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Changes in the Practice of Plastic Surgery

Dr. Chun-on Mok

MBBS (HK), FRCS (Edin), FRACS, FCSHK,
FHKAM (Surgery)

Specialist in Plastic Surgery

Editor



Dr. Chun-on Mok

As Hong Kong becomes more affluent and the local people are more receptive to the so called 'life style medicine', the demand for plastic surgery is on the rise. Recently, massive advertisement in the media and TV programmes by institutes to solicit the public for plastic surgery-related procedures which are poorly monitored and regulated. These entrepreneurial business and advertising strategies exploit vulnerable patients and give over optimistic prediction but fail to highlight the indications and potential risks and complications involved. In return, advertising generates unrealistic expectation in many patients. The professional and ethical standard would be compromised as the surgical practice would undoubtedly be determined primarily by the capacity of the patient to pay rather than the clinical benefit.

To combat this unhealthy trend, plastic surgery colleagues should endeavour more efforts in educating the public and disseminate more updated plastic surgery knowledge to medical and health colleagues. This kind of promotion is different from advertisement as objective, factual information including the indications, realistic result, potential risks and complications are fully revealed to our colleagues and the public. In the past, our specialty has not done enough to make ourselves known to even our medical colleagues, not to mention the public. I am happy to see that this issue will be one of the many efforts in the future to disseminate realistic, well regulated plastic surgery information to the medical profession as well as the public.

Lastly, I would like to thank the authors, Professor Andrew Burd, Dr. Ho Chiu Ming, Dr. Walter King, Dr. Tung Man Kwong and Dr. Ying Shun Yuen for they have contributed excellent scientific articles which are the results of many years of hard working and experiences.

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Lasers, Lights and Radiofrequency for Skin Rejuvenation

Dr. Walter WK King

BA (Hon, Wisconsin), MD (Vanderbilt), MCPS (Manitoba), FRCS, FRCS (Edin), FCSHK, FHKAM (Surgery)
Centre Director, Plastic & Reconstructive Surgery Centre, Hong Kong Sanatorium & Hospital



Dr. Walter WK King

Medical specialists in Hong Kong are well-trained and experienced in the use of lasers, lights and radiofrequency to induce aesthetic improvement and refinement of the skin of the face and body which has been altered or damaged by trauma, ageing, neoplasm, surgery, radiation and congenital conditions.

A laser is a high intensity, coherent light of a single wavelength. An intense pulsed light (IPL) is a high intensity, diffuse light of many wavelengths. When laser or IPL reaches the skin, specific targeted chromophore (e.g. melanin, oxyhaemoglobin, tattoo pigment, water) preferentially absorbs different wavelengths of light. Selective photothermolysis denotes the destruction of specific targets by microscopic heat upon the absorption of light of certain wavelengths by blood vessels, pigmented cells and melanised hair bulbs.

The efficacy in the selective destruction of specific targeted chromophore depends largely on the correct amount of energy delivered and the proximity of the pulse duration to the thermal relaxation time (TRT) of the targets such that the tissue exposure time to laser or light is short enough to confine the heat damage to the target without excessive heat diffusion to the adjacent normal tissue. TRT in term is based on the physical size of the target.

It was Einstein who first laid down the principles of stimulated emission of energy in 1917. MASER (Microwave amplification by the simulated emission of radiation) was first developed by Schalow and Townes in 1958 and the first ruby LASER (Light Amplification by the Stimulated Emission of Radiation) was developed by Maiman in 1960. Additional types of laser were rapidly developed in the ensuing 30 - 40 years.

All lasers consist of four basic components. i) The laser medium can be a gas (e.g. argon, excimer, carbon dioxide), a liquid (e.g. rhodamine dye as in pulsed dye laser) or a solid (e.g. ruby, Nd:YAG, alexandrite, erbium and dioxide lasers). ii) The optical cavity or resonator, iii) A delivery system and iv) The power supply or "pump" that generates excited atoms for amplification.

Tattoos and pigmentation have been effectively treated by Q-switched lasers (ruby, alexandrite and Nd-YAG). A Q-switch is a physical method to release extremely short (5-20 nanoseconds) pulses of laser light.

Clinically, photo-acoustic waves are generated within the chromophore targets causing cavitation of the pigment particles which are removed by phagocytosis by macrophages. On the other hand, long pulsed lasers coupled with higher fluences and larger spot size may be more effective in heating a larger volume of tissue at a deeper depth. (The larger the spot size, the less tissue scattering), a feature that is preferred in the laser or light treatment of unwanted body hair. In general, laser treatment of skin condition is safer than IPL treatments, contrary to popular belief since the learning curve for IPL treatment is long and steep.

Commonly used laser systems belong to one of eight categories:

- I. Pigment Laser / Light Systems
- II. Vascular Laser / Light Systems
- III. Non-ablative Rejuvenation Laser / Light / Radiofrequency Systems
- IV. Hair Reduction Laser / Light Systems
- V. Ablative Resurfacing Laser Systems
- VI. Microthermal Rejuvenation Laser Systems
- VII. Surgical Laser Systems

I. Pigment Laser / Light Systems

Commonly used pigment reducing laser systems include QS NdYAG 1064, QS Alexandrite 755, QS-532, VP-532, long pulsed Alexandrite 755, IPL, IPL and radiofrequency (Aurora)(Fig.1). Clinical indications include the treatment of freckles, lentiginos, naevus, melasma, naevus spilus, naevus of Ota, Becker naevus, eyebrow liner, eyelid liner, body tattoo, post inflammatory hyperpigmentation and pigmented scars.

Not all types of pigmentation will respond to laser / IPL treatments. In general, the response rate varies from 25% to 75% and the number of treatments varies from 3 to 15 at intervals of 4 - 6 weeks.

II. Vascular Laser / Light Systems

Commonly used laser / light systems for the treatment of vascular anomalies include pulsed dye 590/585, VP532, IPL, IPL and radiofrequency (Aurora), laser and radiofrequency (Polaris)(Fig.2), long pulsed Alexandrite 755. Clinical indications include port wine stain, rosacea, telangiectasia, poikiloderma civette, angioma, haemangioma, hypertrophic scars and leg veins. Port



wine stain may require 20 to 40 treatments and clearance may not be complete. Laser treatment of thick or deep haemangioma will require long pulsed Alexandrite or NdYAG lasers. Laser / IPL treatment of small leg veins gives treatment results equivalent to sclerotherapy both of which have associated side effects.

III. Non-ablative Rejuvenation Laser / Light / Radiofrequency Systems

Commonly used systems for skin tightening, firming and wrinkle reduction include IPL, Medilux, long pulsed Alexandrite, Polaris and Thermage. Except for Thermage (Fig.3) which uses radiofrequency alone to heat up the deep dermis (with simultaneous cryogen spray to protect the epidermis) in order to induce collagen to contract and tighten, the other laser systems deliver near-infrared (1064nm) or mid-infrared lasers (e.g. 1450 nm) which tends to target water as the chromophore and heats up subsurface dermal tissues without wounding the epidermis. Most of these laser systems use some form of epidermal cooling systems. In wrinkle treatment, most sun damaged tissue resides from 100 - 600 um below the surface and the combined use of cooling system and radiofrequency / laser system are designed to heat up this substrate level of the skin. Thermage uses special treatment heads with variable sizes and depth of penetration to enable treatment of face, neck, eyelids and abdomen.

Effective Cooling Systems include cold air, cold gel, ice (cool roller), contact with sapphire and cryogen spray. Excessive cooling can result in complications including prolonged erythema, hyperpigmentation and hypopigmentation.



Fig. 1 Laser room with Gentlelase long pulse 755nm laser, V Beam Pulsed dye 595nm laser and Versapulse Laser System



Fig. 2 The Galaxy Laser System (Polaris and Aurora), the Medilux IPL and Excimer Laser System



Fig. 3 Thermage (Radiofrequency System) for skin tightening

IV. Hair Reduction Laser / Light Systems

Commonly used hair reduction systems includes Gentlelase, IPL and Aurora, Medilux and Lightshear.

Laser hair removal requires multiple (usually 6 to 10 treatment sessions) for long duration hair reduction and permanent hair removal may not be achievable in all patients. However, hair reduction by laser or IPL is superior to other methods of hair reduction (e.g. electrolysis) and the small risks are acceptable (dyschromia, scarring, hirsutism etc.) Laser / light removal systems include IPL, Aurora (IPL and radiofrequency), Gentlelase (long pulsed Alexandrite 755 nm) and Lightshear Dioxide laser system.

V. Ablative Resurfacing Laser Systems

Carbon dioxide lasers (Ultrapulse, Superpulse) and Erbium lasers delivered with 3mm spots are commonly used for the resurfacing of the skin to reduce wrinkles, laxity, surface irregularities or to treat skin lesions including warts, keratoses, naevus and sebaceous hyperplasia. Laser resurfacing procedures result in an open wound which is associated with increased risks of complications including herpes breakout, bacterial infection, dyschromia and scarring. Hence, large surface laser resurfacing is gradually replaced by non-ablative laser treatments.

VI. Microthermal Rejuvenation Laser Systems

Alternating microscopic low level heating with high level heating is the newest approach to dual level skin rejuvenation whereby collagen stimulation and remodelling is effected by near infrared laser operating at a wavelength of 1440nm and a pulse width of 3 msec. The Affirm Laser System uses lens array (Combined Apex Pulse Technology) to deliver apex high fluence zones surrounded by low level uniform heating zones. Apex high fluence remodels collagen and low level heating stimulates collagen.

With 5 treatment sessions at 4 - 6 weeks apart, periorbital wrinkles, upper lip lines, acne scarring, traumatic scarring; pigmentation and skin pores are all improved with minimal side effects. The Affirm microthermal rejuvenation approach represents the latest approach to painless skin rejuvenation with minimal downtime. Equivalent systems include Fraxel.

