is to occlude open tubules to block the hydrodynamic mechanism (Figure 7). Many desensitising toothpastes contain potassium salts, strontium salts and/or fluoride compounds. Potassium salts such as potassium nitrate and potassium citrate provide potassium ions to decrease the excitability of the nerves that transit pain sensation. Strontium salts such as strontium chloride and strontium acetate form mineralised deposits within the porous dentinal tubules and on the surface of the exposed dentine. Fluoride compounds such as sodium fluoride and silver diamine fluoride form precipitation of insoluble metal compounds, mainly calcium fluoride globules, which promote remineralisation and occlude dentinal openings on exposed dentine surface. Recently available desensitising toothpastes with new chemicals such as amorphous calcium phosphate and casein phosphopeptide-amorphous calcium phosphate (ACP-CPP) and arginine and calcium carbonate (Arginine- CaCO_3) are now available in the market. ACP-CPP and Arginine- CaCO_3 products have a similar mode of action to occlude and block open dentinal tubules from external stimuli associated with dentine hypersensitivity. Studies have used bioactive and biocompatible glasses which are known to induce osteogenesis in physiological systems, and hence could theoretically occlude tubules.⁷ Toothpaste with calcium sodium phosphosilicate bioactive glass is also introduced. This bioactive glass material has been shown to seal and clog open dentinal tubules and thus reduces dentine hypersensitivity.⁸

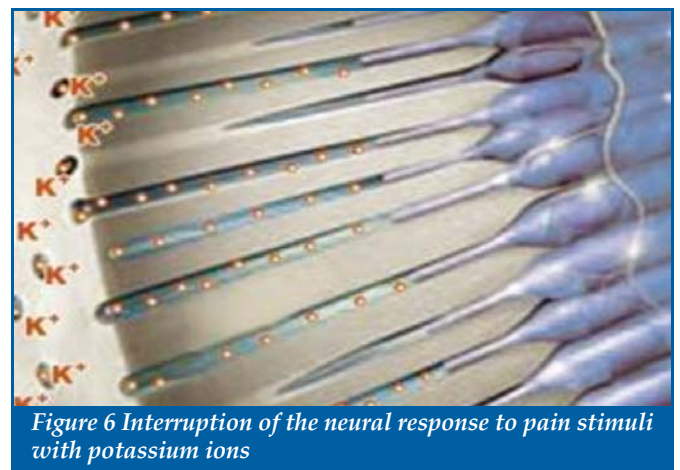


Figure 6 Interruption of the neural response to pain stimuli with potassium ions

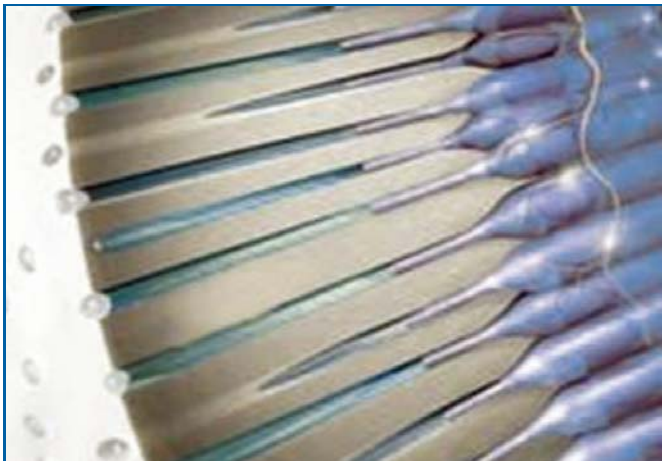


Figure 7 Occlusion of the open tubules to prevent pain stimuli

In Office Professional Care

Apart from desensitising toothpastes, dentist may apply a variety of professional medicaments to reduce the dentine hypersensitivity. A variety of products has been used to reduce dentine hypersensitivity, including resin-based materials, sodium fluoride varnish, oxalates or an aqueous solution of glutaraldehyde and hydroxyethylmethacrylate (HEMA). These products generally occlude and seal the dentine tubules. Arginine-CaCO₃ is also used as an active ingredient in a professionally used prophylactic-paste to manage dentine hypersensitivity. A clinical study on 390 patients found professional application of arginine and calcium carbonate by dentists and dental hygienists in Hong Kong significantly reduced severity of pain on patients with dentine hypersensitivity⁹. Furthermore, dentists may apply dental sealants and other desensitising and filling materials to cover the exposed dentine. Lasers can also be used to seal open dentine tubules, either alone or with surface treatments to manage dentine hypersensitivity.¹⁰

Conclusion

Dentine hypersensitivity is a common oral health problem among many adult population groups. Many treatment methods have been proposed and the choice varies according to the clinical presentation. When a patient presents with symptoms that may be attributed to dentine hypersensitivity, a thorough clinical examination should be carried out to rule out the other likely causes before making a diagnosis and embarking on treatment. Depending on the identified cause, a combination of individualised instructions on proper oral health behaviours, use of self-care products, and professional treatment may be required to manage the problem.

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1 Schiff T et al Am J Dent 2009; 22 (Spec Iss A): 8A-15A
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Motor Racing

Dr. Edgar SHIH

BDS(HK), MSc in Orthodontics (London)



Dr. Edgar SHIH

- 1987 Brands Hatch Racing School, UK (Racing Saloons)
- 1995 John Watson's Racing Centre, Silverstone, UK (Formula Fords)
- 1996 Private Instructions with Mark Goddard
- 1997 Greater China Classic Race Champion
- 2003 Roadsport Race Macau 50th GP
- 2004 Supercar Challenge Series ZIC, 2nd Runner Up
- 2005 Lotus Challenge (Asian Zone) ZIC Race winner
- 2006 Present Private Instructions with Mike Knight
- 2008 Co Host, Speed at Metro Radio Hong Kong

"This is Tyler and you are listening to Speed at Metro Radio Hong Kong 99.7MHz! Bringing to you the latest in motorsports and car test reports with LIVE in-car recordings....." (<http://www.metroradio.com.hk/997>)

So we finished another recording session for the radio programme which would come on air on the following Saturday morning from 11am to noon. Usually, we would make the recording in the station's studios, but this time we were recording live car tests impressions on track at the Zhuhai International Racing Circuit and testing the luxury grand tourers from Bavarian Motors, the M5 and M6's both sharing the same chassis, V10 engine and drive train. It was a nice day of testing with perfect weather and good organisation. The cars were immaculately prepared and all working as they should. Our co-host, Steven also had a ride for his life in one of the cars whilst recording on the fly, though his colour turned a little green when he came out of the car. I could get used to this very easily, testing new cars in excess of a cool million dollars and driving them as if I had just stolen them as they said (<http://www.104mfonline.com.hk/MetroFinance/Leisure/Car.aspx>).

It had been over 20 years since I graduated from Brands Hatch racing stable back in 1987 and what a far cry the BMW M5's was from the school Ford XR3's that we used to throw around that had to be push started because of excess engine heat after each stint. That was a time when I could still push start a car;K..Since then I had gone through a few more racing schools; driven a host of cars and raced a few more.

Motorsports is just like any other sports. One needs regular practice with proper understanding of the mechanics and physics of the equipment and the necessary mental and physical conditions for enjoyment and safety. The pleasure of motorsports to me is never about the excitement nor glamour as my other genera acquaintances would try to persuade me to agree but instead, the serenity and inner calmness when I can focus completely on the job at hand i.e. driving the vehicle at

its current configuration to the best I can to find its limits and that of my own.

