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I am delighted to report that the HKU Faculty of Dentistry achieved a Research Index of 87.7% in the 2006 Research Assessment Exercise (RAE)—a dramatic improvement from our 1999 RAE result of 57.2% (see page 6). Our score indicates that the research output of nearly 90% of the faculty's staff is at or beyond an international level of excellence.

I wish to congratulate each and every member of the faculty who contributed to this wonderful score. You have worked extremely hard over the years despite many other commitments and resource obstacles, and should be justifiably proud of this result.

**Fulfilling our missions**
This performance indicator is proof of our position as a leading dental school in Asia and gives our faculty an added cause for celebration this year, as we commemorate our Silver Jubilee. Join us, as we mark 25 years of excellence in not only dental research, but also dental education, patient care, and community engagement.

Please visit <dent25.hku.hk> for details of our Silver Jubilee Celebrations, which culminate in the Second International Conference on Evidence-based Advanced Dentistry this November. Congress registration and abstract submission are now open (see page 5), and I look forward to meeting you at the conference.

**Facing the future**
This issue of Expressions illustrates how our faculty is accomplishing world-class dentistry through expertise in oral and maxillofacial surgery and use of state-of-the-art techniques to correct maxillofacial deformities, which can be debilitating on both physical and psychological levels. Find out how our faculty was and continues to be a true pioneer in this area.

Happy reading!
Bridging Evidence & Dental Practice

16-19 November 2007 • HONG KONG • CHINA

REGISTRATION NOW OPEN
Early-bird rates until 15 Sept 2007
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Invited Speakers include: Professor Korkud Demirel (Turkey), Professor Dr Thomas Flemmig (USA), Professor Zhimon Jacobson (USA), Professor Denis Kinane (USA), Mr Christian Melsen (USA), Professor Hideaki Suda (Japan), Dr Dirk Wiechmann (Germany), Professor Bjorn Zachrisson (Norway), Professor Zhi-yuan Zhang (China), Professor Yimin Zhao (China) and 28 local speakers


Participants will be entitled to local CME accreditation by the HKAM, HKMA, HKDU, and DH
From bench to chairside

The dent25 Congress Organising Committee has planned an exciting programme for the Second International Conference on Evidence-based Advanced Dentistry in November 2007. Prof Urban Hägg, Organising Committee Chairman, describes how conference participants will learn to put evidence into practice.

Bridging evidence and dental practice

We cordially invite you to attend the Second International Conference on Evidence-based Advanced Dentistry, from 16 to 19 November 2007. The congress, jointly organised by the HKU Faculty of Dentistry and the College of Dental Surgeons of Hong Kong, will bring together a diverse group of speakers, clinicians, researchers, educators, students, health professionals, sponsors, and partners to bridge the gap between research and dental practice.

Eminent speakers and experts from overseas and from Hong Kong will present ground-breaking information on available and emerging technologies in a wide range of disciplines, so that conference participants will be able to keep up with the rapidly changing dental health care scene at local and global levels. In particular, delegates will be able to:

♦ Critically appraise data from relevant scientific sources
♦ Understand and separate out the best evidence from current basic and clinical research findings and translate it into clinical management
♦ Apply and integrate cost-effective oral care products, techniques, regimens, and prevention methods into daily practice

Please visit the congress website at <dent25.hku.hk/congress> for the full programme, lecture synopses, and speaker profiles.

Wide range of workshops

The main conference takes place from 17 to 18 November 2007, and is CME-accredited locally. In addition, the following state-of-the-art continuing education courses will be offered before and after the main conference (details can be found at <dent25.hku.hk/congress>):

♦ Prof Zhimon Jacobson, USA
  The use of computed tomography scans for implant treatment planning (16 Nov 2007)
♦ Dr Patrick Wu, Prof Tak-wah Chow, Hong Kong
  Implantology made simple (16 Nov 2007)
♦ Dr Gary Cheung, Hong Kong
  Problem solving in endodontic therapy (16 Nov 2007)
♦ Dr Peter Wat, Dr Edmond Pow, Dr Henry Luk, Hong Kong
  One-day dental laboratory workshop on implants (18 Nov 2007)
♦ Prof Bjorn Zachrisson, Norway
  High-quality dentistry—seamless cooperation between orthodontists and dentists (19 Nov 2007)
♦ Prof Dr Thomas Flemmig, USA
  Resective and regenerative techniques in periodontal therapy (19 Nov 2007)
♦ Dr Dirk Wiechmann, Germany
  Two-day certification course in lingual orthodontics (20-21 Nov 2007)

Marking milestones

The conjoint congress will be a truly special occasion, as it will coincide with the Silver Jubilee of the HKU Faculty of Dentistry and the 14th Anniversary of the College of Dental Surgeons of Hong Kong. We hope you will celebrate these milestones with us, and we extend a warm welcome to faculty alumni to return to their alma mater with a great sense of pride and renewed interest in Hong Kong’s only dental school.

A Gala Concert, Gala Dinner, and Jubilee Golf Tournament are included in the line-up of events, as well as an exciting social programme for delegates and guests.

Register today!

Register online today at <dent25.hku.hk/congress> and enjoy early-bird conference and workshop rates. We look forward to seeing you in November!
Research assessment excellence

Almost 90% of academic staff at the faculty produce world-class research, results of the 2006 Research Assessment Exercise (RAE) show.

According to the results of the latest RAE, announced in early March 2007, the Research Index for the faculty was 87.7%, meaning that 87.7% of full-time equivalents (FTE) of academic staff have reached or surpassed a “level of research excellence appropriate to the discipline in Hong Kong and showing evidence of international excellence”. The Hong Kong-wide Research Index was 76.3%.

“We now occupy one of the top three places in the HKU Faculty Research League Table, out of 10 faculties,” says Dean Samaranayake. “Our faculty has worked very hard and should be extremely proud of this achievement.”