VII. Surgical Laser Systems

The Carbon Dioxide (CO₂) laser with a wavelength of 10,600nm is absorbed by water in the tissue. The absorbed heat (over 1,000°C) causes tissue coagulation



evaporation and sterilisation. Tissue penetration is limited to less than 1mm, therefore, collateral unwanted tissue destruction is minimal. Erbium laser (Er:YAG) at a wavelength of 2940nm is also absorbed by tissue water and can be delivered with shallower tissue penetration than the CO₂ laser. The Er:YAG laser ablates skin tissue from 5 to 30nm deep at fluences of 5 to 15J/m². Er:YAG also has less collateral tissue damage (between 5 - 20nm), therefore, skin resurfacing with Er:YAG yields a shorter recovering time. However, the Er:YAG does not produce coagulation and tissue can be continuously evaporated to produce an undesirable cavity depression.

Currently, plastic and aesthetic surgeons uses carbon dioxide laser with spot size of 0.2mm for precise incision with a dry surgical field and less swelling and ecchymoses after surgery. Suitable surgical procedures include transconjunctival lower blepharoplasty, upper blepharoplasty, endoscopic forehead lift and lip reduction surgery as well as a variety of oral surgery for excision of oral lesions.

Either carbon dioxide laser or erbium laser is also useful in shaving down benign raised skin lesions including moles, seborrheic keratoses, sebaceous hyperplasia, syringoma and atrophic scars.

Laser safety in Plastic & Anaesthetic Surgery. The following basic laser safety features should be incorporated into the design, layout and practice of an aesthetic laser unit:

- (1) The laser room should have laser warning signs posted outside the room.
- (2) The laser room should be locked from inside when laser is in use and an outside indicator light should be on.
- (3) Manuals for laser systems should be easily accessible near the entrance of the laser room.
- (4) The laser room should be well ventilated, cool and dehumidified.
- (5) The laser room should have a minimum of reflective surfaces or glass panels. Windows should be draped or screened.
- (6) A high flow vacuum suction system designed to reduce air pollution by viral and other particles should be on when laser is in use.
- (7) Tap water and fire extinguisher should be easily available in case of fire and explosion.
- (8) All staff inside the laser room should wear appropriate wavelength specific protective eye goggles and protective laser mask. Gowns and gloves are optional.
- (9) Flammable sheets and blankets should be avoided.
- (10) The patient's eyes should be well covered with appropriate comfortable and protective eye goggles.

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Chan, L.C.‡, Leung, S. L. #, Chan, W. C.#

*Division of Plastic Reconstructive and Aesthetic Surgery, Department of Surgery, Prince of Wales Hospital, Hong Kong

‡Department of Clinical Oncology, Prince of Wales Hospital

#Breast Centre, Department of Surgery, North District Hospital, Hong Kong

Introduction

Breast cancer remains the most prevalent malignancy amongst women in Western countries as well as in Hong Kong. The age-standardised rates for US and UK are 90.7 and 68.8 per 100,000 women compared to 34.0 per 100,000 women in Hong Kong²¹. Over the past decades, an increasing incidence of breast cancer has been observed as local Chinese women have adopted an increasingly westernised lifestyle^{5,38}.

Moreover, management of breast cancer has changed significantly in the past two decades: the trend has been on surgery to move away from radical mastectomy towards more conservative excisional choices such as subcutaneous mastectomy, quadrantectomy or lumpectomy. There has also been a growing patient-driven demand towards post-mastectomy reconstruction. Patients having mastectomies are often concomitantly counselled in the pre-operative clinic by both tumour surgeons and plastic surgeons. Options on the timing, the means of reconstruction as well as risks of surgery are discussed in detail to allow patients to make a rational decision on their operation.

Reconstructive Technique

Breast reconstruction can be classified in several ways; on timing, i.e. immediate or delayed; or on material, i.e. either alloplastic implants, autogenous tissue, or both. There are many choices of autogenous tissues such as pedicled latissimus dorsi flap (LD flap), pedicled transverse rectus myocutaneous flap (TRAM flap), microvascular free tissue transfer such as free TRAM flap, free deep inferior epigastric perforator flap (DIEP flap), and free inferior gluteus maximus myocutaneous flap (I-GAP flap).

Since the establishment of a designated Breast Cancer Centre in Aug-2005, the option of immediate breast reconstruction has been offered to all patients under the age of 80 years suffering from breast cancer who were not suitable for breast conserving surgery or who preferred to have a mastectomy. Various choices were presented but the TRAM flap was used as primary means of reconstruction unless there were contraindications for the surgery.

For patients choosing implant reconstruction, the breast size and shape was assessed preoperatively, and McGhan bio-dimensional expander implants were used.

They were placed in submuscular pockets, and the injection ports were secured subcutaneously at a distance from the implant pocket.

The surgical technique of a standard TRAM flap is briefly described as follows. The skin paddle is marked on lower abdomen with dimensions determined by the surgical defect of mastectomy. Skin is then incised through subcutaneous tissue to expose the anterior rectus sheath. The dermis and the anterior rectus sheath were sutured together to prevent shearing strain on the perforator system. The anterior rectus sheath is then incised along the lower margins of the skin element, and along the paramedian line, laterally along the lateral border of the rectus muscle. The lower muscle fibres are easily transected by sharp dissection, and then the deep inferior epigastric arteries and veins (DIEAV) can be identified and ligated. The superiorly based flap, together with the rectus muscle, is dissected from the subjacent posterior rectus sheath by sharp and blunt dissection, and is raised to the subcostal margin. It is not necessary to expose the superior epigastric vessel that enters the muscle medially at the subcostal margin. The superior insertion of the rectus abdominis muscle may be detached from the 5th, 6th and 7th costal cartilages to facilitate rotation of the myocutaneous flap. A subcutaneous tunnel is created to facilitate passage of the myocutaneous flap. A vertically-based rectus abdominis flap (VRAM) can be harvested by planning skin paddle vertically and raising it in a similar fashion to that of TRAM flap.

Flap inset and abdominal closure are then carried out by two teams of surgeons simultaneously. The poorly vascularised Zone IV is routinely discarded before inset. Symmetry of contour and shape is of paramount concern during inset of flap. Concerning abdominal closure, above the level of the arcuate line, the anterior rectus sheath is repaired by direct approximation with non-absorbable sutures. Below the arcuate line, repair of fascia is vital to prevent the occurrence of post-operative hernia. If this defect is small, it can be closed by advancement of the medial free edge of external oblique aponeurosis to the midline, and suturing the arcuate line towards the pubic fascia. This creates a considerable tension that can be released by a relaxing incision in the external oblique far laterally. For large defect, we used Marlex mesh to close the defect in two layers. Neo-umbilicoplasty is performed after closure of abdominal wound, and we preferred superiorly based elliptical pattern. Figures 1A-C illustrate the key operative steps of a TRAM flap¹⁴.

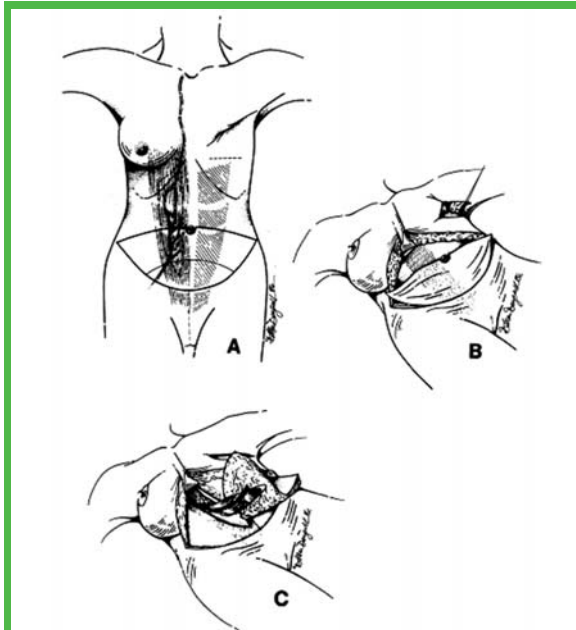


Figure 1 A-C, Illustration of concept of unipedicled TRAM flap. (Courtesy to Hartrampf, C. R., Jr., and Bennett, G. K. *Ann. Surg.* 205: 508-519, 1987.)

Postoperatively, the patient is nursed in head up tilt 45 degree and hip flexion position for 3 days. All patients are advised not to engage in heavy domestic activities for 3 weeks, and refrain from strenuous exercise for 3 months. Adjuvant radiotherapy, chemotherapy and hormonal therapy were prescribed according to oncologic status of the tumour after surgery.

Results

From August 2005 to January 2007, 255 newly presented breast cancer patients were treated at Breast Cancer Centre of New Territories East Cluster based at North District Hospital. The choice of breast reconstruction was offered to every newly diagnosed breast cancer patient who chose to have mastectomy. Post-mastectomy patients followed up at our clinic were also offered the choice of reconstruction. In total, only 55 patients (21.6%) opted for breast reconstruction out of 255 patients during the period. After reconstructive surgery, patients were followed-up prospectively in Combined Breast Cancer clinic where they were jointly attended by surgeons and oncologists. The need for adjuvant therapy were determined by tumour's oncologic status, while patient's subjective satisfaction were assessed half year after operation time. Three patients defaulted follow up. One patient died as a result of brain metastasis one year after operation.