When one fully concentrates on driving, one reaches a higher level of alertness and your senses are on overdrive reading the machine's behaviour, track conditions and anticipate what is likely to happen so to be prepared to make corrections and adjustments when on the fly. There is a feeling of elation when one can go through a given corner fully committed and slightly faster than before knowing that one could not have done any better on the day nor anyone else. And to be able to do all that under a safe environment of a racing circuit and not on the public roads is a prerequisite instead of a bonus. We also need to learn to be a team player, cooperating with our managers, engineers, technicians, officials etc and learn to communicate effectively and to manage our precious resources effectively with a detailed plan before testing. Driver's improvement and technical knowledge become the two main areas of continued education and one starts to befriend with your trusty mechanic who looks after your cars.

Race cars are categorically built to different specifications to road cars. Most of them are custom built by either ordering a special stripped out version motor car from the factory and then built from scratch again ground up which would require the complete removal of engine, drive train, loom etc. They have extra stiffness in the chassis with welded in roll cage, stiffened suspensions and seam welds for strength. All the interiors are stripped to save weight. There is an emphasis in safety with FIA homologated race seats, race harness, HANS device to protect the driver and passenger from whip-lash injuries, plumb-in fire extinguishers, racing tyres for wet and dry conditions, uprated brakes. Race cars are not suitable for driving on the public roads nor road cars any good for circuits.





Over the years, I have had the pleasure of being put into the driver's seat of different types of performance cars. From the German perennial rear engine rear wheel driven 911's with excess power to grip which demands respect to Japanese 2 litre turbo-charged 4WD rally homologation road cars to the ultra modern everything electronic all conquering GTR's which offer exhilarating performance at a bargain. For the past few years it has been a pleasure to learn to drive in the bespoke designed and built carbon fibre chassis formula race cars with sequential gearboxes. All of them bring immense enjoyment when one begins to come to terms with their quirky characteristics and handling properties. Probably, it is because of formula racing cars that I am now subscribing to the great Anthony Colin Bruce Chapman's philosophy of lightweight cars and have started to collect and tune British roadsters with spartan creature comforts and well designed chassis with simple drive trains. They are great little cars to learn to drive in and also for honing driving skills so much so that we have established an internet forum with common enthusiasts to exchange ideas. (www.trackndrive.com)



I am only an average driver with average abilities and anyone can enjoy motorsports activities. I would recommend that one should go through proper racing school training which is available at ZIC at a very reasonable cost which provides first class training in proper formula cars, race gears, meals and accommodation over an enjoyable weekend. Even my son, who received training in Formula Renault before his 12 year old birthday, had never driven a car nor had any experience in Go-Karting before and became the youngest graduate and certificate holder from the ART Formula Renault Training Course.



I have been fortunate enough to win a few races and make a lot of friends from motorsports. Most notable would be Mike Knight who is our current driving instructor. Mike is still racing Grand Prix cars from the 60's and 70's. He was the operator/instructor of the world renowned Winfield Racing School, where he had more than 20 students who became F1 drivers and others of world class fame as well. Names include Alain Prost, Damon Hill, Jacques Villeneuve, Olivier Panis, Jacques Lafite, Rene Arnoux, Jason Plato, Andy Priaulx...



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Advance Directives Consultation Paper

The Food and Health Bureau published the Concept of Advance Directives Consultation Paper. To enhance the awareness of this consultation, the Federation has invited a doctor, a medical ethicist, and a lawyer to each contribute a short article on this subject. We would like to thank all three authors for writing and sharing their personal views and perspectives in this issue.

Advance Directives: Their Role in Clinical Practice and Their Difficulties

Dr. Chun-yan TSE

Honorary Advisor of the Hong Kong Society of Palliative Medicine

Background

In the Hong Kong context, the term "advance directive" (AD) usually refers to a set of instructions about what kind of life sustaining treatment (LST) that a patient wishes to refuse when he becomes mentally incapacitated under some specified circumstances. In Hong Kong, a proxy directive appointing another person to decide on the patient's behalf does not have legal status. Under the common law framework in countries like UK, Australia, Canada and USA, a valid and applicable AD refusing LST is legally binding. The courts in Hong Kong would very likely take this view. In 2006, the Law Reform Commission published a report on AD recommending promotion of the concept of AD via non-legislative means in Hong Kong. However, there are different views on this in the community, and the Food and Health Bureau has issued a consultation paper in December 2009 asking for comments, among other questions, whether the concept of AD should be more widely promoted in Hong Kong or not.

There is little dispute about the importance of understanding a patient's values and treatment preferences in end of life care. Such an understanding could be achieved through discussions among the patient, the healthcare providers, and the family members in the "advance care planning" (ACP) process. The concept of ACP should be promoted in Hong Kong among patients with advanced incurable diseases. ACP does not necessarily end up in a legally binding AD. A non-legally binding expression of the patient's values and preferences in end of life care may be adequate in many cases, and can guide the doctor and family to make decisions in the patient's best interests when the patient is incompetent.

Role of AD in Clinical Practice

Sometimes, AD as a legally binding tool in ACP has its role in clinical practice:

- When there is a need to express the decision of the patient effectively to clinicians not familiar to the patient: For example, a terminally ill patient who plans to stay at home as much as possible may die at home. A statement that he declines CPR would be helpful. Another example is a severe COPD patient with repeated intubation for respiratory failure. If the patient does not want further intubation on his next admission for respiratory failure, a statement indicating his decision would be helpful.

- When it is difficult to judge what is in the best interests of the patient: In some cases, a decision based on the best interests principle for an incompetent patient can be difficult, even if the patient's values and wishes are known. A statement indicating his decision would be helpful.
- When the wish of the patient appears not in the best interests of the patient: Occasionally, a patient may have idiosyncratic view on a particular LST, for example, a Jehovah Witness patient would not want transfusion. A statement indicating his decision would be helpful.

Difficulties

However, there are practical difficulties in executing an AD. Unlike contemporaneous refusals, a patient may have difficulty to make a rational advance decision before the actual scenario happens. On the other hand, the clinical team may have difficulty to judge whether the AD is valid or applicable. Also, unlike a contemporaneous refusal, the clinical team may find it difficult to accept an advance refusal which appears not in the best interests of the patient, without the chance of further discussing with the already incompetent patient. Such difficulties should be greater in patients without a terminal illness.

Another problematic area is an AD demanding withdrawal of artificial nutrition and hydration when PVS status is confirmed. This is highly controversial. Common law framework seems to support that such AD should be followed. However, many people think this is euthanasia.

Furthermore, without specific legislation in Hong Kong, there are legal uncertainties. Recently, doubts have been raised whether a valid and applicable AD can really override the best interests principle. For example, can a doctor transfuse a Jehovah Witness patient (with a valid AD refusing transfusion) dying of bleeding when he becomes unconscious, based on the best interests principle according to the Mental Health Ordinance Cap 136 Section 59ZF?

The Way Forward


There are no easy answers to the above difficulties. In the 2006 report, taking reference mainly from the Singapore model, which has a rigid legislation with statutory forms and procedures, the Law Reform




Commission considers that legislation would not help the promotion of AD in Hong Kong. However, there are some recent developments. In 2007, the Mental Capacity Act became operative in England and Wales. The legislation on AD there is just on the basic principles only, allowing flexibility in its execution, but it confirms the legal status of AD and its relationship to the best interests principle. I think Hong Kong should work towards legislation for AD along the UK approach, to confirm the legal status of AD, but to allow flexibility in its execution.

At this moment, I think AD should be promoted in selected patients as part of ACP in advanced incurable illnesses. However, it may be prudent to wait till enactment of specific legislation on AD before promoting AD to the general public in Hong Kong. Meanwhile, it would be useful to develop guidelines for clinicians on how to handle an AD.

Regardless of whether AD is promoted in Hong Kong or not, it should be noted that AD is not a panacea for the difficulties faced by dying patients. Firstly, an AD cannot (and should not) cover all possible future scenarios. Scenarios not covered by the AD should be managed along the best interests principle, taking into account the values and wishes of the patient. Secondly, AD is a legal tool only. In patients faced with an advanced incurable disease, AD should be part of ACP, and ACP should be part of the full spectrum of palliative care for a terminally ill patient.