Of note, the RAE score is higher than the HKU average of 85.5% and represents a dramatic increase of 53% compared with the faculty’s score in the previous RAE, in 1999 (Figure 1).

“Our leap in performance is no mean achievement, as we’re not supported by Hospital Authority clinical staff,” says the Dean. “Our success is driven by the intense efforts of all staff and by strategic initiatives such as the centralisation of research funds and creation of our Centralised Research Laboratories.”

Conducted every 6 years, the RAE gauges the research quality of all eight higher education institutions supported by the University Grants Committee. For this round, the committee raised the stringency and relied on 208 local and overseas reviewers.

In addition, HKU data for research productivity in 2006 show that the refereed research output per FTE was higher than HKU’s average, both for professoriate staff and for professoriate and all research staff combined (Figure 2). The faculty came top in the league table for the latter score.

Weekend TV distraction

The HKU Faculty of Dentistry was featured in the television programme Sunday File on local station TVB Jade on 13 May 2007, in a special episode on the lives of patients born with cleft lip and palate. During the programme, Prof Lim K Cheung, Chair Professor in Oral and Maxillofacial Surgery, shared with viewers the faculty’s surgical experience and research findings on distraction osteogenesis for the management of cleft lip and palate.

Although his on-screen appearance lasted only a few minutes, filming took 2 days in April, says Prof Cheung, who was nominated by the Hong Kong Association of Cleft Lip and Palate to be their representative, as a respected surgeon with cutting-edge knowledge of and skills in correcting cleft-induced skeletal deformities.

The first day of filming featured a patient visit to the HKU Cleft Lip and Palate Clinic at the Prince Philip Dental Hospital and the second day included a live operation on a patient with cleft lip and palate undergoing maxillary distraction osteogenesis. One of Prof Cheung’s research collaborators, Dr Samuel Ho, also presented findings of psychology research on patients with cleft lip and palate, and interviewed the patient to highlight her psychological adjustment to life because of her condition.

Following the broadcast of the programme, the Discipline of Oral and Maxillofacial Surgery received many enquiries from patients interested in undergoing distraction osteogenesis for correction of their facial deformities.

What is distraction osteogenesis?

Distraction osteogenesis is a surgical procedure used by reconstructive surgeons to correct skeletal deformities. Bone fractures are surgically created and then mechanically displaced in a gradual, controlled way to induce growth of soft tissue and bone.
Hong Kong – China bonds

On 1 July 2007, Hong Kong will mark the 10th anniversary of the handover of sovereignty from the United Kingdom to China. Prof Li-jian Jin, the faculty’s Associate Dean for Mainland and Global Affairs, told Expressions about several initiatives aiming to strengthen ties between Hong Kong and the mainland.

This year has been an opportune time for the HKU Faculty of Dentistry to enhance cooperation between dentists in Hong Kong and on the mainland. These include a new conjoint postgraduate programme in periodontology, a continuing education course, and involvement in the Second International Conference on Evidence-based Advanced Dentistry.

Conjoint Master’s course
HKU and Peking University are offering a Conjoint International Postgraduate Programme in Periodontology this winter in Beijing. The 2-year (full-time) course will lead to a Master of Dental Surgery degree in Periodontology (MDS Perio) from HKU.

The teachers consist of well-qualified dental faculty from the two universities, as well as eminent international professors in periodontology: Gary C Armitage, T Howard Howell, Thomas Van Dyke, Ray C Williams (USA); P Mark Bartold (Australia); Noel Claffey (Ireland); and Niklaus P Lang (Switzerland).

Officially approved earlier this year by the Ministry of Education of the Government of the People’s Republic of China, the new course will be the first ever conjoint international postgraduate programme in clinical dentistry or medicine to be conducted in mainland China. Enrolment is now open to applicants from mainland China and overseas. Details of the course can be found at <www.facdenthk.org/news00.htm>.

International conference
Deans from six major dental schools in China have been invited to attend the Second International Conference on Evidence-based Advanced Dentistry in November 2007, during which Memoranda of Understanding will be signed between the schools and the faculty. Financial assistance for attendance has so far been kindly provided by faculty and alumni orthodontists, and it is hoped that other faculty members and alumni continue this spirit of cooperation.

CE in periodontology
Another first was a continuing education course in clinical periodontology that was held in January 2007 by the faculty, specifically for dentists from mainland China.

The 4-day intensive course was attended by eight experienced general dentists from six cities (Shanghai, Shenzhen, Nanjing, Hangzhou, Fuzhou, and Wenzhou). The programme, which consisted of 16 lectures, five case discussion/learning sessions, and three hands-on sessions in the Simulation Laboratory, aimed to help meet growing demands for training in periodontology among general dentists in mainland China and to promote the importance of periodontal care as the foundation of clinical dental care.

Xian success story
Dr Juan Dai (left), from Xian, China, has just gained her PhD.

On top of this, her research work on the use of gene therapy to induce jaw bone growth yielded six publications, most recently a paper in Gene Therapy, a major international journal.

“How 4 years have flown by!” says Dr Dai. “I am very grateful to the faculty for giving me the opportunity to study here. I especially thank Prof Rabie and Prof Hägg for their support and guidance throughout my PhD.”

Dr Dai came to HKU in 2003 after hearing a lecture given by Profs Rabie and Hägg at her hometown university, the Fourth Military Medical University, Xian.

“They delivered an excellent lecture in September 2001, which deeply impressed me,” she explains. “HKU has a world-class reputation as a research-led university whose research is of proven high quality and utility, and HKU is also very successful at securing research funding. So, with the support of Profs Rabie and Hägg, I applied to HKU to do a PhD in orthodontics.”

But the application was not all smooth sailing. “As I served in a military hospital, I needed permission from the highest military department to get my visa, which took a whole year,” Dr Dai recalls.