Fifty-four patients were Chinese, one came from Philippines. The age of patients ranged from 29.2 to 78.2 years with a mean \pm SD of 48.9 ± 8.6 years. Patients' body mass index (BMI) ranged from 17.0 to 31.6 with a mean \pm SD of 22.9 ± 3.7 . Forty patients (72.7%) were married and twelve (21.8%) were either divorced or single. Thirty-two patients (58.2%) were employed, while twenty patients (36.4%) were unemployed. Twenty-four patients (43.6%) received less than high

school education, twenty-two (40%) patients had completed high school education, six patients (10.9%) received graduate or above level of education. All patients were non-smoker. Twenty-two patients (40.0%) had background medical illnesses. One patient had a background of diabetes mellitus. Six patients (10.9%) had first-degree relatives with a history of breast cancer. Table 1 summarises patient statistics. Forty patients (72.7%) had early breast cancers (DCIS or \leq T3). Table 2 summarises patients' tumour type and sizes.

Table 1. Patient demographics.

Patient Details	mean	standard deviation	n
Age	48.9	8.6	
Body mass index (BMI)	22.9	3.7	
Marital Status			
Married			40
Divorced or Single			12
Missing			3
Employment Status			
Employed			32
Unemployed			20
Missing			3
Education level			
<High school			24
High school			22
Graduate or above			6
Missing			3
Family history of breast cancer			
Yes			6
No			46
Missing			3
Medical illnesses			
Nil			34
Allergic rhinitis			1
Asthma			1
Depression			1
Graves' disease			5
Hepatitis B			2
Hypertension			3
Diabetes mellitus			1
Ovarian cyst			2
Obstructive sleep apnoea syndrome			1
Thalassaemia			1
Missing			3

Table 2. Summary of tumour types and size.

Tumour Type	Stage	Count
Breast Cancer	DCIS	12
	1	11
	2	20
	3	6
	4	2
Phalloides tumour		3
Sarcoma		1
Total		55

Twelve patients (21.8%) required post-operative adjuvant radiotherapy for tumour clearance. Seven patients (12.7%) developed local recurrences during one year's follow up. Thirty-eight patients (69.1%) opted for immediate reconstruction, seventeen (30.9%) chose delayed reconstruction. The mean \pm SD interval of delay was 4.9 ± 5.4 years. Forty-six (83.7%) patients chose to have autogenous tissue reconstruction and nine (16.3%) had reconstruction by implants. Fourteen patients (25.5%) chose to have further nipple-areolar complex reconstruction. Seven patients (15.2%) suffered from postoperative fat necrosis, and these patients had been reconstructed by unipedicled TRAM flap. There was no fat necrosis among the seven bipedicled TRAM flaps. Adjuvant therapy for one patient has to be delayed as a result of fat necrosis. Table 3 summarises complication of operation. Risk factors for surgical complications were tested by applying nonparametric tests against patient demographic parameters and surgical parameters. It is



found out that presence of past medical history is a significant risk factor predicting surgical complications (Mann-Whitney U, 2-tailed significance $p = 0.040$). No patient reported abdominal hernia, bulging or weakness after repair of anterior rectus sheath.

Table 3. Summary of TRAM flap complications.

Complication	Count	Percent
Flap		
Fat necrosis	7/46	15.2
Partial flap loss	2/46	4.3
Asymmetry	1/46	2.2
Hypertrophic Scar	4/46	8.7
Abdomen		
Hypertrophic Scar	1/46	2.2
Wound dehiscence	5/46	10.9
Deviated umbilicus	1/46	2.2
Necrotic umbilicus	1/46	2.2
Wound infection	2/46	4.3
Tightness	1/46	2.2

Patient satisfaction was scored on a five-category scale ranging from extremely dissatisfied to extremely satisfied. Thirty-eight patients (74.5%) were satisfied or extremely satisfied with the reconstruction. Table 4 summarises patient score. Patient satisfaction score was tested against patient demographic parameters and surgical parameters, and it was found out that patient satisfaction is independent of patients' social status, tumour factors or presence of surgical complications.

Table 4. Patient satisfaction score.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely dissatisfied	9	16.4	17.6	17.6
	Dissatisfied	1	1.8	2.0	19.6
	Neutral	3	5.5	5.9	25.5
	Satisfied	6	10.9	11.8	37.3
	Extremely satisfied	32	58.2	62.7	100.0
	Total	51	92.7	100.0	
Missing		4	7.3		
Total		55	100.0		

Discussion

At the NTEC Breast Centre, all patients with breast cancer were offered the choice of breast conservation surgery or mastectomy. Most Chinese women choose to have the latter option, despite that fact that local experience in breast conserving surgery is comparable to that of overseas centres^{4,39}. This choice is affected by age, patient's perception on treatment results and surgeons' recommendation²⁰. In a multi-centre prospective study, Harcourt DM et al¹² have showed that breast reconstruction is not a universal panacea for the emotional and psychological consequences of mastectomy. Women still reported feeling conscious of altered body image 1 year postoperatively, independent of whether or not they had chosen breast reconstruction. Therefore, the psychological benefit of breast reconstruction should not be over-stressed. Health care professionals should be careful when delivering preoperative counselling to patients, breast reconstruction does not necessarily confer psychological and emotional benefits compared to mastectomy alone.

Climbing up the reconstructive ladder, our usual choices to reconstruct post-mastectomy defect include implant expanders, pedicled flaps and microvascular tissue transfer. The aim of our service is to establish a full-spectrum breast reconstruction team at North

District Hospital. At present, there is no microsurgical backup service available in North District Hospital, although we have already carried out breast reconstruction with free DIEP flap in Prince of Wales Hospital. Six patients have undergone reconstruction with implant expanders. None of them suffered from early complications such as infection, exposure or extrusion. Long-term complications, such as capsular contracture, implant shifting and implant failure^{1,22}, and patient satisfaction cannot be assessed adequately at this stage of follow up.

For pedicled TRAM flap, fat necrosis is the commonest and often the most distressing complication. It has been reported to occur in 12% to 35% of patients reconstructed with unipedicled TRAM flap^{1,17,18,26}. The big concern of fat necrosis or partial flap necrosis is the risk of delaying adjuvant therapy. We routinely carry out early debridement and wound closure once this condition is diagnosed, only one patient refused early debridement and thus her adjuvant therapy was delayed. Most cases of fat necrosis present in medial portions of breast mound which represent Hartrampf Zone 3, where blood circulation must traverse the midline. In common with all surgical procedures, the risk of complications is lowest in healthiest people and increases with accumulating risk factors, we found that accumulating medical risk factors are associated with increased surgical complications. Of the various risk factors have been reported to be associated with fat necrosis; smoking^{7,11,25,35} and obesity^{24,28,31,36} have been most widely reported. As none of our patient smoked, and only two patients had a BMI more than 30, these two major risk factors cannot be shown to significantly affect our surgical results. Although we have routinely discarded Hartrampf Zone 4, two patients (4.3%) still presented with partial flap loss. Hartrampf reported an incidence of 8.5% of partial flap loss in his series¹³. As the transitional zone of circulatory limit cannot be accurately predicted on the operation table, fat necrosis or partial flap necrosis to a large extent will inevitably be a risk in all unipedicled TRAM flaps. To reduce fat necrosis, various methods such as delaying^{16,19,30,37}, supercharging^{6,23,29,32} and discarding both Zone 3 and 4 have been reported⁹. We have been unable to persuade our patients to agree to a delay procedure which required an additional general anaesthesia. Due to the lack of an operating microscope in North District Hospital, using bipedicled TRAM flaps is our only option after Jul-2006. Our preliminary finding has been that there was no fat necrosis or partial flap necrosis in patients undergoing bipedicled TRAM flap.

Donor site morbidity is another concern for patients having breast reconstruction by autogenous tissue. Umbilical necrosis has been reported to present in 5% and abdominal flap necrosis up to 1.6%³⁶. Various methods have been successful in repairing abdominal defect after TRAM flap harvest. They include alloplastic material such as synthetic mesh^{33,40} or Gore-Tex²⁷, biologic synthetic material^{8,10} or dermal autografts¹⁵, or even local rotational flap of anterior rectus sheath². We have routinely applied Marlex mesh to repair abdominal defect after raising bipedicled TRAM flap, and we have not come across any bulging or hernia in our series. Simon AM et al³⁴ has compared physical function and patient satisfaction between unipedicled



with bipediced TRAM flap patients, and found that there was no untoward effect on work performance, physical activity, abdominal appearance, standing posture and back pain in the latter group. However, a subjective decrease in abdominal muscle strength was reported by 42 percent of unipediced and 64 percent of bipediced TRAM flap patients, and decreased abdominal muscle strength was the most frequently cited reason for dissatisfaction. Interestingly, this decreased strength did not affect the daily activities of the majority of patients, who were happy with the procedure (96 percent) and would recommend it to others (96 percent).

We have used a patient-centered evaluation form as the ultimate judge of our clinical care. This is different from traditional surgeon-centred evaluation, as surgeons tend to focus on surgical success, complications, hospital stays and costs; patients are prone to score their overall impression on their personal care rather than outcome alone. Factors such as preoperative counselling on individual's expectations, the information disclosure process in informed consent process, the personal experience in post-operative recovery, and the final shape and symmetry of breasts will ultimately conclude in a single result called patient satisfaction³. Further improvement of clinical service should focus on holistic care of patient rather than surgical outcome alone.

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Clinical Update: Vascular Abnormalities of Skin and Soft Tissues

¹Prof. Andrew Burd
MD, FRCS, FHKAM(Surgery)

²Dr. Ada GY Zeng
MBChB, MRCS

¹Dr. Stephanie CK Lam
MBChB, MRCS



Prof. Andrew Burd

¹Division of Plastic & Reconstructive and Aesthetic Surgery, Department of Surgery, The Chinese University of Hong Kong, Prince of Wales Hospital

²Department of Surgery, Tuen Mun Hospital

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 30 November 2007.