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Product Name: Cervarix
Active Ingredient: Human Papillomavirus vaccine Types 16 and 18 (Recombinant, AS04 adjuvanted) **Indications:** In females from 10 to 45 years of age for the prevention of cervical cancer by protecting against incident and persistent infections, cytological abnormalities including atypical squamous cells of undetermined significance (ASC-US) and cervical intraepithelial neoplasia (CIN), CIN1 and pre-cancerous lesions (CIN2 and CIN3) caused by human papillomavirus types 16 and 18. **Dosage & Administration:** The primary vaccination course consists of three doses. The recommended vaccination schedule is 0, 1, 6 months. If flexibility in the vaccination schedule is necessary, the second dose can be administered between 1 month and 5 months after the first dose. The necessity for a booster dose has yet to be established. Cervarix is for intramuscular injection in the deltoid region. **Contra-Indication:** Cervarix should not be administered to subjects with known hypersensitivity to any component of the vaccine. **Warnings and Precautions:** As with other vaccines, the administration of Cervarix should be postponed in subjects suffering from acute severe febrile illness. However, the presence of a minor infection, such as a cold, should not result in the deferral of vaccination. It is good clinical practice to precede vaccination by a review of the medical history (especially with regard to previous vaccination and possible occurrence of undesirable events) and a clinical examination. As with all injectable vaccines, appropriate medical treatment and supervision should always be readily available in case of a rare anaphylactic event following the administration of the vaccine. As for other vaccines administered intramuscularly, Cervarix should be given with caution to individuals with thrombocytopenia or any coagulation disorder since bleeding may occur following an intramuscular administration to these subjects. As with any vaccine, a protective immune response may not be elicited in all vaccinees. Cervarix is a prophylactic vaccine. Cervarix is not intended to be a treatment for persistent infection or for HPV-related lesions present at the time of vaccination. HPV-16 and HPV-18 are not responsible for all cervical cancers. Other oncogenic HPV types can also cause cervical cancer. HPV infections and related clinical outcomes due to these other oncogenic types may not be prevented by vaccination. Vaccination is primary prevention and is not a substitute for regular cytological screening (secondary prevention) or for precautions against exposure to HPV and sexually transmitted diseases. There are no data on the use of Cervarix in subjects with impaired immune responsiveness such as HIV infected patients or patients receiving immunosuppressive treatment. For these individuals an adequate immune response may not be elicited. Duration of protection has not been established. Limited data support protective efficacy for 4.5 years after the first dose. Long-term studies are ongoing to establish the duration of protection. **Interactions:** There are no data on concomitant administration of Cervarix with hepatitis B vaccine, varicella vaccine and DTap vaccine. If Cervarix is to be given at the same time as another injectable vaccine, the vaccines should always be administered at different injection sites. In clinical studies, approximately 60% of women who received Cervarix used hormonal contraceptives. There is no evidence that the use of hormonal contraceptives has an impact on the efficacy of Cervarix. As with other vaccines it may be expected that in patients receiving immunosuppressive treatment, an adequate response may not be elicited. **Pregnancy and Lactation:** Specific studies of the vaccine in pregnant women were not conducted. These data are insufficient to recommend use of Cervarix during pregnancy. Vaccination should therefore be postponed until after pregnancy. The effect of Cervarix on embryo-fetal, peri-natal and post-natal survival and development has not been prospectively evaluated in clinical trials. No adverse effects on embryofetal development, parturition or postnatal development were observed in pregnant rats that received double the clinical dose of vaccine on 4 occasions during gestation. The effect on breastfed infants of the administration of Cervarix to their mothers has not been evaluated in clinical studies. Cervarix should only be used during breast-feeding when the possible advantages outweigh the possible risks. Serological data suggest a transfer of anti-HPV16 and anti-HPV18 antibodies via the milk during the lactation period in rats. However, it is unknown whether vaccine-induced antibodies are excreted in human breast milk. **Undesirable effects:** upper respiratory tract infection, headache, dizziness, gastrointestinal including nausea, vomiting, diarrhoea and abdominal pain, itching/pruritus, rash, urticaria, myalgia, arthralgia, injection site reactions including pain, redness, swelling, fatigue, fever (≥38°C), other injection site reactions such as induration, local paraesthesia. **Non-Clinical Information:** The carcinogenic potential of Cervarix has not been investigated. Incompatibilities: In the absence of compatibility studies, this medicinal product must not be mixed with other medicinal products. **Use and Handling:** A fine white deposit with a clear colorless supernatant may be observed upon storage of the syringe/vial. This does not constitute a sign of deterioration. The content of the syringe/vial should be inspected visually both before and after shaking for any foreign particulate matter and/or abnormal physical appearance prior to administration. In the event of either being observed, discard the vaccine. The vaccine should be well shaken before use. Any unused product or waste material should be disposed of in accordance with local requirements. **Please read the full prescribing information prior to administration. Full prescribing information is available on request from GlaxoSmithKline Ltd, 23/F, Tower 8, The Gateway, 9 Canton Road, Tsimshatsui, Kowloon, Hong Kong**
Abbreviated Prescribing Information Version 2.0 prepared in May 2007

* Vaccination against HPV 16 & 18 alongside regular Pap smear screening is the best preventive measure for women against cervical cancer.^{1*}
¹Duration of protection has been demonstrated for up to 7.3 years.
²CIN1+, CIN2+, ASCUS
References: 1. Schwartz TF, Leo O. Gynecol Oncol 2006; 110(3):S1-S10 2. Harper D. Future Medicine Therapy 2008; 5(3): 313-324 3. Wheeler CM, et al. ESMO May 13-16 2008, Graz, Austria, Abstract presented, P16-Poster Session, 4. Gall SA, et al. 2007 AACR Annual meeting, Los Angeles CA, 2007; April 14-18; abstract 4900. 5. Sellers JW, Kanwaljyote TL, Kaczorowski J, et al. CMAJ 2003; 168: 421-425. 6. GlaxoSmithKline Cervarix™ international data sheet, 2007. 7. Australian National Cervical Screening Program. <http://www.health.gov.au/informationstandby/publishing.nsf/Content/young-womenSF16youngwomen-brochure.pdf>. Accessed on 13th February 2009. 8. CDC. The Pink Book. <http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/rp-08.pdf>. Accessed on 13th February 2009. 9. UK Department of Health. The Green Book. http://www.dh.gov.uk/en/PublicHealth/HealthProtection/Immunisation/Greenbook/DH_40972547.CONTENT_ID=4097254&ch=9167GK. Accessed on 13th February 2009.
Remarks: Cervarix is efficacious in preventing HPV16/18-related cervical lesions as well as CIN2+ lesions. Patients are recommended to take regular pap screening after vaccination.
³Cervarix is a trademark of the GlaxoSmithKline group of companies.
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Introducing the Use of Advance Care Planning and Advance Directives in Hong Kong?

Prof. EC HUI

MD, PhD

Professor of Medical Ethics, LKS Faculty of Medicine, The University of Hong Kong



Prof. EC HUI

In December 23, 2009, the Food and Health Bureau (FHB) issued a Consultation Paper entitled "Introduction of the Concept of Advance Directives in Hong Kong". This consultation paper was issued in response to a report published by the Law Reform Commission (LRC) in August 2006 entitled "Substitute Decision-making and Advance Directives in Relation to Medical Treatment". In the Consultation Paper, the Government agreed with the LRC's view that "it would be premature to attempt to formulate a statutory framework and to embark on any legislative process for advance directives, without greater public awareness of the issues involved."¹ Secondly, the Government made it clear that "it has no intention at this stage to actively advocate or encourage the public to make advance directives."² What the Government was prepared to do was (1) To produce and make available to the general public an information package on advance directives (AD); (2) To develop any necessary guidelines and procedures for making and executing AD after consultation with the public and the medical and legal professions; (3) To consult the public about the acceptance of advance care planning (ACP) and the best way to promote this concept in Hong Kong.