The perseverance certainly paid off, and Expressions congratulates Dr Dai and wishes her all the best for her future career.
Some highlights from the HKU Faculty of Dentistry’s 20th Annual Scientific Meeting, held at the Prince Philip Dental Hospital on 15 December 2006.

Bitter end for bugs
Naringin, which gives grapefruit its characteristic bitter taste, has antimicrobial properties, according to results of an in vitro study. Low concentrations of naringin inhibited growth of all the microorganisms tested, which included bacteria and yeasts commonly found in the mouth and two types of bacteria implicated in periodontitis.

[A3]

A kid’s life
The impact of wearing a fixed orthodontic appliance on life quality is not as bad as children first envisage. An analysis of survey responses of about 200 children before and during fixed appliance therapy found that compromises to functional limitation, emotional and social well-being, and oral health-related quality of life were all actually far less than anticipated.

[B16]

Pregnancy and periodontics
Compared with 34 women who gave birth at term during a 1-year period, 34 women who gave birth prematurely had greater and more frequent periodontal attachment loss, according to a retrospective case-control study. However, other markers of periodontal status were similar for the two groups of mothers—namely, bleeding during periodontal probing, probing pocket depth, and plaque index.

[A7]

Brush with the law
Preventive dental care programmes in Hong Kong prisons could work, a study suggests. One month after 62 male inmates of a Hong Kong prison had received education on oral hygiene, significant reductions were seen in visual plaque and gingival bleeding scores. In addition, the coaching in oral care, which comprised tooth brushing instruction, brochures, posters, and video presentations, was “well accepted”.

[B11]

Candida can change
In a 1-year study of about 100 Chinese patients undergoing fixed orthodontic appliance therapy, roughly one-tenth of patients became long-term oral carriers of Candida, predominantly C. albicans. DNA fingerprinting during orthodontic treatment revealed that C. albicans gradually evolved by “genotypic shuffling”.

[A9]

Clearer wisdoms
The positions of horizontally impacted third molars and the inferior dental nerve can be seen clearly once computed tomograms are reformatted in 3-D. Using this method, researchers located the precise position of the nerve on composite, representative images. For the majority of the 80 teeth viewed, the inferior dental nerve was very close to and immediately inferior to the root; nerves were evenly distributed on buccal and lingual sides.

[A18]

Smokers’ gums
A follow-up assessment of non-surgical treatment for moderate-to-severe periodontitis showed that smokers of 10 or more cigarettes a day generally had a “less favourable” healing response than non-smokers. For example, at 6 months after treatment, the 17 participating smokers had lower rates of reduction in periodontal pocket depth than the 13 non-smokers. At 6 and 12 months, smokers had more periodontal pockets of 5 mm or deeper.

[A5]
Meet our new sisters

The HKU Faculty of Dentistry has signed sister-school agreements with two Japanese dental schools to promote mutual friendship and academic exchange.

The faculty recently hosted official visits by delegates from the dental schools of Showa University, Tokyo, and Tsurumi University, Yokohama. The highlight of each visit was the signing of formal collaborative agreements that aim to strengthen the faculty’s relationships with these schools and to cement international commitments to increasing research, knowledge, student, and cultural exchange.

“We are very happy to team up with the Showa University School of Dentistry and Tsurumi University School of Dental Medicine,” says Dean Samaranyake. “These partnerships are key in HKU’s current globalisation programme. And in this Silver Jubilee year, the faculty is making a special effort to build international relationships.”

New affiliates: Prof Samaranyake signed sister-school agreements with:

[Top] Prof Takashi Miyazaki, Dean of the Showa University School of Dentistry (seated right), on 15 February 2007; witnesses included Prof Li-jian Jin, Associate Dean for Mainland and Global Affairs (standing, far left), and Dr John Dyson, Associate Dean for Undergraduate Education (standing, far right)

[Bottom] Prof Keiji Yanagisawa, President of Tsurumi University (seated left), on 23 May 2007; witnesses included Prof Li-jian Jin (standing, third from left) and Prof Tak-wah Chox, Associate Dean for External Relations (standing, second from right)

Apples, onions, rabbits: new bone recipe

A substance occurring naturally in apples and onions can promote bone formation in rabbits, faculty orthodontists Dr Ricky WK Wong and Prof Bakr Rabie have found. Their research findings were presented at the 85th General Session of the International Association for Dental Research, held from 21 to 24 March 2007, in New Orleans, Louisiana, USA.

Speaking at a Late-Breaking News Session at the conference, Dr Wong described how quercetin, a flavonol and phyto-oestrogen present in apples and onions, was combined with collagen matrix and grafted into defects made in the parietal bone of rabbits. Two weeks later, no new bone growth was seen in untreated animals, whereas the quercetin-collagen mixture resulted in more than five times the amount of new bone growth achieved by collagen matrix alone. Quercetin in collagen matrix could thus be used for bone grafting or for bone induction, Dr Wong said.

This is the second time that Dr Wong and Prof Rabie have presented research findings at late-breaking news sessions at the annual international conference. Last year in Brisbane, they explained that puerarin, extracted from a plant used in traditional Chinese medicine, possesses bone-healing properties.

Bonemeal? A compound present in apples has in vivo bone-inducing properties

Grapefruit-bone connection

A public exhibition of research work conducted by Dr Wong and Prof Rabie on grapefruit and bone formation has just moved online.

The exhibition, which took place at the Hong Kong Science Museum from September 2006 to March 2007, consisted of eight large reader-friendly posters on the bone-inducing capability of naringin—the bitter chemical found in grapefruit. The two researchers also gave a public lecture on their discovery in December 2006.

If you missed the exhibition and public lecture, you can view the museum posters in the Science News Corner page of the Hong Kong Science Museum website at <http://hk.science.museum>.