Introduction

Although it has been over twenty years since Mulliken and Glowacki wrote their classic paper regarding the clinical distinction of haemangiomas and vascular malformations¹⁻² it is still not uncommon to meet patients in their late teens who are still waiting for 'haemangiomas' to spontaneously resolve. Table 1 summarises the main distinctions between the two types of vascular abnormalities. It should be noted that although vascular malformations will be present at birth they may not always be clinically apparent at birth and indeed may not be noticed until several years after birth. The most important differentiating feature is the rapid growth of haemangiomas in the first year of life and the subsequent involution. This distinction is shown in Figure 1.

Haemangioma

Haemangiomas are the most common tumour of infancy and typically appear as a small reddish macule³. 80% occur within the first month of life. The macule quickly grows and becomes raised and lobulated. The appearance is not unlike a strawberry hence the name strawberry naevus. At a cellular level the vascular endothelium in the proliferating haemangioma is cycling at a very high rate⁴. The mitotic index is extremely high and the cycling time can be as short as twenty four hours. VEGF is expressed very highly in these cells and can be detected in the circulating blood. bFGF expression is also significantly upregulated. The pattern of subsequent cytokine expression and mitotic index is shown in Figure 2.

Whilst the vast majority of haemangiomas involve the skin, they can occur subcutaneously, appearing as a bluish patch under the skin. This can cause a rapidly developing swelling which then involutes as in the cutaneous lesion. Most haemangiomas can be treated conservatively with an expectant strategy. The parents need to be reassured that the lesion(s) will involute and in most cases surgery is relegated to some minor procedures to remove the redundant skin.

There are occasions, however, when haemangiomas do

need more active intervention. Table II shows intrinsic and extrinsic causes for concern. Of note, the 'Kasabach-Merritt' syndrome has been described as a rare presentation of thrombocytopenia associated with haemangiomas. This association has been erroneously made and the syndrome is but a feature of the rare kaposiform haemangioendothelioma. The management of rapidly growing haemangiomas which are causing visual field obstruction is an indication for urgent intervention. There are a number of both non-invasive and invasive options depicted in Tables III. The first line of treatment with a rapidly developing lesion causing visual field obstruction is oral steroid therapy. The response to oral steroids is variable and will depend in part on the stage at which they are used. The response in 30-40% of cases can be quite rapid; in another 30-40% of cases the response still occurs but is slower in developing. In a smaller number there is no response⁵.

Interferon alpha 2a has been used as a subcutaneous injection in life threatening haemangiomas. Although there are reports of clinical control and regression of the lesions, there are also reports of spastic diplegia arising as a complication of this treatment⁶.

Compression therapy has been tried for haemangiomas but there is no evidence to indicate that this speeds up natural involution of the lesion.

With regard to the invasive, medical treatment, intralesional steroids have been tried but they are no more effective than systemic steroids. OK-432 is a denatured streptococcal protein which acts supposedly by stimulating the immune response and speeding up the resolution of the haemangioma⁷. Sclerosing agents have been tried but the indications for such intervention have to be clearly understood. The correct diagnosis has to be made and the decision to intervene has to be balanced against non-intervention and spontaneous involution. The outcome has to be considered and treatment with sclerosants should be limited to haemangiomas where the site is not of a major aesthetic concern. Surgical debulking has to be considered in the same context with regard to the long term effects. Surgery involving extensive scarring should be avoided if the alternative is awaiting natural resolution and lesser scarring⁸.



Laser treatment for haemangiomas is generally unsatisfactory. The biological mechanism of action is referred to as selective photothermolysis. The oxyhaemoglobin complex is selectively targeted by laser energy close to the third absorption spectral peak (577nm). Laser energy is converted to heat which dissipates to destroy the surrounding vessel wall. The limited penetration of the laser energy means that only superficial lesions are accessible to treatment. Because of the physical dispersion of the thermal energy, laser works best in slow flow lesions with small vessels. Nevertheless lasers can be effective in small lesions and the application in early haemangiomas has yet to be evaluated⁹.

Vascular Malformations (V.M.)

The term V.M. refers to lesions where the anatomy and morphology of the vessels are abnormal although the vascular endothelium is normal. These lesions can either be high, low or mixed flow lesions (Table IV).

Capillary Malformations

These are typically referred to as Port Wine Stains and can be classified according to the Waner Grading system¹⁰.

- Grade I lesions: vessel diameters are in the 80 μgm range. These lesions are light pink macules.
- Grade II lesions: vessel diameters measure up to 120 μgm . these lesions are darker pink macules.
- Grade III lesions: vessel diameters measure up to 150 μgm . These lesions are red macules.
- Grade IV lesions: vessel diameters are greater than 150 μgm . These lesions are purple and may become papular.

The present treatment of choice is laser therapy. Previously other treatments have been tried, in particular radiation. This unfortunately resulted in longer term post-radiation skin stigmata (Figure 3). Although laser has improved the outcome of patients with port-wine stains the results are unpredictable and the patients must be counselled at the outset that complete clearing of the lesions is most unlikely and that the response to treatment will plateau (Figure 4). The management of the resistant port wine stain is very difficult and the options are limited; using cosmetic camouflage or excising and reconstructing with grafts or flaps.

Venous Lesions

The key to the management of venous lesions is accurate diagnosis. History and clinical examination will differentiate haemangiomas from vascular malformations. Ultrasound examination by a well trained operator can give information about the flow characteristics and the architecture of the lesion. The amount of parenchyma and the nature of the vascular spaces, (for example 'lakes' or 'honey-comb') can influence the treatment. MRI is used for assessing the anatomical extent of the lesion. In the low flow venous lesion it is acceptable to surgically debulk it removing

only that part which is giving rise to the most concern. Figure 5a-d shows a vascular malformation that involved the lower lip. There were some problems with oral continence and speech. Two years after limited bulking shows the patient with good oral continence, clear speech but still with residual (not recurrent) malformation involving the right cheek.

The management of diffuse venous malformations can be very challenging as the symptoms are usually mild and the major concern is the appearance. The general strategies used are to treat these lesions with sclerosants or sutures which will produce intralesional scarring and reduction in size of the lesion. There have been reports of producing targeted scleroses using intralesional copper wires^{11,12}.

Lymphatic Lesions

These may be microcystic, macrocystic or a combination of the two. The lymphangioma is an example of a microcystic lesion and the architecture is characterised by a 'honey comb' of connective tissue septa compartmentalising the cystic lesion. The cystic hygroma is an example of a macrocystic lymphatic malformation.

Most lymphatic malformations are present at birth or appear within the first two years of life. They rarely involute spontaneously. They may enlarge if they become infected or bleeding occurs inside the lesion.

Lymphatic malformations can be treated by intralesional injection of OK-432. If surgery is performed it is important to fully excise the lesion to prevent recurrence.

High Flow Lesions

These are either arterial or arterio-venous malformations. The solitary arterial malformations are uncommon and may present as pulsatile subcutaneous lesions which turn out to be aneurysms or collections of tortuous vessels.

The arterio-venous malformations are more common and whilst the anatomical abnormality will be present at birth the lesions may only become clinically apparent later in infancy or childhood. The lesions are conveniently classified according to the modified Schobinger classification¹³ (Table V).

When lesions reach stage 4 they are life threatening. Figure 6a-b shows the left leg of a patient admitted with high output cardiac failure associated with an AVM. The MRI scan shows that the increase in leg size is predominantly associated with the enlargement of the subcutaneous tissues. When history, examination, ultrasound and MRI indicate that there is a high flow AVM, a diagnostic angiogram should be performed to identify the feeding vessels. Interventional radiology is an essential part of the treatment of such lesions. After correcting clotting abnormalities, pre-operative embolisation should be performed. Vascular embolisation can be achieved using a variety of substances including silicone spheres, stainless steel



coils, foam and glue. The role of embolisation is to facilitate surgery and the surgical resection should be as complete as possible to prevent recurrence of the AVM. With extensive resection, complex reconstructions will be needed (Figure 7a-d). These reconstructions will often need to be staged to optimise both the aesthetic and functional aspects¹⁴. There are occasions where the lesions are so extensive that complete resection is not possible. Figure 8a-c shows an extensive AVM of the left chest wall that involved skin, subcutaneous tissues, muscles, pleura and pericardial tissues. Surgery had been deferred due to the extent of the lesion but with the onset of puberty the lesion grew rapidly and there was daily bleeding from the cutaneous nodules. After extensive counselling and discussions regarding the risks of surgery the patient underwent pre-operative embolisation of perforators from the internal mammary artery. Embolisation was not carried out of the lumbar artery perforators due to the extensive vascular plexi in the longitudinal spinal muscles and the risk of spinal cord ischaemia. Excisional surgery was performed leaving the intercostal muscles (Figure 9) and the defect reconstructed with Integra (Figure 10). The patient remains well eighteen months after surgery although the possibility of recurrence remains (Figure 11a-c).

Surgical treatment in vascular abnormalities can range from a minor skin excision to an ultramajor excision with very real risks of intra-operative mortality. There are no shortcuts in such surgery and a multi-specialty approach is essential. Special points of note in the preoperative consent are listed in Table VI.

Syndromes Associated with Vascular Lesions

Sturge-Weber Syndrome

The Sturge-Weber Syndrome (SWS) is a neurocutaneous disorder with angiomas involving the leptomeninges and skin of the face, typically in the V1 and V2 distributions of the trigeminal nerve. It is also called encephalotrigeminal angiomatosis. SWS is caused by residual embryonal blood vessels and their secondary effects on surrounding brain tissue. SWS is referred to as complete when both CNS and facial angiomas are present and incomplete when only one area is affected. Because of possible associated anomalies these patients should be referred for specialist investigation and management.

Klippel-Trenaunay-Weber Syndrome

Klippel-Trenaunay-Weber Syndrome is characterised by a triad of port wine stain, varicose veins, and bony and soft tissue hypertrophy involving an extremity. The exact cause of Klippel-Trenaunay-Weber Syndrome (KTWS) is unknown. Most cases are sporadic, although a few cases in the literature report an autosomal dominant pattern of inheritance¹⁵.