In this paper I wish to discuss two points in the Consultation Paper, one related to ACP and the other to AD. I like to argue that conceptually ACP is primary and AD is secondary. This is so because ACP is a process of communication among patients, family members, health care professionals (HCP), spiritual advisers, lawyers and any significant others about the patient's preferred medical care in the future when the patient can no longer make healthcare decisions. ACP takes place in the context not only of a patient-HCP relationship, but also in the context of patient-family-HCP relationship. In the ACP process, patients may speak with any one or all of the participants mentioned above to discuss their own values, beliefs, preferences and attitudes regarding appropriate medical interventions when they become seriously ill and/or lose their decision-making capacity. It is an integral part of medical care for elderly patients that are documented and reviewed regularly. In the case of patients with an illness that may deteriorate into a life-threatening illness, it can be expected that the ACP process will lead to the discussion and drawing up of an AD, but the latter is not a necessary product of the ACP process. The real benefit of the ACP process is two-fold: for patients and their families, it becomes a way to prepare for death, strengthen interpersonal and interfamily relationships, relieve family members and loved ones of making decisions on behalf of patients and allow

patients to maintain control over healthcare decisions related to their dying and death. On the other hand, the ACP process assists the HCPs and family members to interpret the AD with greater certainty since the AD is the product of a process in which they are participants.

The consultation paper attributes the Chinese taboo that forbids the discussion of the patient's death as the reason for the infrequent use of ACP process in Hong Kong, and speculates that perhaps when the public has become more familiar with the concept of AD, it may find ACP more acceptable. This is unlikely to be the case, for if the taboo affects the ACP process, it is difficult to see how the making of an AD is immune from it. The real cause(s) of the infrequent practice of ACP in Hong Kong must be sought elsewhere. Firstly, HCPs in Hong Kong are not sufficiently trained to engage patients and families in the ACP process and they feel uncomfortable to raise death and dying issues with them. Secondly, the ACP process is time-consuming and it requires the HCPs to set aside time from their busy schedule to participate in the discussion of their patients' physical, mental, emotional, relational and spiritual concerns about their ageing, dying and death. It is a process that requires sensitivity and patience and HCPs can not participate or perceived by patients to participate in a hurry. Furthermore, since patients' preferences towards end-of-life treatments may be unstable and change with time,³ the ACP process is an ongoing one that may take several sessions to complete and requires patients being able to see the same HCPs each time they visit the clinic. It is therefore reasonable to speculate that the real causes of the infrequent practice of ACP in Hong Kong are due to the deficient training of HCPs in the ACP process, the extreme time constraints under which Hong Kong HCPs operate, and the uncertainty of patients' ability to see the same HCPs over a period of time required by the ACP process. Nonetheless, the ACP concept should be promoted in Hong Kong, with emphasis on the need of ACP training programmes for practitioners and the need to allocate extra resources devoted to ACP. But if AD is the "natural product" of the ACP process, then arguably ACP should be promoted prior to or at the same time when AD is being promoted. There are reasons to be skeptical that "ACP would be[come] a concept acceptable to the public...when the public has become more familiar with the concept of advance directive."⁴

A second point in the Consultation Paper that merits further clarification is the definition of "terminally ill", particularly in relation to the activating and revoking an AD. Both the LRC Report and the Consultation Paper state that the AD will become operative (activated)



when the patient is in any one of the three conditions, namely, terminally ill, a state of irreversible coma or a persistent vegetative state. While patients in irreversible coma or persistent vegetative state can be safely assumed not to possess the decision-making capacity, it is not clear if the same can be assumed for patients who are "terminally ill", defined as "patients who suffer from advanced, progressive, and irreversible disease, and who fail to respond to curative therapy, having a short life expectancy in terms of days, weeks or a few months."⁵ Conceivably, a terminally ill patient may retain a low but sufficient level of mental competence to participate in decision-making up to the time of death. In this case, the patient's AD would never be activated. It seems that this point is less than explicit in the Consultation Paper. However, in Section II-4 of the proposed model form of AD, there is a sentence that may function to qualify the state of "terminally ill" in relation to activating the patient's AD: "If I become terminally ill or if I am in a state of irreversible coma or in a persistent vegetative state..., so that I am unable to take part in decisions about my medical care and treatment, my wishes..." (Paper, p.20) This means that only if the patient is terminally ill and simultaneously mentally incompetent will the patient's AD be activated. Before this condition is fulfilled, the patient remains an autonomous agent.

Imagine a 68-year-old patient with widespread metastatic breast cancer that was refractory to chemotherapy and radiotherapy and considered by the treatment team as terminal. Despite the fact that she was also known to have early dementia, she was able to participate fully in the ACP process initiated by her HCPs, leading to the making of an AD. But her health condition steadily deteriorated and about six weeks after she made the AD, she was taken to the Accident and Emergency (AE) Department by her friends due to her respiratory distress. She was diagnosed to be in

respiratory failure, but the AE doctor did not initiate cardiopulmonary resuscitation (CPR) because her AD was found on the chart. At that point, one of her friends who shared the same apartment with the patient requested the doctor to resuscitate the patient because the patient had revoked her AD several days ago. The friend produced an AD revocation with a barely legible signature of the patient. The friend claimed that even though the patient was at times disoriented, she, as a witness to the revocation, was convinced that the patient was lucid when she signed the revocation. Was the patient competent when she revoked her AD? Was the witness certain of her competence? It is prudent for the Consultation Paper to provide mechanisms to revoke an AD either orally or in writing, as potential tragedies can be avoided in the event that patients want to change their mind from declining to accepting life sustaining treatments. However, FHB considers both oral and written revocations to be valid so long as they are witnessed, minimally, by any independent witness as long as the witness is at least 18 years of age and does not have an interest in the patient's estate. While a low threshold for revoking an AD is important, it should not be so low as to render revoking an AD vulnerable to misunderstanding or abuse. It is more reasonable to require a doctor to assess the patient's decision-making capacity and to witness the patient's revocation of her AD.

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1. Food and Health Bureau, Hong Kong SAR Government. Introduction of the Concept of Advance Directives in Hong Kong [Internet]. 2009. para. 14, p. 5. Available from: http://www.fhb.gov.hk/download/press_and_publications/consultation/091223_advance_directive/ad_consultation_paper_en.pdf
2. Ibid., paragraph 15, p. 5.
3. Danis M., Garrett J., Harris R., Patrick D. Stability of choices about life-sustaining treatments. *Ann Intern Med.* 1994 Apr 1; 120(7):567-73.
4. Food and Health Bureau, Hong Kong SAR Government. Introduction of the Concept of Advance Directives in Hong Kong [Internet]. 2009. para. 20, p. 6-7. pdf
5. Ibid., Annex B, p. 17.
6. Ibid., p. 20.