Once in the Science News Corner webpage, scroll down to “Previous Topic” to locate the “Grapefruit Forms Bone?” exhibition posters.
Opening up a world of possibilities

The University of Hong Kong is one of the top 40 research-led universities in the world and currently educates more than 20,000 undergraduates and postgraduates from 48 countries.

As part of the University’s ambitious expansion and globalisation plan, the HKU Faculty of Dentistry is extending its undergraduate dental curriculum from 5 to 6 years and expanding its research and postgraduate teaching programmes. So we’re now looking for clinical/non-clinical Professors and Associate Professors. If you have the talent to join our top-class international dental faculty, we’d like to hear from you!

Please e-mail the Faculty Dean, Prof Lakshman Samaranayake: lakshman@hku.hk or log onto www.facdenthk.org for more details.

Don’t get left behind!

Catch up, and keep up at the Oral Health & Science Seminars

Every Wednesday, 6:00 pm-7:30 pm, PPDH

Check out the programme & apply for a season ticket @ www.facdenthk.org/cme

Expressions 2007, Issue 2

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Faculty of Dentistry, The University of Hong Kong
Website: www.facdenthk.org
Impact of surgical evidence

Journals' citation scores reflect their contents' level of evidence, Dr Sze-lok Lau and Prof Nabil Samman have concluded after analysing 932 papers published from 2002 to 2003 in four major journals in oral and maxillofacial surgery.

Although very few papers were randomised controlled trials and most were observational studies, there was a significant correlation between journal impact factor and level of research evidence published.

The analysts suggest that papers with higher levels of evidence are preferred by both journal editors and researchers citing articles in their work.

Periodontitis linked to early death

Periodontitis is associated with an increased risk of early mortality, according to a longitudinal study conducted in Sweden by researchers from the Karolinska Institutet and Prof Li-jian Jin of the HKU Faculty of Dentistry.

The researchers tracked a cohort of 1676 randomly chosen adults aged 30 to 40 years who were registered residents of Stockholm County, Sweden. At the start of the study, 17% of participants had periodontitis and, on average, each person had 1.24 missing teeth. After 16 years, 40 (2.39%) of the participants had died, most commonly because of cancer and disorders of the circulatory and digestive system.

Individuals who had died had poorer initial oral health than survivors, including more missing teeth (2.33 vs 1.23 per person), more missing molars (1.33 vs 0.51 per person), and a higher prevalence of periodontitis (58% vs 32%).

Multiple logistic regression analysis that accounted for age, sex, education, income, smoking, dental visits, plaque, gum inflammation, and missing teeth revealed that individuals with periodontitis who had any missing molars had elevated odds of premature death (odds ratio, 3.62).

Pointing to a connection between the long-term presence of abundant tooth and gum bacteria, chronic inflammation, and life-threatening systemic diseases, the authors conclude "periodontitis in young adults with any missing molars is a risk marker for premature death"; hence, "prophylactic measures...are well warranted".


Elderly stroke patients are prone to harbouring oral yeast and coliform bacteria, Dr Hai-wei Zhu and colleagues have shown in a study of 56 patients (41 men and 15 women), half of whom wore removable dentures.

Candida, mainly C. albicans, was present in more than half of the patients' mouths, and about one-fifth contained coliforms, mainly Klebsiella pneumoniae. Prevalence rates fell by 6 months after hospital discharge, but denture wearing and difficulty in tooth brushing were associated with increased yeast carriage. Interestingly, aspirin use was associated with reduced yeast carriage.


Oral hygiene after stroke

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Correcting facial deformities

By Lim K Cheung

In today’s world, and especially in a crowded city like Hong Kong, people with facial deformities face societal prejudice and discrimination. They thus have a strong motivation to have their appearance and biting function corrected. The HKU Faculty of Dentistry has a well-established multidisciplinary team of experts who have acquired much experience in correcting these deformities.

Maxillofacial deformities generally occur as a result of differential growth of different parts of the facial skeleton. Congenital causes include cleft lip and palate (the most common), Apert’s syndrome, and Crouzon’s syndrome. Acquired causes include gunshot injuries and tumours, which after resection can result in severe facial distortion.

More than skin deep
Patients with a developmental condition mostly become aware of jaw discrepancy during their late childhood or teenage years, typically malocclusion (an irregular bite) and facial disharmony. In addition, deformities may result in diminished bite forces, abnormal chewing patterns, speech deficits, and breathing problems. With these usually come a poor quality of life, diminished psychosocial well-being, and poor self-esteem.

Fortunately, many advances have been made in surgical treatment in the past decade to improve the quality of life of these patients and to help them so that their faces are no longer the focus of other people’s attention.

Corrective surgery

♦ Orthognathic surgery—The history of orthognathic (jaw repositioning) surgery dates back to the early 20th century. Wassmund was credited as the first surgeon to perform Le Fort I osteotomy of the maxilla (upper jaw) for the correction of malocclusion. In the mid-1960s, Obwegeser introduced sagittal split osteotomy of the mandible (lower jaw) to surgically shift the occlusion. These techniques are now standard approaches in the treatment of maxillofacial deformities.1,2

The faculty’s Discipline of Oral and Maxillofacial Surgery has had an orthognathic surgery service since 1985. The current annual throughput is about 120 patients, totalling more than 250 osteotomies a year. Orthognathic surgery also forms a key component of clinical surgical teaching of our postgraduate students.

♦ Distraction osteogenesis—Distraction osteogenesis was developed by orthopaedic surgeons for leg lengthening in 1905. Since 1992, it has also been used to treat craniomaxillofacial deformities. This technique gradually stretches divided bone segments with a mechanical device (a distractor), thereby inducing spontaneous bone regeneration. It is regarded as a form of clinical tissue engineering, as it does not need a bone graft to fill the defect.