KTWS generally affects a single extremity, although cases of multiple affected limbs have been reported. The leg is the most common site followed by the arms, the trunk, and rarely the head and the neck. Most patients demonstrate all 3 signs of the clinical syndrome: port wine stain, varicose veins, and bony and soft tissue hypertrophies.

Other features include lymphatic obstruction, spina bifida, hypospadias, polydactyly, syndactyly, oligodactyly, hyperhidrosis, hypertrichosis, paresthesia, decalcification of involved bones, chronic venous insufficiency, stasis dermatitis, poor wound healing, ulceration, thrombosis, and emboli¹⁶. As with Sturge-Weber syndrome these patients need specialised investigation and management.

Osler-Weber-Rendu Syndrome

Osler-Weber-Rendu Syndrome, also known as hereditary haemorrhagic telangiectasia, is an autosomal dominant disorder identified typically by the triad of telangiectasia, recurrent epistaxis, and a positive family history for the disorder. The disease is caused by an inherited defect. Currently 2 loci have been identified associated with Osler-Weber-Rendu Syndrome, one on chromosome arm 9q33-q34 and a second on chromosome arm 12q. The major cause of morbidity and mortality due to this disorder lies in the presence of multiorgan arterio-venous malformations (AVMs) and the associated haemorrhage that may accompany them. The disease has a wide spectrum of presentations; patients may be asymptomatic or have multiple organ involvement, presenting at any age. The clinical manifestations of Osler-Weber-Rendu disease are caused by the development of abnormal vasculature, including telangiectases, AVMs, and aneurysms¹⁷.

History

Presentation will be influenced by the site of the pathology.

1. Nasal mucosa: Epistaxis is the most common manifestation of the disease and occurs in up to 90% of affected patients.
2. GI tract: Recurrent painless GI bleeding occurs in 10-40% of patients and generally occurs later in life than epistaxis.
3. Pulmonary vasculature
Pulmonary AVMs are present in 15-20% of patients with the disease¹⁸. Haemoptysis results from either telangiectasia of the trachea and bronchi or pulmonary arterio-venous (AV) fistulas.
4. Brain involvement
Neurologic involvement occurs in 8-12% of patients with Osler-Weber Rendu Syndrome. A history of headache, seizures, and focal neurologic symptoms may be found on questioning¹⁹. Stroke and brain abscess are more common in these patients. Fatigue may be elicited on history and may be due to an iron deficiency anaemia caused by recurrent blood loss. Liver involvement may cause right upper quadrant (RUQ) pain, jaundice, symptoms of high-output cardiac failure, and bleeding from oesophageal varices. Migraine headaches are present in 50% of patients. Although the reason is unclear, the headaches seem to be associated with pulmonary AVMs.

Maffucci's Syndrome

Maffucci Syndrome (enchondroma with multiple angiomas) is a rare genetic disorder. It is characterized by benign enlargements of cartilage (enchondromas);



bone deformities; and dark, irregularly shaped vascular malformations. The disease manifests early in life, usually around the age of 4 or 5 years, with 25% of cases being congenital. The disease appears to develop from mesodermal dysplasia early in life²⁰.

Maffucci Syndrome affects the skin and the skeletal system. Superficial and deep venous malformations often protrude as soft nodules or tumours usually on the distal extremities, but they can appear anywhere. The vascular malformations are usually asymmetric and manifest as blue subcutaneous nodules that can be emptied by pressure. Thrombi often form within the vessels and develop into phleboliths. Venous-lymphatic malformations can occur but are much less common. Enchondromas are benign cartilaginous tumours that can appear anywhere, but they are usually found on the phalanges and the long bones. These bone abnormalities are usually asymmetric and cause secondary fractures. About 30-37% of enchondromas can develop into a chondrosarcoma.

Complications

Neoplastic changes occur in enchondromas, chondrosarcoma being the most common affecting about 30% of patients²¹. Enchondromas can cause fractures, leading to further complications, such as shortened or unequal length limbs.

Differential Diagnosis of Vascular Lesions

Figure 12 shows a pre-operative view of a patient who has had a slow growing soft tissue lesion on the left side of the face. Ultrasound and MRI both suggested a vascular malformations with 60% parenchyma, phleboliths, large vascular channels and a low flow lesion. At operation a diffuse and very vascular lesion was removed which involved the parotid gland. Total parotidectomy with sacrifice of the facial nerve was performed. The surgical bed was packed for 48 hours (Figure 13a) before the patient was returned to theatre for nerve reconstruction with sural nerve grafts (Figure 13b). Definitive histology revealed the lesion to be a highly vascular plexiform neurofibroma.

Pyogenic granuloma is a form of haemangioma with rapidly proliferating blood vessels. Figure 14 shows a typical case involving the right upper eyelid of an infant. Later in life it is very important to send suspicious tissues for histological analysis. The raised vascular lesion on the right temple of an elderly patient in Figure 15 turned out to be a squamous cell carcinoma.

Paragangliomas can be very vascular tumours and can be mistaken for vascular malformations. The right infraclavicular lesion shown in Figure 16 was investigated with U/S, MRI and Angiography. Pre-operative embolisation was performed before surgical excision. The final histology turned out to be a paraganglioma.

Summary

(1) Haemangiomas and Vascular Malformations are very

- (1) Haemangiomas and Vascular Malformations are very different entities.
- (2) Distinguished by History and Examination.
- (3) Use U/S to demonstrate the flow rate and also the tissue architecture.
- (4) Use MRI to demonstrate the extent of the lesion.
- (5) Use angiography in high flow lesions to identify feeding vessels.
- (6) Debulking can be considered in low flow lesions.
- (7) Pre-operative embolisation and complete excision should be undertaken for high flow lesions.
- (8) Treatment must involve a multi-specialty approach to achieve optimum results.

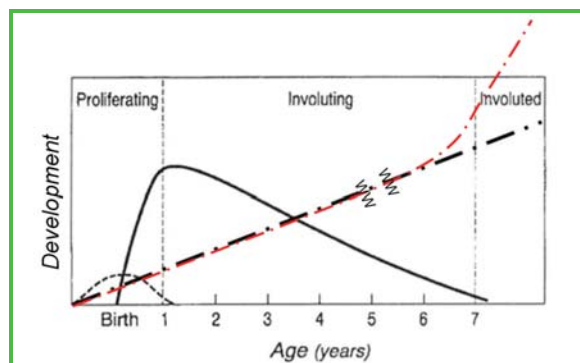


Fig 1 A diagrammatic representation of the time-growth curves of vascular lesions. The solid black line represents the typical haemangiomas; the dotted line represents the course of the rare congenital haemangiomas; the dash-dot line represents the vascular malformations.

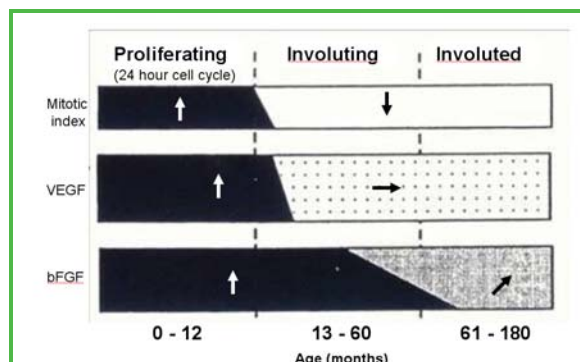


Fig 2 The cellular kinetics and cytokine expression of haemangiomas. (Modified from Cohen MM. Vasculogenesis, angiogenesis, hemangiomas, and vascular malformations. American Journal of Medical Genetics 2002;108:265-274)



Fig 3 Post radiation skin changes.

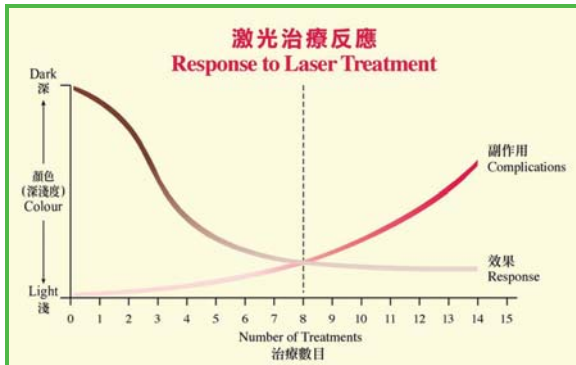


Fig 4 A patient information diagram showing the expectation of an initial good response to laser treatment that typically stabilises. Continued treatment produces little further improvement but the risk of complications increases.

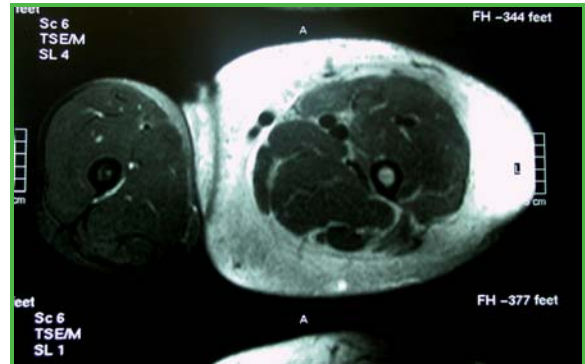


Fig 6b MRI showing grossly similar muscle bulk in both thighs but major increase in subcutaneous tissue vascularity.



Fig 5a A sloppy and redundant lower lip causing speech and drinking difficulties.

Fig 5b Surgical debulking.