Rental Fees of Meeting Room and Facilities at The Federation of Medical Societies of Hong Kong

(Effective from October 2009)

| Venue or Meeting Facilities | Member Society (Hourly Rate HK\$) | | | Non-Member Society (Hourly Rate HK\$) | | |
|---|--------------------------------------|---------------|--|--|---------------|--|
| | Peak Hour | Non-Peak Hour | All day Sats, Suns & Public Holidays | Peak Hour | Non-Peak Hour | All day Sats, Suns & Public Holidays |
| Multifunction Room I (Max 15 persons) | 150.00 | 105.00 | 225.00 | 250.00 | 175.00 | 375.00 |
| Council Chamber (Max 20 persons) | 240.00 | 168.00 | 360.00 | 400.00 | 280.00 | 600.00 |
| Lecture Hall (Max 100 persons) | 300.00 | 210.00 | 450.00 | 500.00 | 350.00 | 750.00 |
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Date : 25th March 2010 Thursday
Venue : Crystal Ball Room 2 & 3, Level B3, Holiday Inn Golden Mile, TST, Kowloon

7:00 pm : Annual General Meeting 2010

7:30 pm : Scientific Meeting

Topics :

1. Advances of laser in glaucoma for diagnosis and treatment

Dr. Leung Kai Shun Christopher

Associate Professor, Department of Ophthalmology and Visual Sciences, The Chinese University of Hong Kong

2. Eye Bag Removal : Laser Assisted Transconjunctival Lower Lid Blepharoplasty

Dr. Walter WK King

Specialist in Plastic Surgery, Director, Plastic & Reconstructive Surgery Centre, Hong Kong Sanatorium & Hospital

3. Management of Common Hyperpigmentary Disorder

Dr. Wong Mon Ching

Specialist in Dermatology, Hon. Consultant, Plastic and Aesthetic Centre, Union Hospital

Chairman :

Dr. Mok Chun On

Specialist in Plastic Surgery

8:45 pm : Chinese Banquet

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Advance Directives - the Legal Issues

Mr. David KAN

MA(Med. Law), MBBS, MFFLM, BMed Sci(Hons), PDipCAH
Partner, Richards Butler Solicitors



Mr. David KAN

What are Advance Directives?

These are directions given by an adult, at a time when he is mentally competent, concerning the medical treatment which he wishes to receive or does not wish to receive at a future time when he will no longer be mentally competent. In other words, these are medical directions given by an individual patient in advance, to be put into effect if and when he subsequently becomes (either temporarily or permanently) mentally incompetent.

What are the Relevant Legal Principles?

Advance directives are recognised under common law. Currently, there is no statutory framework. It reflects the principle of self-determination¹, according to which respect must be given to the wishes of an adult patient of sound mind regarding his medical treatment.

As already stated, at the time of giving his directions, the individual patient has to be mentally competent. His mental capacity should not be diminished by long term illness or medication. Furthermore, there should be no undue influence by any third party.

In the same way that a mentally competent patient can validly refuse treatment (and such refusal must be respected), the patient can communicate his wishes at an earlier time before he becomes incapable of communicating them.

Those involved in looking after the terminally ill (including patients who have become mentally incompetent) have a duty to respect the wishes of the patients. According to the Hospital Authority's Guidelines², validly executed advance directives, including those refusing life-sustaining treatment, should be respected.

In deciding whether or not to withhold life-sustaining treatment, a medical practitioner should take into account the wishes of the patient (as well as those of his family)³. These wishes would be recorded in an advance directive, if one has been executed. Similarly, where a guardian has been appointed by the Guardianship Board to consent to medical treatment on behalf of a mentally incapacitated person ("MIP"), in deciding whether or not to consent to treatment, the guardian is required to consider what is in the MIP's best interest. In doing so, the guardian should take into account any prior wishes expressed by the patient before he becomes mentally incapacitated.

The Present and the Future

In August 2006, the Law Reform Commission published a report on advance directives in relation to medical treatment, having collected views from the public through a consultation paper (published in 2004). The Law Reform Commission has made the following recommendations:

- The concept of advance directives should be promoted, initially by non-legislative means, until the community has become more widely familiar with the concept (recommendation 1).
- The Commission put forward a model form of advance directive. This ensures that the directions given are clear and unambiguous. The form should be witnessed by two witnesses, one of whom should be a medical practitioner who is in a position to explain to the patient the nature and implications of the advance directive. Neither of the witnesses should have an interest in the estate of the patient (recommendation 7).
- The model form does not allow the patient to refuse basic or palliative care necessary to maintain the patient's comfort and dignity, or to relieve pain.
- If for any reasons the patient is unable to make a written advance directive, then an oral advance directive should be made before a doctor, lawyer or another independent person (recommendation 7). (It is important that the doctor records such directives/instructions in the medical records.)
- The advance directive can subsequently be revoked in writing or orally. If it is revoked in writing, then the revocation should be witnessed by an independent witness who does not have an interest in the estate. In the case of an oral revocation, it should be made before a doctor, lawyer or another independent person (recommendation 8).

More recently, on 23rd December 2009, the Food and Health Bureau published a consultation paper in response to the above-mentioned report. This consultation again addresses the issue of whether the concept of advance directives should be introduced in Hong Kong, the contents of information to be provided to the public as well as the guidance to be provided to the medical profession. It is proposed that procedures and guidelines should be developed for medical and healthcare professionals on the making and handling of advance directives.

References

1. Airedale NHS v. Bland [1993] 1 All ER 821
2. Guidelines on life-sustaining treatment in the terminally ill, published by the Hospital Authority (paragraphs 5.16 to 5.23)
3. Code of Professional Conduct for the Guidance of Registered Medical Practitioners, paragraph 34.3

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Applicants can choose to attend the full course or individual seminars (spot admission). The Certificate will be awarded to candidates who have enrolled in the full course and attended at least 80% of the sessions.