Oral and maxillofacial surgeons are attracted to distraction osteogenesis because it can correct severe maxillofacial deformities that are beyond the scope of conventional orthognathic surgery. The method was first introduced to Hong Kong by the Discipline of Oral and Maxillofacial Surgery in 1996. Now, it is commonly used in Hong Kong to treat severe maxillofacial deformities, including maxillary underdevelopment in patients with cleft palate, and retrusion of the mandible in patients with sleep apnoea syndrome.

♦ Integrated therapy—A case of severe midface depression in a patient with cleft lip and palate was recently corrected by Le Fort II osteotomy with internal maxillary distractors. This method, performed at our faculty, achieved significant improvement of facial aesthetics and occlusion (Figures 1-3). The case was the first of its kind to be reported in the scientific literature.3
Multidisciplinary collaboration

Correction of maxillofacial deformities requires coordinated treatment by different specialists. Such a multidisciplinary approach has been used at our faculty since 1988. Biweekly orthognathic joint meetings are held by oral and maxillofacial surgeons and orthodontists. For patients with maxillofacial deformities that require dental implants for rehabilitation of the occlusion—for example, patients with maxillofacial defects from tumours or atrophy—joint meetings with prosthodontists are held biweekly as well. Other specialists, such as psychologists or speech pathologists, are consulted if needed.

These joint consultations also provide a key learning experience for clinical postgraduates in oral and maxillofacial surgery, orthodontics, and prosthodontics, because the students are responsible for preparing the case presentations in PowerPoint and listing the diagnoses and treatment plans.

Centre of Excellence

The HKU Faculty of Dentistry at the Prince Philip Dental Hospital is widely recognised in Hong Kong as the top clinical centre for the management of maxillofacial deformities, particularly orthognathic surgery, distraction osteogenesis, and comprehensive care of patients with cleft lip and palate. Our multidisciplinary team handles most cases of maxillofacial deformity in Hong Kong.

We are also recognised for our cranio-maxillofacial expertise regionally and internationally. Many of our faculty professors are invited to international conferences as keynote speakers and have conducted courses in different Asian countries. Our clinical experience is well based on research, and we are conducting many clinical trials in an effort to restore the faces of patients with maxillofacial deformities.

Close Up

3D imaging in surgical planning

By John Lo

In maxillofacial soft tissue reconstruction, careful preoperative planning is always essential for good aesthetic results. Recent advances in 3D imaging techniques have allowed preoperative estimations to be made more accurately than ever before. The case below illustrates the usefulness of 3D imaging in surgical planning.

A patient was referred to our faculty for correction of facial asymmetry due to hemifacial microsomia (underdevelopment of one lower side). Clinical examination revealed mandibular asymmetry, occlusal canting, and soft tissue deficiency. The planned surgical correction included:

1. Bimaxillary osteotomies to correct the skeletal deformity,
2. Soft tissue expansion to create room for future soft tissue reconstruction, and
3. Soft tissue reconstruction using a free scapular flap.

Before surgical treatment, a 3D image was acquired by a special form of 3D photography called stereophotogrammetry (3dMDface; 3Q, Atlanta, Georgia, USA). A mirror image from the normal half of the face was then created. Superimposition of the mirror and preoperative images allowed the site and volume of soft tissue expansion to be determined. In addition, the dimensions of the flap harvest could be estimated.

On the basis of the 3D analysis, 36 cm³ of tissue expansion was achieved before reconstruction with the soft tissue flap. Because this flap was expected to shrink by about 20% in the long term, it was designed to be slightly oversized to accommodate future tissue remodelling.

Postoperatively, the patient’s profile showed significant improvement. The patient is now under our regular review. During follow-up, serial 3D imaging provides a non-invasive way of objectively assessing the soft tissue changes. By superimposition of serial 3D images, the continuous soft tissue remodelling of the flap can be evaluated. Not only is this tool important for research as a means of quantitative analysis, but it can also allow better communication with patients, as they can better anticipate the facial changes following surgery.

References


Equation for success:

\[ \text{Volume of soft tissue expansion} + \text{flap dimensions} = \text{superimposed serial assessment showing continuous shrinkage of flap.} \]
On target with gene therapy

Members of the faculty’s Biomedical and Tissue Engineering Research Group have successfully used gene therapy to induce jaw bone growth in rats.

Childhood craniofacial disorders due to impaired jaw bone growth currently require surgical treatment, but this may lead to complications. In addition, surgical intervention takes place around puberty, so an affected child will have to endure the physical anomaly until then, which could lead to psychological problems. As an alternative, gene therapy could be performed once a problem is diagnosed, and this approach is now being explored by researchers at the HKU Faculty of Dentistry, in collaboration with Huaqiao University, Quanzhou, China.

Putting gene therapy on the map

Two critical areas of bone growth in the jaw are the ‘mandibular condyles’—the ‘knuckles’ of bone of the lower jaw that meet the skull at the two jaw joints. The aim of gene therapy is to inject a specific gene involved in bone formation into the condyles, so that expression of the gene in cells helps encourage jaw bone growth.

“Until now, the use of gene therapy to stimulate mandibular condylar growth was uncharted territory. But our group has recently developed a gene delivery system that can significantly increase in vivo bone growth in rat mandibular condyles,” says Prof Bakr Rabie, Convenor of the faculty’s Biomedical and Tissue Engineering Research Group and lead author of a landmark paper published online in April 2007, ahead of print publication in Gene Therapy, a research journal of the Nature Publishing Group.

[Leading author]

Prof Bakr Rabie is a Professor in Orthodontics, the Postgraduate Programme Director in Orthodontics, and Founder and Convenor of the Biomedical and Tissue Engineering Research Group at the HKU Faculty of Dentistry.

He obtained his Certificate of Proficiency in Orthodontics, Master of Science, and PhD from Northwestern University, Illinois, USA. He is an editorial board member of the Journal of Dental Research and several other international journals, and he has published more than 260 articles, abstracts, and book chapters.