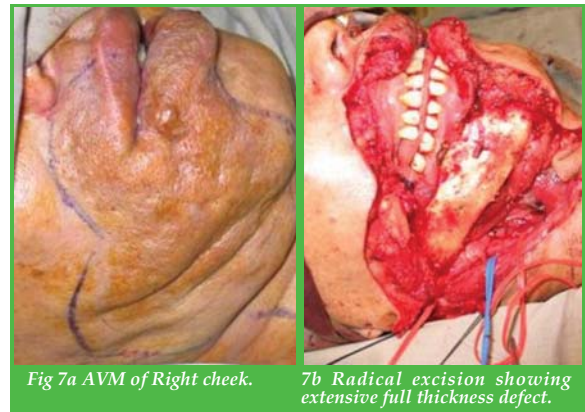


Fig 7a AVM of Right cheek.

7b Radical excision showing extensive full thickness defect.



Fig 5c Restoration of oral continence.

Fig 5d Two years post op. Asymptomatic but with residual abnormality in cheek.



Fig 8a-c Vascular malformation affecting left chest wall.



Fig 6a AVM affecting left lower limb and causing heart failure.



Fig 9 Enbloc resection with meticulous haemostasis.



Fig 10 Soft tissue defect covered with IntegraR dermal regeneration template.

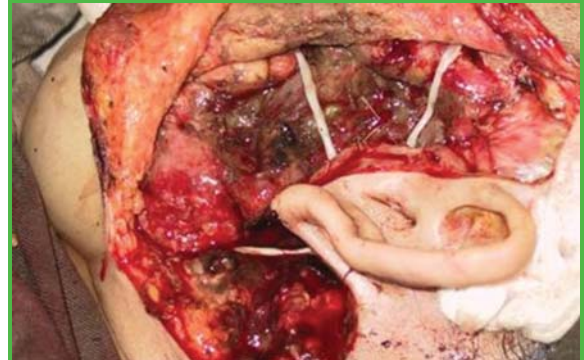


Fig 13b Facial nerve reconstruction 48 hours later with thickened sural nerve grafts.

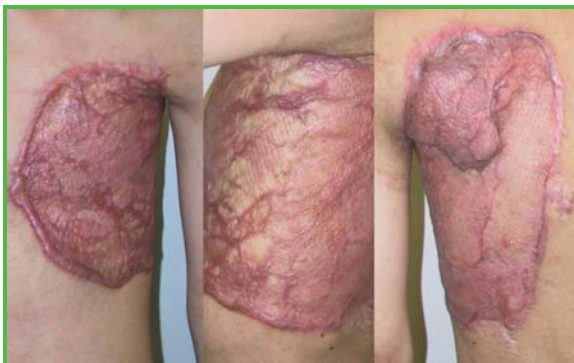


Fig 11a-c Nine months post up.



Fig 14 A typical pyogenic granuloma in a three month old child following minor trauma.



Fig 12 Unilateral soft tissue facial swelling involving left cheek.



Fig 15 A friable vascular lesion in an elderly lady that proved to be a squamous cell carcinoma.



Fig 13a Excision defect with sacrifice of facial nerve and parotid bed packed with haemostatic gauze.

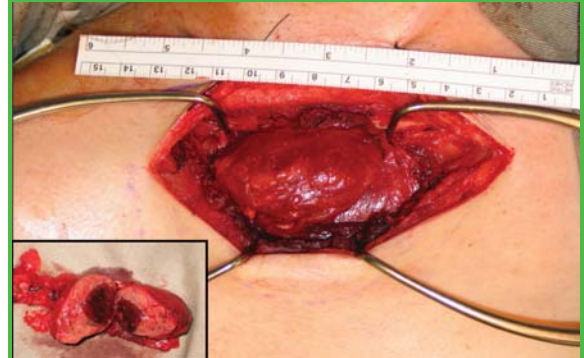


Fig 16 A highly vascular paraganglioma in the right infraclavicular fossa. The inset shows the bisected resection specimen with focal embolisation.



Table I Classification of vascular abnormalities.

Vascular Abnormalities (Mulliken and Glowacki)	
Haemangiomas(tumour)	Vascular Malformations (anatomy)
<ul style="list-style-type: none"> Usually not present at birth Rapidly increase in size Involute F:M = 3:1 60% Head and Neck Most common tumour of infancy "Strawberry naevus" 	<ul style="list-style-type: none"> Present at birth (but may not be clinically apparent) Grow in proportion to body size Can degenerate but also can hypertrophy (AVM)

Table II Serious complications of haemangiomas that need active intervention.

Critical Compromise	
Intrinsic	Extrinsic
<ul style="list-style-type: none"> Bleeding Ulceration Kasabach - Merritt Syndrome Thrombocytopenia associated with kaposiform haemangioendothelioma NOT common haemangioma. 	<ul style="list-style-type: none"> Upper eyelids Deprivation amblyopia and failure to develop binocular vision. Corneal distortion and astigmatism. Airway obstruction

Table III Treatments for complicated haemangiomas.

Haemangiomas - Treatments
<p>Non-Invasive</p> <ul style="list-style-type: none"> Systemic steroids 2mg/kg/day <ul style="list-style-type: none"> Some response in 50-90% of cases Interferon alpha 2a subcut Compression therapy
<p>Invasive</p> <ul style="list-style-type: none"> Intralesional steroids Intralesional OK-432 (from denatured streptococcal protein) Intralesional sclerosing agents (Hypertonic saline, glucose) Surgical debulking

Table IV Classification of vascular malformations.

Vascular Malformations	
Low Flow	High Flow
<ul style="list-style-type: none"> Capillary Venous Lymphatic 	<ul style="list-style-type: none"> Arterial Arterio-venous

Table V Staging of arterio-venous malformations

Schobinger Staging of AVM
<ul style="list-style-type: none"> Stage 1: A blue-skin blush Stage 2: A mass associated with a bruit and a thrill Stage 3: A mass associated with ulceration, bleeding and pain Stage 4: Stage 3 lesions producing heart failure

Table VI Important addition aspects of the informed consent when contemplating surgical excision of the complex vascular malformation.

Informed Consent
<ul style="list-style-type: none"> Bleeding Death on table Incomplete excision Recurrence Residual deformity Nerve damage (in Head and Neck)

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MCHK CME Programme Self-assessment Questions

Please read the article entitled "Clinical Update: Vascular Abnormalities of Skin and Soft Tissues" by Prof. Andrew Burd, Dr. Ada GY Zeng and Dr. Stephanie CK Lam, 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 30 November 2007. 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. Both vascular malformations and hemangiomas will be apparent at birth.
2. Because of its eventual involution, hemangioma never needs surgical intervention.
3. Spastic diplegia is a complication of oral steroid therapy.
4. Laser works best in slow flow lesions with small vessels.
5. Laser for port-wine stain can usually completely clear the lesion.
6. For venous lesions, ultrasound is used to assess flow while MRI is used to assess extent.
7. Sturge-Weber syndrome is also called encephalotrigeminal angiomatosis.
8. 60% of enchondroma in Maffucci's syndrome develop into chondrosarcoma.
9. Differential diagnosis of vascular lesions include plexiform neurofibroma, paraganglioma, pyogenic granuloma and squamous cell carcinoma.
10. Schobinger staging of arterio-venous malformations divide them into four categories according to signs and symptoms.

ANSWER SHEET FOR NOVEMBER 2007

Please return the completed answer sheet to the Federation Secretariat on or before 30 November 2007 for documentation. 1 CME point will be awarded for answering the MCHK CME programme (for non-specialists) self-assessment questions.

Clinical Update: Vascular Abnormalities of Skin and Soft Tissues

¹Prof. Andrew Burd

MD, FRCS, FHKAM(Surgery)

²Dr. Ada GY Zeng

MBChB, MRCS

¹Dr. Stephanie CK Lam

MBChB, MRCS

¹Division of Plastic & Reconstructive and Aesthetic Surgery, Department of Surgery,
The Chinese University of Hong Kong, Prince of Wales Hospital

²Department of Surgery, Tuen Mun Hospital

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Name (block letters): _____ HKMA No.: _____

HKID No.: ____ - ____ X X (x)

Other Membership No.
(please indicate): _____

Contact TelNo.: _____

Answers to October 2007 issue

Quality of life and orthodontic treatment need related to Occlusal indices

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



Management of Post Cleft Deformities of the Lip & Nose

Dr. Man-kwong Tung

MBBS(HKU), FCSHK, FRCS(Edin), FRCS(Glas), FHKAM(Surgery)
Specialist in Plastic Surgery.



Dr. Man-kwong Tung

Introduction

The chance of having a newborn with cleft deformity in the Mainland is about 1 in 1100. The old figure in the SAR was 1:800. The ratio is decreasing because of the availability of advanced ultrasound machines leading to early detection of cleft conditions; allowing the parents to make early decisions! The cleft lip is usually repaired around the age of 3 months old; pending available resources. Throughout the decades various methods have been in favour; such as LeMesurier's, Tennison's & Millard's. All could give good results initially, but the post cleft deformities of the lip & nose gradually became more prominent with time until the patient's facial growth is complete. (See photo)



Preoperative view

The main reason for the deformity is the different rates of growth between the normal & the cleft side. Another major contribution is the failure to understand the need to mobilize the involved muscles & to position them back to the normal anatomical relations. Furthermore, the excision of the so-called "excess tissue" in the primary repair is wrong in most situations.

Before correction of the soft tissue parts, it is important

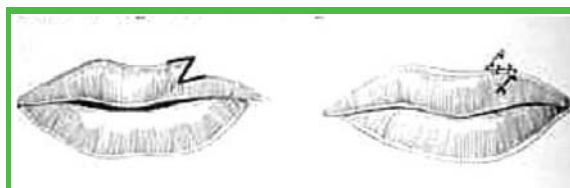
to make sure whether there is any dental problem that needs to be corrected first. A referral to the Oromaxillofacial Surgeon will be able to get an overall picture in the dental aspect & he will coordinate the relevant surgery & relevant Orthodontic treatment. Soft tissue correction before dental treatment can result in very embarrassing outlook that may not be correctable later.