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| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--|--|---|---|--|---|---|
| | | <ul style="list-style-type: none"> HKMA Tai Po Community Network - Common Urology Problem in Primary Care Sector FMSHK Officers' Meeting <p>2</p> | <ul style="list-style-type: none"> HK Neurosurgical Society Monthly Academic Meeting - Cerebral Revascularization HKMA Central, Western & Southern Community Network - CME on "Advance in Asthma Management" <p>3</p> | <ul style="list-style-type: none"> Practical Health Informatics Course of Doctors (Session II) HKMA Council Meeting <p>4</p> | <ul style="list-style-type: none"> Joint Surgical Symposium - Update in Vascular Surgery Fire Drill HKMA Shatin Doctors Network - Certificate Course in Rehabilitation Medicine (I) <p>5</p> | <ul style="list-style-type: none"> 14th Annual Scientific Meeting <p>6</p> |
| <ul style="list-style-type: none"> Hong Kong Open Indoor Rowing Championships & Charity Rowathon <p>7</p> | <ul style="list-style-type: none"> HKMA Kowloon West Community Network - Case Sharing on Diabetes Management in Practice Midmark Promotal Hong Kong Show Room Opening Workshop on the Art of Fetal and Newborn Development and its Communication to Parent (SE-AF-1001 A & SE-AF-1001 B) HKMA Choir Family Concert <p>8</p> | <ul style="list-style-type: none"> HKMA Tai Po Community Network - Management of Adult Asthma <p>9</p> | <ul style="list-style-type: none"> HKMA Central, Western & Southern Community Network - CME on "Advance in Asthma Management" <p>10</p> | <ul style="list-style-type: none"> Practical Health Informatics Course of Doctors (Session III) HKMA Hong Kong East Community Network - Certificate Course: Practical Psychiatry for the General Practitioners (I) HKMA Structured CME Programme with Hong Kong Sanatorium & Hospital Year 2010 - The Current Management of HBV <p>11</p> | <ul style="list-style-type: none"> The Federation Spring Gathering cum Open House <p>12</p> | <ul style="list-style-type: none"> Refresher Course for Health Care Providers 2009/2010 The 3rd Annual Scientific Meeting and 4th Annual General Meeting of the Hong Kong Society for Paediatric Immunology and Infectious Diseases, Bill Marshall and Roland Levinsky Memorial Lectures <p>13</p> |
| <ul style="list-style-type: none"> HKMA Certificate Course on Family Medicine 2010 Annual Scientific Meeting 2010 <p>14</p> | <ul style="list-style-type: none"> Seminar on Gifted Babies (Code no: SE-GB-1002) FMSHK Executive Committee Meeting <p>15</p> | <ul style="list-style-type: none"> Workshop on the Art of Fetal and Newborn Development and its Communication to Parent (SE-AF-1001 A & SE-AF-1001 B) HKMA Tai Po Community Network - Management of Adult Asthma <p>16</p> | <ul style="list-style-type: none"> The Paediatric Infectious Disease and Immunology Course 2010 - Infection and Immunity of the Fetus and Newborn Infant <p>17</p> | <ul style="list-style-type: none"> Practical Health Informatics Course of Doctors (Session IV) HKMA Hong Kong East Community Network - Certificate Course: Practical Psychiatry for the General Practitioners (II) The Paediatric Infectious Disease and Immunology Course 2010 - Infection and Immunity of the Fetus and Newborn Infant <p>18</p> | <ul style="list-style-type: none"> HKMA Shatin Doctors Network - Certificate Course in Rehabilitation Medicine (I) The Paediatric Infectious Disease and Immunology Course 2010 - Infection and Immunity of the Fetus and Newborn Infant Free Seminar on Driving Talk <p>19</p> | <ul style="list-style-type: none"> Refresher Course for Health Care Providers 2009/2010 The 3rd Annual Scientific Meeting and 4th Annual General Meeting of the Hong Kong Society for Paediatric Immunology and Infectious Diseases, Bill Marshall and Roland Levinsky Memorial Lectures <p>20</p> |
| <ul style="list-style-type: none"> HKMA Yau Tsim Mong Community Network - Preventing the Preventable (Cardiology) <p>21</p> | <ul style="list-style-type: none"> Workshop on the Art of Fetal and Newborn Development and its Communication to Parent (SE-AF-1001 A & SE-AF-1001 B) HKMA Tai Po Community Network - Management of Adult Asthma <p>22</p> | <ul style="list-style-type: none"> HKMA Central, Western & Southern Community Network - CME on "Sinusitis and Rhinitis: Updated Management Tips for Primary Care Physicians" HKMA Shatin Doctors Network - Management of Insomnia and the Use of Hypnotic Medication <p>23</p> | <ul style="list-style-type: none"> HKMA Hong Kong East Community Network - Certificate Course: Practical Psychiatry for the General Practitioners (III) HKMA New Territories West Community Network - Management of Insomnia and the use of Hypnotic Medication <p>24</p> | <ul style="list-style-type: none"> Practical Health Informatics Course of Doctors (Session IV) HKMA Hong Kong East Community Network - Certificate Course: Practical Psychiatry for the General Practitioners (II) The Paediatric Infectious Disease and Immunology Course 2010 - Infection and Immunity of the Fetus and Newborn Infant <p>25</p> | <ul style="list-style-type: none"> HKMA Shatin Doctors Network - Certificate Course in Rehabilitation Medicine (I) The Paediatric Infectious Disease and Immunology Course 2010 - Infection and Immunity of the Fetus and Newborn Infant Free Seminar on Driving Talk <p>26</p> | <ul style="list-style-type: none"> Refresher Course for Health Care Providers 2009/2010 The 3rd Annual Scientific Meeting and 4th Annual General Meeting of the Hong Kong Society for Paediatric Immunology and Infectious Diseases, Bill Marshall and Roland Levinsky Memorial Lectures <p>27</p> |
| <ul style="list-style-type: none"> HKMA Football Day 2010 HKMA Yau Tsim Mong Community Network - Preventing the Preventable (General Surgery) Approach to Acne and Other Follicular Lesion <p>28</p> | <ul style="list-style-type: none"> HKMA Tai Po Community Network - Management of Adult Asthma <p>29</p> | <ul style="list-style-type: none"> HKMA Central, Western & Southern Community Network - CME on "Sinusitis and Rhinitis: Updated Management Tips for Primary Care Physicians" HKMA Shatin Doctors Network - Management of Insomnia and the Use of Hypnotic Medication <p>30</p> | <ul style="list-style-type: none"> HKMA Central, Western & Southern Community Network - CME on "Sinusitis and Rhinitis: Updated Management Tips for Primary Care Physicians" HKMA Shatin Doctors Network - Management of Insomnia and the Use of Hypnotic Medication <p>31</p> | | | |