Prof Rabie’s research interests include factors regulating jaw growth, bone induction, and functional appliance therapy. So far, Prof Rabie has supervised the research projects of 60 postgraduate students at PhD, Masters, and Advanced Diploma levels.

See also page 7, Faculty Focus, for an interview with study coauthor Dr Juan Dai. An overview of the activities of the faculty’s Biomedical and Tissue Engineering Research Group can be found at: <www.facdent.hk.org/research01.htm>.

A boost for bones

“In our study just published, we used recombinant adeno-associated virus as a non-pathogenic vector to deliver the gene encoding vascular endothelial growth factor (VEGF) into the mandibular condyles of rats,” explains Prof Rabie. VEGF is a protein that triggers blood vessel formation and is naturally produced by bone precursor cells in the mandibular condyle. “Our protocol enhanced bone growth by about 10%, showing that our in vivo gene delivery system was effective, while also demonstrating that extra VEGF helps bone generation.”

Firstly, the researchers injected the genetic material into the mandibular condyles of 35-day-old rats. Protein and mRNA analyses showed that VEGF was expressed successfully in the condylar cartilage throughout the 60-day study period. From day 30, biochemical markers of bone production, as well as the length and size of the condylar head, increased significantly in test animals when compared with control animals.

Future aims

“Our strategy of gene therapy to enhance jaw bone growth is very promising,” says Prof Rabie. “It could one day mean new treatments for children born with craniofacial disorders.”

Notably, the extra VEGF gene was not expressed in the liver, kidney, heart, or spleen of test animals. “Our gene delivery system was condyle-specific,” says Prof Rabie. “The targeting of our gene therapy technique to only the mandibular condyle is important, as it would lower the likelihood of unwanted effects elsewhere in the body.”
Paper making

Several members of the HKU Faculty of Dentistry have journal achievements to report, in their capacity as either manuscript authors or journal editors:

**Prime paper:** Winning authors Prof Tak-wah Chow, Dr Frederick Chu, and Dr John Chai

[Chai J, Chu FCS, Chow TW, Shum NC, Hui WWH. Influence of dental status on nutritional status of geriatric patients in a convalescent and rehabilitation hospital. Int J Prosthodont 2006;19:244-9.]

- **Prof Tak-wah Chow**, Professor in Family Dentistry, **Dr Frederick Chu**, Associate Professor in Family Dentistry, and **Dr John Chai**, Honorary Lecturer at the faculty and Professor Emeritus of Northwestern University, Illinois, USA, were among the authors of the Best Article of 2006 published in the *International Journal of Prosthodontics*, which was shared equally by three research papers. Their winning paper, on the relationships between nutritional and dental states among 120 geriatric patients, appeared in the May/June issue of the journal last year. The research was conducted in collaboration with the Tung Wah Eastern Hospital.

- **Prof Anne McMillan**, Chair Professor of Oral Rehabilitation, was appointed Associate Editor of the *Journal of Oral Rehabilitation*, starting from 1 January 2007. Edited by Peter Svensson of the University of Aarhus, Denmark, the journal publishes original research and comments in dental science topics associated with the treatment of orofacial functional disturbances due to local and systemic diseases and developmental defects.

- **Dr Ricky Wong**, Assistant Professor in Orthodontics, has been invited to join the editorial board of *The Open Biomedical Engineering Journal*—a new online, open-access peer-reviewed journal that publishes original research articles related to biomedical studies using tools of the physical sciences. According to the publisher, at <www.bentham.org/open/index.htm>, accepted articles are immediately, freely, and permanently accessible online and are deposited in major digital repositories such as PubMed Central.

**PhD researcher wins HKU Studentship Award**

**Dr Kun Chen**, a first-year PhD student at the faculty, received a University Studentship Award from HKU last September. *Expressions* asked him about his research:

**What is your project on?**

My supervisor is Prof Rabie and my project is on molecular diagnosis in dentistry using a bioinformatics approach. This type of analysis investigates disease risk at an individual level and will eventually lead to individualised treatments. By linking genetic markers with disease risk, I hope my PhD work will play a part in making the faculty a leader in the field of ‘personalised dentistry’.

**What sparked your interest in this field?**

After my bachelor degree in dentistry, I studied for an MOrth in the West China College of Stomatology, Sichuan University, where I conducted research into mechanisms of root resorption during orthodontic therapy. But I also became interested in genetic research, and helped write a research paper on genetic fingerprinting in the Chinese population. The work I did in that project was a part of the Human Genome Project and is quite closely related to what I am doing now.

**Why did you choose HKU?**

HKU has one of the leading dental faculties in the Asia-Pacific region, and the faculty has outstanding facilities and a team of internationally recognised academics. I figured this winning combination would provide a stimulating learning environment that would fulfil my educational and personal goals, and this is starting to prove true.

My supervisor, Prof Rabie, and his research group have gained a worldwide reputation for their work on functional appliances and the mechanism of jaw growth and bone induction. I am privileged to be able to study in such a prestigious environment.

*Personalia*

**Congratulations to:**

- **Drs Esmonde Corbet** and **Li-jian Jin**, Associate Professors in Periodontology, who were awarded Professorships in May 2007.
- **Dr Ricky Wong**, Assistant Professor in Orthodontics, who will take up the post of Associate Professor in July 2007.
- **Dr W Keung Leung**, Associate Professor in Periodontology, who was appointed Director of Polyclinics in April 2007. Dr Leung was also named Convener of the Infection and Immunity Research Group in May 2007, taking over the helm from Prof Li-jian Jin.