This paper is a brief summary of the methods used to deal with the post-cleft deformities of the lip & nose - the non-dental part. The correct functional positioning of related perioral muscles can be performed in the same session.

Operations for post cleft deformities of the lip & nose

Mal-alignment of vermillion border

This is one of the commonest problems & can be corrected under local anaesthesia.
Z-plasty (see diagram)



Excision of excess tissue + realignment
As part of the whole lip revision operation

Whistle deformity of upper lip

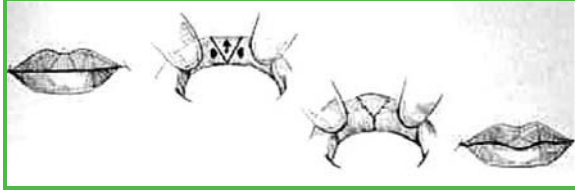
Single or multiple Z-plasty (see diagram)





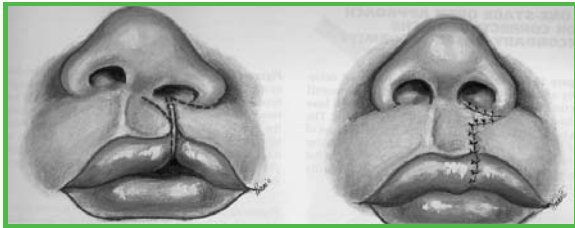
Small vermilion tubercles

- A) Release of upper lip frenulum
- B) VY-plasty (see diagram)



Unequal philtral peak height

- A) Cleft side philtral peak is higher:- Millard's rotational advancement to lower the peak +/- realignment of lip muscles (see diagram)



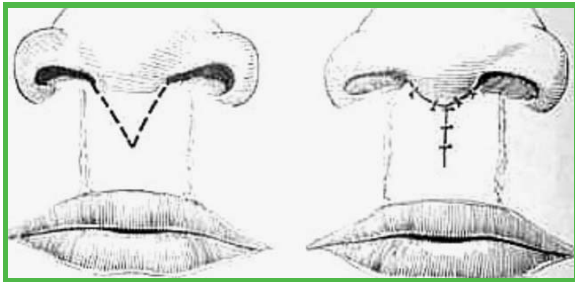
- B) Cleft side philtral peak is lower:- Excise excess tissue on the cleft side; provided the patient's facial growth has completed (see diagram)



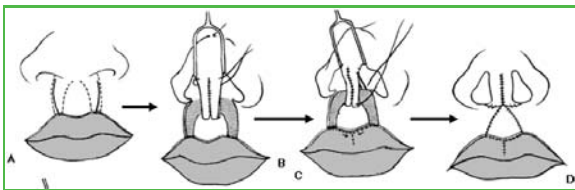
Short philtrum

Usually in patients with previous bilateral cleft lip

- A) VY-plasty (see diagram)

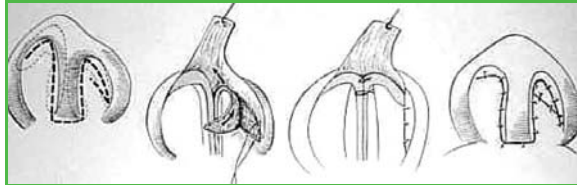


- B) Inverted VY-plasty & advancement forked flap (see diagram)

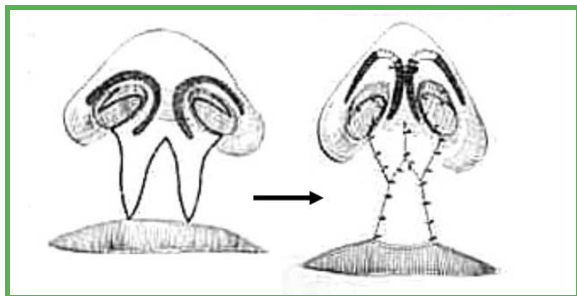


Short columella & flaring of alar

- Open rhinoplasty with realignment of alar cartilage & A) VY-plasty for the unilateral cleft lip patients (see diagram)

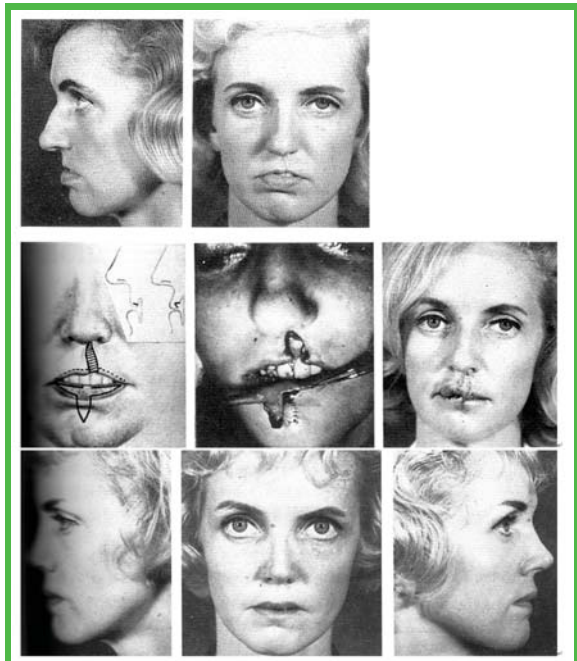


- B) Advancement forked flap for the bilateral cleft lip patients (see diagram)



Lower lip thinner/ smaller than upper lip

- A) Excise lower lip mucosa to thin up
- B) Transfer tissue from lower lip to upper lip by "bucket handle" technique
- C) Fat injection to upper lip or use artificial fillers
- D) Modified Abbe Flap





Conclusion

The community has progressed a lot in the past decades. Surgical service to cleft lip patients is not just limited to primary repair. The final result can be a lot better if these patients are willing & determined to go through the secondary cleft revisions by the appropriate Plastic Surgeons; surgeries by the Oromaxillofacial Surgeons to correct the midface & the jaw bone; orthodontic correction by the Orthodontists & make up technique taught by the Aestheticians. (See photo)



Postoperative view






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Depth of Lesion
Human Abdominal Skin (5x magnification)

Spot Size (mm)	Depth of Lesion (µm)
6	442
8	500
10	595
12	688
15	794
20	899
25	980
30	1025
35	1120
40	1176
45	1224
50	1285
55	1300
60	1337
65	1351
70	1351



Microvascular Free Flaps: Experience in Kwong Wah Hospital

Dr. Chiu-ming Ho, Dr. Vana SH Chan,
Dr. Ming-shiaw Cheng, Dr. Wing-yung Cheung

Division of Plastic Surgery, Department of Surgery, Kwong Wah Hospital, Kowloon



Dr. Chiu-ming Ho

Introduction

The use of flaps with an intact blood supply is the essence of Plastic Surgery. The ability to perform successful microvascular repair of vessels as small as 1mm enables the transfer of composite tissue from its donor site basing on an isolated vascular pedicle and the flap subsequently revascularises with microvascular anastomosis. This is termed microvascular free tissue transfer or free flap as the tissue is transplanted from one part of the body to another.

Since its introduction to clinical use more than 30 years ago, the use of microvascular free tissue transfer gains popularity exponentially and now becomes a routine reconstructive procedure even in non-academic institutions. Microvascular free tissue transfer is a powerful tool as it allows an almost unlimited choice of reconstructive methods, replacement of lost tissue with similar components and optimal selection of donor site with minimal morbidity.

The major deterring factor to embark on the use of free tissue transfer is the need for technical expertise and special resources such as operating microscope and micro-instruments. Microsurgical procedures tend to be lengthy and failure will result in a total loss of the flap. The operative experience of the surgical team is a critical factor influencing the success rates and most surgeons have to go through a learning curve.

With improvements in the surgical skills, better microsurgical instruments and appropriate identification of donor sites, the failure rate of free flaps dropped over the past 2 decades. The success rate of the flap reported in recent series ranged from 94.3 to 99.2 percent, whereas in earlier series, it ranged from 74% to 91% (Khoury 1992, Bui 2007). Failures and vascular complications, however still occur, even in experienced hands. A technical error can be blamed in most cases but no obvious reason can be located in some.

Over the past 2 decades, the focus of research on microvascular surgery shifted from flap anatomy and flap survival towards refinements and choice of flap. A free flap should have the right components and fulfil the functional and aesthetic requirements of the reconstructed defect. Plastic Surgeons are no longer contemplated with plugging a hole but the reconstruction has to match the recipient site not only in size but also in texture, form and colour. Attention was also paid to minimise the morbidity of the donor site by

a wider choice of donor sites, new minimally invasive and endoscopic harvesting of flaps and the use of perforator flaps.

Perforator flaps evolve from musculocutaneous flaps in which the muscle carrier is not included because it is not necessary for the survival of the flap (Geddes 2003). Perforator flaps would have less donor site morbidity, less functional deficit as the muscle is spared and quicker postoperative recovery for the patient. However, it is technically more demanding and meticulous dissection of the small perforator 1mm or less in diameter is required. It takes longer to harvest a flap and the perforator is more easily damaged than the vascular pedicle of a conventional free flap.

We would like to share our experience of microvascular free tissue transfer in Kwong Wah Hospital over the past 12 years.

Patients and Methods

Patient data

The Division of Plastic Surgery, Department of Surgery, Kwong Wah Hospital performed 412 free tissue transfers in 395 patients between December 1994 to December 2006. There was slight female predominance (228 vs. 167; 58% vs. 42%). The age ranged from 2 to 92, with a median of 53. Eight patients (2%) were younger than 18. Eighty-five patients (21%) were 70 or above of whom 15 (4%) were 80 or above. Majority of the patients were non-smoker (83%). There was a history of irradiation prior to operation in 14% of the patients. Six percent had diabetes mellitus (DM) and another 2% had both DM and occlusive peripheral vascular disease.