| Date / Time | Function | Enquiry / Remarks |
|------------------------------------|--|---|
| 2 TUE 1:45 pm | HKMA Tai Po Community Network - Common Urology Problem in Primary Care Sector Organiser: HKMA Tai Po Community Network, Speaker: Dr. SZETO Shek, Venue: 新界大埔新達廣場1樓001-003號 | Ms. Kaman HO Tel: 2963 5524 1 CME Point for Participant 2 CME Points for Speaker |
| 8:00 pm - 10:00pm | 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. Paulina TANG Tel: 2527 8898 Fax: 2865 0345 |
| 4 THU (11, 18) 1:30 pm | Practical Health Informatics Course of Doctors (Session II, III & IV) Organiser: The Hong Kong Medical Association, Speakers: Various, Venue: Lecture Theatre, G/F, Block M, Queen Elizabeth Hospital, 30 Gascoigne Road, Kowloon | Miss Carman WONG Tel: 2527 8285 2 CME Points for Participant |
| 8:00 pm | HKMA Council Meeting Organiser: The Hong Kong Medical Association, Chairman: Dr. H.H. TSE, Venue: HKMA Head Office, 5/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Hong Kong | Ms. Christine WONG Tel: 2527 8285 |
| 5 FRI 8:00 am - 9:00 am | Joint Surgical Symposium - Update in Vascular Surgery Organisers: Department of Surgery, The University of Hong Kong & Hong Kong Sanatorium & Hospital, Chairman: Dr. SIU Wing-tai, Speakers: Dr. TING Chi-Wai & Dr. WONG Chiu-Cheuk, Venue: Hong Kong Sanatorium & Hospital | Department of Surgery, Hong Kong Sanatorium & Hospital Tel: 2835 8698 Fax: 2892 7511 1 CME Point (Active) |
| 11:30 am - 12:30 am | Fire Drill Organiser: The Hong Kong Medical Association, Venue: Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong | Ms. Christine WONG Tel: 2527 8285 |
| 1:00 pm (19) | HKMA Shatin Doctors Network - Certificate Course in Rehabilitation Medicine (I) Organiser: HKMA Shatin Doctors Network, Speakers: Dr. LEUNG Siu Lun Arran & Mr. Billy CHEUNG, Venue: 1/F, Jasmine Room, Royal Park Hotel, Shatin, N.T. | Dr. MAK Wing Kin Tel: 2649 4466 1.5 CME Points for Participant |
| 6 SAT | 14th Annual Scientific Meeting Organiser: Hong Kong Society Infectious Diseases | Ms. Chloe WONG Tel: 2155 8557 / 2116 4348 Fax: 2559 6910 Email: meeting.hk@asia.cmpmedica.com |
| 7 SUN | Hong Kong Open Indoor Rowing Championships & Charity Rowathon Organiser: The Hong Kong Medical Association, Venue: Kowloon Park Sports Centre | Ms. Dora HO Tel: 2527 8285 |
| 9 TUE 1:00 pm | HKMA Kowloon West Community Network - Case Sharing on Diabetes Management in Practice Organiser: HKMA Kowloon West Community Network, Chairman: Dr. CHAN Siu Man Bernard, Speaker: Dr. TONG Chun Yip Peter, Venue: Crystal Room I-III, 30/F, Panda Hotel, 3 Tsuen Wah Street, Tsuen Wan, NT | Miss Alice TANG Tel: 2527 8285 1 CME Point for Participant 2 CME Points for Speaker |
| 3:00 pm | Midmark Promotal Hong Kong Show Room Opening Organiser: Midmark Corporation - VP International Business Development: M. Brad WALKER and Promotal President: M. Francois NOGRIX, Venue: 10th Floor, Valiant Industrial Center, 2-12 Au Pui Wan Street, Fo Tan, Sha Tin, N.T. HONG KONG | Miss Heidi LEUNG Tel: 2604 9389 |
| 7:00 pm - 8:30 pm (23) | Workshop on the Art of Fetal and Newborn Development and its Communication to Parent (SE-AF-1001 A & SE-AF-1001 B) Organiser: College of Nursing, Hong Kong, Speaker: Ms. CHAN Cheung Lung Sharon | Secretariat Tel: 2572 9255 Fax: 2838 6280 1.5 CNE/ PEM per day |
| 8:00 pm | HKMA Choir Family Concert Organiser: The Hong Kong Medical Association, Venue: Theatre, Sheung Wan Civic Centre | Ms. Candy YUEN Tel: 2527 8285 |
| 10 WED 7:30 am | HK Neurosurgical Society Monthly Academic Meeting - Cerebral Revascularization Organiser: HK Neurosurgical Society, Chairman: Dr. SUN Tin Fung David, Speaker: Dr. C.P. TSANG, Venue: Seminar Room, G/F, Block A, Queen Elizabeth Hospital, Kowloon | Dr. Y.C. PO Tel: 2990 3788 Fax: 2990 3789 |
| 1:00 pm | HKMA Central, Western & Southern Community Network - CME on "Advance in Asthma Management" Organiser: HKMA Central, Western & Southern Community Network, Chairman: Dr. YIK Ping Yin, Speaker: Dr. Jane C.K. CHAN, Venue: The HKMA Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road Central, Hong Kong | Miss Alice TANG Tel: 2527 8285 |
| 11 THU (18, 25) 1:00 pm | HKMA Hong Kong East Community Network - Certificate Course: Practical Psychiatry for the General Practitioners (I), (II) & (III) Organiser: HKMA Hong Kong East Community Network, Hong Kong Society of Biological Psychiatry and Lundbeck Institute Hong Kong, Chairman: Dr. Jenny TSANG, Prof. SW TANG, Speaker: Various, Venue: Regus Conference Centre, 35/F., Central Plaza, 18 Harbour Road, Wanchai | Ms. Jaclyn LEE Tel: 2877 1106 |
| 2:00 pm | HKMA Structured CME Programme with Hong Kong Sanatorium & Hospital Year 2010 - The Current Management of HBV Organiser: The Hong Kong Medical Association, Speaker: Dr. CHAN On On Annie, Venue: The HKMA Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road Central, Hong Kong | Miss Viviane LAM Tel: 2527 8452 1 CME Point for Participant 2 CME Points for Speaker |
| 12 FRI 6:30 pm - 8:30 pm | The Federation Spring Gathering cum Open House Organiser: The Federation of Medical Societies of Hong Kong, Venue: 4/F, Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong | Ms. Paulina TANG Tel: 2527 8898 Fax: 2865 0345 |
| 14 SUN 2:00 pm | HKMA Certificate Course on Family Medicine 2010 Organiser: The Hong Kong Medical Association, Speakers: Dr. LO Kwok Wing & Dr. Michael CHENG, Venue: Lecture Theatre, G/F, Block M, Queen Elizabeth Hospital, 30 Gascoigne Road, Kowloon | Miss Viviane LAM Tel: 2527 8452 3 CME Points |
| | Annual Scientific Meeting 2010 Organiser: Hong Kong Thoracic Society and American College of Chest Physicians (HK & Macau Chapter) | Ms. Chloe WONG Tel: 2155 8557 / 2116 4348 Fax: 2559 6910 Email: meeting.hk@asia.cmpmedica.com |



| Date / Time | Function | Enquiry / Remarks |
|---|--|--|
| 16 TUE 6:30pm - 9:30pm 7:00 pm - 8:00 pm | Seminar on Gifted Babies (Code no: SE-GB-1002) Organiser: College of Nursing, Hong Kong, Speaker: Ms. Daisy CHAN FMSHK Executive Committee Meeting Organiser: The Federation of Medical Societies of Hong Kong, Venue: Council Chambers, 4/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong | Secretariat Tel: 2572 9255 Fax: 2838 6280 3 CNE/PEM Ms. Paulina TANG Tel: 2527 8898 Fax: 2865 0345 |
| 17 WED (18, 19) | The Paediatric Infectious Disease and Immunology Course 2010 - Infection and Immunity of the Fetus and Newborn Infant Organiser: Hong Kong Hospital Authority Infectious Disease Centre, Hong Kong Society for Paediatric Immunology and Infectious Diseases and The Hong Kong Society of Neonatal Medicine, Speakers: Various, Venue: Lecture Theatre, 7th Floor, Block H, Princess Margaret Hospital | Dr. Mike KWAN Tel:2990 2872 Fax: 2990 2875 Website: http://haidc.home E-mail: haidcpidimcourse2010@hotmail.com |
| 19 FRI 7:30 pm - 9:30 pm | Free Seminar on Driving Talk Organiser: The Federation of Medical Societies of Hong Kong, Speakers: Dr. MONG Hoi Keung & Mr. HUNG Wan Shun Stephen, Venue: 4/F, Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong | Ms. Karen CHU Tel: 2527 8898 Fax: 2865 0345 |
| 20 SAT 2:30 pm | Refresher Course for Health Care Providers 2009/ 2010 Organiser: The Hong Kong Medical Association, Speaker: Dr. CHEUNG Kit Ying Andy, Venue: Training Room II, 1/F., OPD Block, Our Lady of Maryknoll Hospital, 118 Shatin Pass Road, Wong Tai Sin, Kowloon, Hong Kong The 3rd Annual Scientific Meeting and 4th Annual General Meeting of the Hong Kong Society for Paediatric Immunology and Infectious Diseases, Bill Marshall and Roland Levinsky Memorial Lectures Speakers: Dr. Nigel CURTIS (Bill Marshall Memorial Lecture) & Prof. David ISAACS (Roland Levinsky Memorial Lecture) and Free Paper Presentation, Venue: Ballroom, The Langham Hong Kong, 8 Peking Road, Tsimshatsui, Hong Kong | Ms. Clara TSANG Tel: 2354 2440 2 CME Points for Participant 4 CME Points for Speaker Ms. YL YEUNG Tel:2990 2872 Fax: 2990 2875 E-mail: hkspiid4agm@hotmail.com |
| 21 SUN 2:00 pm | HKMA Yau Tsim Mong Community Network - Preventing the Preventable (Cardiology) Organiser: HKMA Yau Tsim Mong Community Network, Chairman: Dr. LI Siu Lung Steven, Speakers: Various, Venue: Lecture Theatre, 10/F, TWGHs Yu Chun Keung Memorial Medical Centre, Kwong Wah Hospital, 25 Waterloo Road, Kowloon | Miss Alice TANG Tel: 2527 8285 |
| 23 TUE 1:00 pm | HKMA Tai Po Community Network - Management of Adult Asthma Organiser: HKMA Tai Po Community Network, Speaker: Dr. SHE Hoi Wah, Venue: Chiu Chow Garden Restaurant, 1/F, Uptown Plaza, No. 9 Nam Wan Road, Tai Po | Ms. Carol LAM Tel: 9045 5142 1.5 CME Points for Participant 3 CME Points for Speaker |
| 24 WED 1:00 pm 1:00 pm | HKMA Central, Western & Southern Community Network - CME on "Sinusitis and Rhinitis: Updated Management Tips for Primary Care Physicians" Organiser: HKMA Central, Western & Southern Community Network, Chairman: Dr. LAW Yim Kwai, Speaker: Dr. LO Chun Yip Amos, Venue: The HKMA Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road Central, Hong Kong HKMA Shatin Doctors Network - Management of Insomnia and the Use of Hypnotic Medication Organiser: HKMA Shatin Doctors Network, Speaker: Dr. WONG Yee Him, Venue: 1/F, Jasmine Room, Royal Park Hotel, Shatin, N.T. | Miss Alice TANG Tel: 2527 8285 Dr. MAK Wing Kin Tel: 2649 4466 1.5 CME Points for Participant |
| 25 THU 1:00 pm | HKMA New Territories West Community Network - Management of Insomnia and the use of Hypnotic Medication Organiser: HKMA New Territories West Community Network, Chairman: Dr. LEE Fook Kay Aaron, Speaker: Dr. John SO, Venue: Plentiful Delight Banquet (喜尚嘉喜酒家), Yuen Long | Miss Alice TANG Tel: 2527 8285 |
| 28 SUN 12:00 pm 2:00 pm 6:00 pm | HKMA Football Day 2010 Organiser: The Hong Kong Medical Association, Venue: Sir Philip Hadden Cave Football Field HKMA Yau Tsim Mong Community Network - Preventing the Preventable (General Surgery) Organiser: HKMA Yau Tsim Mong Community Network, Chairman: Dr. LAM Tzit Yuen David, Speakers: Various, Venue: Lecture Theatre, 10/F, TWGHs Yu Chun Keung Memorial Medical Centre, Kwong Wah Hospital, 25 Waterloo Road, Kowloon Approach to Acne and Other Follicular Lesion Organiser: Hong Kong Medical Association, Speaker: Dr. CHAN Hau Ngai Kingsley, Venue: Regal Riverside Hotel, Kowloon, 34-36 Tai Chung Kiu Road, Shatin, NT | Ms. Dora HO Tel: 2527 8285 Miss Alice TANG Tel: 2527 8285 Ms. Dorothy KWOK Tel: 2527 8285 1 CME Point for Participant 2 CME Points for Speaker |