**And a warm welcome to:**

- **Ms Regina Fung**, who joined the Faculty Office in January 2007. As Executive Officer, she is responsible for general administration, as well as administration of various projects, such as postgraduate programmes, and committee and financial affairs. Before joining the faculty, Ms Fung was Executive Officer at the HKU Department of Architecture.
- **Ms Edith Ng**, who joined the Faculty Office in April 2007 as its first ever Communications Manager. In this new role, she will take care of the faculty’s corporate communications and public relations. Previously, Ms Ng was the Assistant Manager of Marketing and Corporate Communications at the Sino Group.

**PhD promise:** Dr Kun Chen
Art of dentistry

Congratulations to Siew-fen Wong (BDS II) who has won the faculty’s student T-shirt design competition. Her design will soon adorn polo shirts that will be worn throughout the rest of the year to celebrate the faculty’s Silver Jubilee in style.

Siew-fen (pictured right) used a dental chart in her design and created the number ‘25’ by filling in the chart with symbols that a dentist would typically use, “I chose the dental chart because of its uniqueness and ability to convey multiple messages to dental professionals,” she says. “It not only symbolises what we do but also represents our dedication to patient care.”

The prize is a HK$2000 travel award and a certificate that will be presented at the Silver Jubilee celebrations during the Second International Conference on Evidence-based Advanced Dentistry this November. Look out for the polo shirts and wear them with pride!

Finding new buddies

Dr James MacLaine (left) is a first-year MOrth student who hails from Northern Ireland and has studied or worked in Scotland, England, and Australia. Expressions asked him about life in Hong Kong.

Is it fair to say you’re well travelled?
I grew up in Northern Ireland, graduated from Dundee, Scotland, and worked at various Scottish locations before taking up a post at the Sydney Dental Hospital, Australia; then I moved to Cheltenham, England, to be a Senior House Officer, and in October 2006 I started the MOrth in Hong Kong.

I suppose I’ve been a bit nomadic since leaving school. But I think it’s necessary to move around to develop your dental career, especially if you are interested in any of the specialties.

What brought you to Hong Kong?
The HKU Faculty of Dentistry has a very good reputation, and I followed the guidance offered to me by the Consultant in Orthodontics at Cheltenham General Hospital, Mr James Dickson, who recommended the set-up here in Hong Kong. I visited in March 2006 and was impressed with what I saw and with the people I met. The rest, as they say, is history.

Have you settled into Hong Kong life yet?
Hong Kong is different from anywhere I’ve lived before and I’m enjoying life as it comes one day at a time. Hong Kong is very international and is a huge cosmopolitan city; yet, it’s perfectly safe to walk about at virtually all hours.

I must say, it was great to be able to play tennis in the middle of winter. I’m looking forward to surfing in Big Wave Bay.

How has student life been so far?
It couldn’t be any better. We are the first year to experience the Buddy System, where a third-year MOrth student is paired up with a newcomer. This has worked very well and has fast-tracked us into clinical work and given us the opportunity to take care of our own patients.

The Buddy System has also provided a valuable internal support network and has helped strengthen the team spirit. There always seems to be an upcoming social event to go to. However, I’ve still to be invited to a local karaoke bar!

What is it like being an international student?
I’m doing a course I love, and the faculty here at the Prince Philip Dental Hospital makes it just about the friendliest institution I’ve ever worked in. And of course Hong Kong is one of the world’s most exciting cities. I really wouldn’t want to be anywhere else at this stage in my life.

My experience has been a very positive one, and I would encourage anyone thinking of coming to study at the faculty to pay a visit, get in touch with the faculty, or even have a chat with a current student who is on the course you are interested in. I certainly found these steps helpful in making my decision to study here.

Any plans for the future?
I’m just enjoying my time here at the moment and concentrating on getting my MOrth qualification. Eventually, I plan to have my own orthodontic practice, but would also like to be involved in teaching in some way.

To find out more about the faculty’s postgraduate programmes, visit <www.facdent.thk.org>, or e-mail Prof Urban Hägg, Associate Dean for Postgraduate and Continuing Education, at <euohagg@hkusua.hku.hk>.
Being in the HKU dental alumni family

New President of the HKU Dental Alumni Association (HKUDAA), Dr Siu-fai Leung (BDS 1986), shares his thoughts on what being a member of the HKUDAA means to him.

The HKUDAA has several important functions, including representation of alumni at official functions and committee meetings, and coordination of alumni involvement in faculty events such as this year’s dent25 Celebrations. Membership of the HKUDAA enables faculty graduates to network and stay in touch with each other, stay in contact with the faculty and HKU, participate in community programmes, meet up regularly for professional development, and enjoy special discounts.

Dental engagements
In the past year, we have continued holding our Evening Lecture Series, which has been well attended by alumni members from a wide variety of disciplines. Speakers have included:

● Dr Dominic HC Lee (BDS 1986), who gave insights into setting up and designing a dental practice
● Dr Dae-hyun Lee (BDS 1993), who presented an update on management techniques of peri-implantitis
● Dr Kenny KK Lau (BDS 1986), who delivered a lecture on how to incorporate dental implant treatment into daily general practice.

Attendance at these lectures is CME accredited and provides a great opportunity to learn from the expertise of our alumni community and to pick their brains in a friendly and supportive environment.

The HKUDAA also plays a supportive role for current faculty students. For example, we have an ongoing Mentorship Programme and, for each year’s fresh graduates, we hold an annual Career Talk, where guests from diverse sectors, including government dentists, private practitioners, junior hospital dental officers, and specialists, are invited to give advice and share their experiences.

dent25 Celebrations
In this Silver Jubilee year of the faculty, we are stepping up our endeavours to increase membership in the HKUDAA. To encourage membership, the association has negotiated with the dent25 Congress Organising Committee special discount rates for HKUDAA Members at the Second International Conference on Evidence-based Advanced Dentistry and associated workshop and certification courses in November 2007. For example, paid-up HKUDAA Members are entitled to a HK$350 discount on conference registration!