Meetings

| | |
|--------------|--|
| 24-25/4/2010 | Annual Scientific Meeting 2010 Organiser: Hong Kong Pain Society, Enquiry: Ms. Chloe WONG, Tel: 2155 8557 / 2116 4348, Fax: 2559 6910, Email: meeting.hk@asia.cmpmedica.com |
| 13-16/5/2010 | 11th Regional Osteoporosis Conference - ISCD Bone Densitometry Courses and Certification Examinations 2010 & 1st ISCD Vertebral Fracture Assessment Course in Hong Kong Venue: Novotel Century Hotel Hong Kong and Hong Kong Convention & Exhibition Centre, Enquiry: ROC 2010 Conference Secretariat, c/o International Conference Consultants, Ltd., Tel: (852) 2559 9973, Fax: (852) 2547 9528, Email: roc2010@icc.com.hk , Websites: www.oshk.org.hk / www.hkgerisoc.org |
| 20/6/2010 | Annual Scientific Meeting 2010 Organiser: Hong Kong Society of Dermatology and Venerology, Enquiry: Ms. Chloe WONG, Tel: 2155 8557 / 2116 4348, Fax: 2559 6910, Email: meeting.hk@asia.cmpmedica.com |



The Federation Spring Gathering cum Open House



We have the pleasure to announce that The Federation of Medical Societies of Hong Kong (FMSHK) will host a Spring Gathering cum Open House on 12 March 2010, from 6.30pm to 8.30pm, at the Federation Premises at 4/F Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai.

For quite a while we were aware that the Federation premises had seen her age, and badly needed a renovation. Seeing the importance of up-keeping our service to members, we proceeded with a renovation in 2009. The renovated premises are now complete, with a bright new Lecture Hall equipped with modern audio-visual equipment; additional meeting room and storage spaces for members; a hospitality corner where memorabilia are on display; and a lift lobby totally redesigned not only to house our Federation emblem and flags but also to serve as a gallery for artistic pieces of our members.

While welcoming the Year of the Tiger, we cordially invite you to join us at the Spring Gathering and to visit the newly renovated premises. This would be a perfect occasion for our professional fraternity. We would like to take the opportunity to introduce our various services too.

Kindly contact the secretariat on 2527 8898 to advise your attendance.

Wishing you a prosperous Year of the Tiger and looking forward to seeing you at the Spring Gathering.



The Federation of Medical Societies of Hong Kong

4/F Duke of Windsor Social Service Building,
15 Hennessy Road, Wanchai, Hong Kong
Tel: 2527 8898 Fax: 2865 0345

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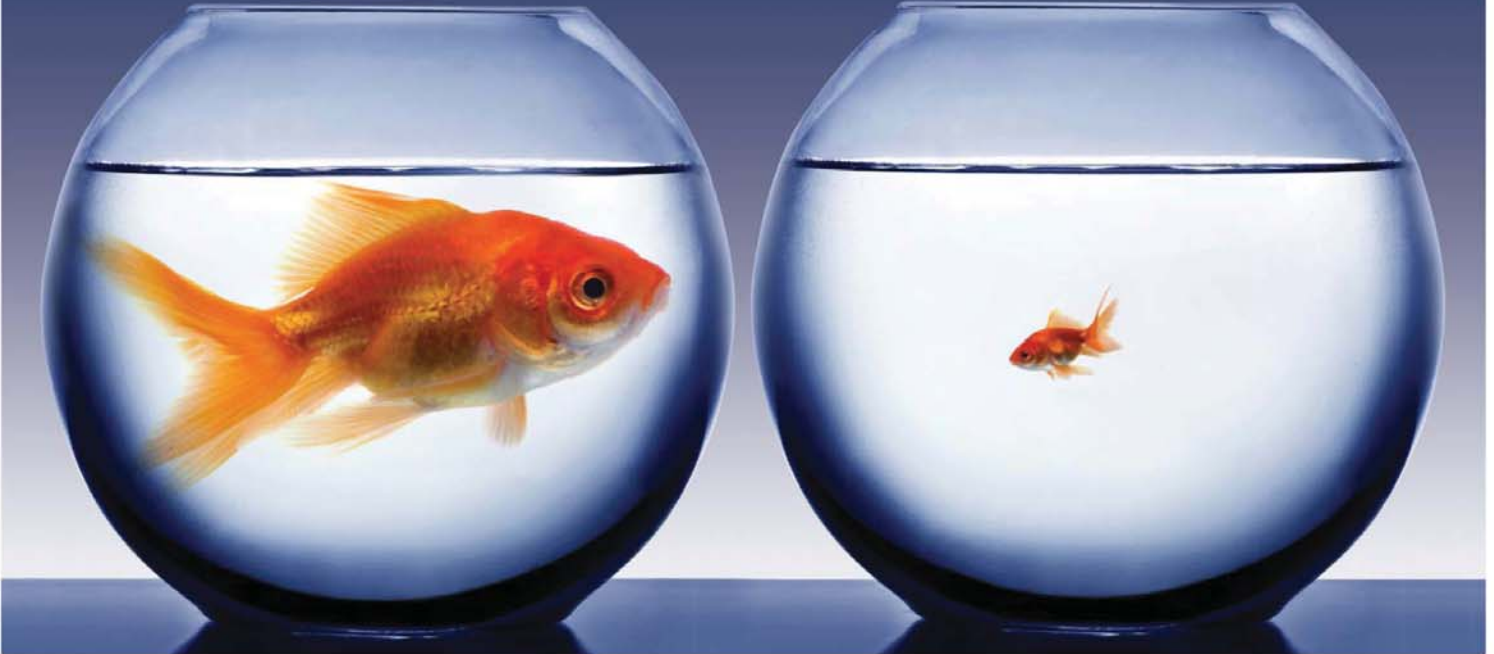
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