Well-known international speakers have been booked for the conference and workshops, so do take this opportunity to join the HKUDAA, enjoy the conference discounts, and upgrade your skills, while celebrating a very special occasion.

Life Membership is HK$1800, and with various alumni discounts and the ability to enjoy life-long support from the faculty and fellow alumni, this represents excellent value-for-money. Alternatively, the annual rate is only HK$180. Please visit <www.hku.hk/dentalum> to become a Member, and visit <dent25.hku.hk/congress> for more details on this November’s dent25 Congress and workshops.

Closer connections
Joining the HKUDAA allows year-groups to meet up regularly and cultivate a strong alumni culture and sense of belonging to our alma mater. Please e-mail the HKUDAA at <dentalum@www.hku.hk> if you are interested in becoming a year-group representative to arrange events, do a membership drive, or form a contingent at the dent25 Alumni Homecoming.

Even if you decide not to join the HKUDAA, please drop us a line every now and then, at <dentalum@www.hku.hk>:

● Let us know your latest contact details (which will be kept confidential)
● Share your news, achievements, awards, etc., in faculty publications
● Share your memories or photographs in the faculty’s Silver Jubilee book, Reflections
● Become a Mentor to a current BDS student

The dent25 website at <dent25.hku.hk> also has a guestbook and a special page for alumni.

Incidentally, congratulations to BDS Class of 1987, who celebrate their 20th anniversary this year. For more details on the Class of 1987 Reunion Dinner on 7 July 2007, please contact the secretary of the reunion organising committee, Dr Pinky WP Fung (e-mail, <fungmfcd@yahoo.com.hk>).

Community engagement
The HKUDAA also has an educational function and takes part in faculty events that promote dental and oral care in Hong Kong. In October 2007, the HKUDAA will co-organise a dent25 Public Health Exhibition with BDS students. Details will be announced soon.

Join the Alumni Challenge, so $1 = $2!
A university-wide donation scheme—the Stanley Ho Alumni Challenge—is currently matching alumni donations made to HKU, dollar-for-dollar. Donations are also tax-free and likely to be matched further by the HKSAR Government Matching Grant Scheme. Please visit the secure donation site at <www.hku.hk/alumnichallenge> and show your appreciation to your alma mater, while helping the faculty continue to achieve dental excellence in this Silver Jubilee year. Why not make a donation as a year-group? E-mail <dentum@www.hku.hk> to find out how.

And finally…
It is a great honour and pleasure to be the new HKUDAA President, and I thank Immediate Past President Dr Wilson Lee for his tremendous work in the past year. I look forward to representing faculty alumni and working with HKUDAA council members to serve our growing dental alumni family.

Dr Siu-fai Leung (e-mail: <sslwleung@netvigator.com>) is an endodontist in private practice and was elected HKUDAA President at the 2007 AGM on 15 April 2007. The list of new HKUDAA Council Members can be found in the HKUDAA website at <www.hku.hk/dentalum>.
Guide to oral cancer

What is oral cancer?
Oral cancer includes cancer of the oral cavity (cheeks, gums, roof and floor of the mouth), lips, tongue, salivary glands, and related areas (throat, tonsils). It is an abnormal swelling, lump, or ulcer originating from a single cell that grows and divides out of control because its genetic information has been damaged. The cancer may invade surrounding tissues, injure organs, and may spread to other parts of the body. Some fast facts:
- Oral cancer is the eighth most common cancer worldwide.
- In the United States, more than 30,000 new cases are diagnosed each year and, on average, one person dies from oral cancer every hour of every day of the year.
- In Hong Kong, new cases are diagnosed in 414 people each year (=5.3 per 100,000 population), and 161 people (=2.0 per 100,000) die each year from oral cancer.

Who is at risk of oral cancer?
Some groups are more at risk than others (e.g., men and people older than 40 years). In addition, known risk factors include:
- Smoking or chewing tobacco
- Heavy drinking (especially in combination with tobacco use)
- Overexposure to ultraviolet light and sunshine
- Poor nutrition
- Some infections
- Certain occupational exposures
- Immune deficiency

Detecting oral cancer early
Early signs of oral cancer are often painless and difficult to identify, but when found early enough, oral cancer has a high cure rate. See your dentist if you find any of the signs listed in the Box.

Your dental or medical provider can routinely perform a head and neck exam involving visual inspection and finger exploration of the gums, lips, all surfaces of the tongue, cheeks, roof and floor of the mouth, salivary glands, back of the throat, and lymph nodes. A tissue sample may be taken for testing, and further examinations (e.g., blood tests, X-rays, and special types of scanning) may need to be done.

Preventing oral cancer
- Do not smoke or use tobacco in any form, and avoid passive smoke. If you smoke, quit immediately: visit <www.tobaccocontrol.gov.hk> or call the Hong Kong Department of Health Smoking Cessation Hotline (2961 8883) for advice and support.
- Cut down on your alcohol intake.
- Have a balanced diet and eat plenty of fruits and vegetables every day, all year round.
- Avoid excessive sun exposure, and use a strong sunscreen and lip balm containing sunscreen.
- See your dentist for oral cancer screening and regular oral check-ups, even if you have no teeth.

Some signs of oral cancer
See your dentist immediately if you have any of these:
- A sore in the mouth that fails to heal
- A sore in the mouth that bleeds easily
- A white or red patch in the mouth that won’t go away
- Soreness, pain, tenderness, or numbness in the mouth, throat, or tongue
- A lump or thickening in the mouth, throat, or tongue
- A persistent swollen gland in the neck
- Coughing up blood or blood-stained phlegm
- Difficulty in chewing, swallowing, or speaking
- Persistent hoarseness or coughing


Written by Trevor Lane, DPhil; edited by Nabil Samman, FRCS (Edin), FHKAM (Dent Surg). This Patient Page is for general informational use and is not a substitute for diagnosis; for specific advice, please consult a dentist.
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