Seventeen patients had 2 free flap operations. In nine patients a second free flap was performed in the same hospital admission: four had a second free flap for salvage of flap failure, four had bilateral breast reconstruction and one had a rapid local recurrence of oral cavity cancer that required wide resection and another free flap for soft tissue coverage. In eight patients a second free flap was performed in a separate hospital admission: four had resection of local recurrence, two had another primary tumour and two had soft tissue problems after irradiation.

Indications for microvascular free tissue transfer

In the majority of the patients, microvascular free tissue



transfer was used to reconstruct defects or deformities after oncological resection of malignant tumours (381/412, 92%). (Table 1) Head and neck cancer was the most common (218/381, 57%), followed by breast cancer (147/381, 39%) and skin cancer (16/381 4%).

The commonest indication for free flaps in non-malignant conditions was the coverage of complicated wounds (Table 1). This could be an elective treatment of difficult scars and contractures after burn and trauma. It was also required in acute situations like ischaemic ulcers in peripheral vascular disease and infection in diabetes mellitus, where coverage of the wound in the lower extremity was needed to avoid amputation.

The commonest site requiring free flap reconstruction was the head and neck region (58%), followed by the breast (36%) and the limbs (6%).

Free flap data

The different types of flaps according to their vascular pattern and components and the site of origin are tabulated in Tables 2 and 3, respectively. The most frequently used free flaps in Kwong Wah Hospital was the rectus myocutaneous flap (122), which was usually used for breast reconstruction after total mastectomy (Figure 1) The second was fibular flap (72), which was used for reconstruction after composite oromandibular resection (Figures 2 and 3). The deep inferior epigastric perforator flap (DIEP) was used for breast reconstruction (58) (Figures 4 and 5) and the anterolateral thigh flap (ALT) (55) was usually used for reconstruction of soft tissue defect in the oral cavity and oropharynx (Figures 6 and 7). The visceral free flap was the jejunal flap used for bridging a circumferential pharyngeal defect between the oropharynx and the oesophagus (Figure 8).

The number of free flaps performed each year was in an increasing trend. The perforator flap was introduced in 2001 and gained popularity steadily. It represented 36% of the free flaps used in 2006 and 27% of the free flaps in this series.

Results

The overall complication rate was 40% and could be broken down into general complications (61, 15%), flap circulation-related complications (24, 6%), and complications related to the recipient site (71, 17%) and donor site (33, 8%). (Table 4) Most of the complications were minor and could be managed conservatively. Forty three patients (10%) required a second operation because of the complication which was usually due to compromised circulation of the flap (56%) (Table 5)..

Four patients (1%) died in the same admission for free flap surgery. Two patients died of cardiac events and one had a carotid blow-out 2 weeks after surgery. The last patient was an 87 year old patient who had a series of general complication including pneumonia, urinary tract infection and cerebrovascular accident. He died 2 months after the operation.

The overall success rate of free flaps in our series was 95.6%. There were 18 (4.4%) total loss and 8 (2%) partial loss of the flap. Four flap failures were detected intra-operatively because of failure to establish an adequate arterial inflow and 14 patients occurred postoperatively. In 24 patients (5.8%), re-exploration was needed postoperatively because of compromised circulation of the flaps (Table 5). Seventy percent of the flaps were explored within 72 hours post-operatively. Salvage of the flap was successful in 6 (25%) patients and loss of the flap in 14 patients. Partial loss of the flap occurred in 4 patients.

There was neither partial nor total loss of flap in irradiated patients. The rate of partial flap loss and total flap loss in diabetic patient was 16% and 4% respectively, compared to 1% and 4% for those who had DM. For those patients who had both DM and occlusive peripheral vascular disease, the rate of partial flap loss and total flap loss was 13% and 25% respectively, much higher than those who did not have such diseases. (Table 6)

Two hundred and thirty eight free flaps were performed in head and neck region. There were 5 partial losses and 9 total losses. The overall success rate was 96.2%. In 148 free flaps for breast reconstruction, there was 1 partial loss and 5 failed flaps and the overall success rate was 96.6%. The number for limb reconstruction was relatively small, 22 for lower limb and 4 for upper limb. There were 2 partial losses and 4 total losses in lower limb. That represented 84.6% of overall success rate.

Further wound coverage after failing of flaps was necessary in 19 patients (5%). Ten patients required regional flaps for coverage, pectorails major myocutaneous flap in 7, latissimus dorsi flap in 2 and delto-pectoral flap in 1. Four patients needed skin grafting and 4 patients needed another free flap. One patient eventually needed above-knee amputation for salvage.

Discussion

Microvascular free flap revolutionised reconstructive surgery and was indispensable in surgical oncology. It was the first choice of reconstructive options in complex defects after extensive resection of malignant lesions involving multiple tissue components such as skin, mucosa, soft tissue and bone.

The success rate and re-exploration rate of free flaps in this series was 95.6% and 5.8%, respectively. This was consistent with the recent large series reported by well known microsurgery centres in the world (Bui 2007). A prospective study of 493 microvascular free flaps performed by 23 world famous microvascular surgeons over 6 months showed a flap failure rate of 4.1% and a postoperative thrombosis rate requiring re-exploration of 9.9% (Khouri 1998).

The success rates in the head and neck region and the breast were comparable but the success rate in limbs was only 84.6%. This was probably related to the fact



that the main indication for reconstruction in the limbs was chronic ulcer and a high proportion of the patients had either DM or occlusive peripheral vascular disease.

Diabetic patients were 20 times more likely to have partial flap loss than their healthy counterparts. For patients who had both DM and peripheral vascular disease, the chance of total flap failure was 6 times higher than DM and normal patients. This could be attributed to the diseased vessels and poor wound healing in this group of patients.

The incidence of complications was 40% and this represented the complexity of the reconstruction that involved long operation with multiple steps. It was fortunate that only 10% of the patients required re-operation. Most of the operations (56%) were flap circulation-related and operated within the first few days after the operation. It was a huge burden for the reconstruction team if the flap circulation was not satisfactory and it was a major commitment to embark on microvascular free flap surgery. However, the use of conventional pedicle flaps and skin grafts involved multiple stages, longer hospital stay and even more complications. This was the reason why microvascular free flaps became the standard of care in these complex reconstructions.

The ability to achieve a high success rate led the Plastic Surgeons to shift their focus on improving the functional and aesthetic result of reconstruction as well as minimising the morbidity of donor site. Koshima and Soeda were the first to show that it was feasible to harvest lower abdominal skin and fat without sacrificing the rectus abdominis muscle in 1989 (Koshima 1989). The clinical beneficial effect of using DIEP for breast reconstruction was reported by Blondeel in 1997 (Blondeel 1997). The use of ALT flap was further popularised by Chang Gung Memorial group from Taiwan (Wei 2002).

We started to perform perforator flap in 2001, initially as DIEP flap for breast reconstruction. ALT flap was performed since 2003 and was mainly used for soft tissue reconstruction in head and neck region. In 2006, 36% of the free flaps performed in Kwong Wah Hospital were perforator flaps. With appropriate choice and application of free flaps not only the donor site complications could be minimised, a good aesthetic outcome could be achieved (Figure 9).

Conclusion

Microvascular free tissue transfer is a complicated, demanding and lengthy reconstructive procedure that has a narrow margin for error, which results in total failure of the flap. However it is also highly rewarding and has a high rate of success with acceptable operative complications.



Fig. 1 (Upper left) Patient with carcinoma of left breast. (Upper right) Skin-sparing mastectomy and axilla dissection was performed followed by immediate breast reconstruction using a free transverse rectus abdominis flap. (Lower left) Reconstruction of the nipple using local skin flaps was performed a year later after chemotherapy was completed. (Lower right) Nipple areolar tattoo was performed.



Fig. 2 (Upper left) Patient presented with a tumor in the retromolar trigone with invasion into the mandible. (Upper center) Tumor approached from the neck and composite resection of the retromolar trigone together with a segment of mandible was performed. (Upper right) Defect after resection showing the 2 cut ends of the mandible and soft tissue defect of the oral cavity and oropharynx. (Lower left and lower center) Anteroposterior and lateral contour deformity after tumor ablation. (Lower right) Resected specimen.



Fig. 3 (Upper left) Fibular osteocutaneous flap harvested including the skin paddle and the underlying segment of fibular bone. (Upper center) Flap isolated and elevated basing on the peroneal vessels. The fibular bone was osteotomised into 3 segments and fixed with titanium miniplates to form the new "mandible". (Upper right) The fibular osteocutaneous flap was fixed to the cut ends of the mandible to restore the occlusion as well as the contour of lower jaw. (Lower left) A water-tight closure to separate the oral cavity and the neck was formed by suturing the skin of the lower leg to the cut mucosal edges. (Lower center and lower right) The contour of the lower jaw was restored.

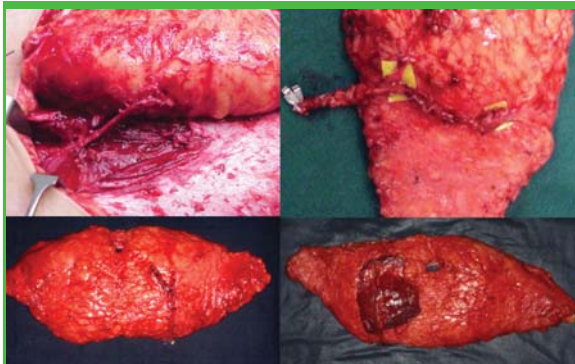


Fig. 4 (Upper left) The perforator was isolated with preservation of the rectus muscle. (Upper right) Flap harvested showing the 2 isolated perforators and the inferior epigastric pedicle. (Lower left) A typical DIEP flap with isolated perforators and inferior epigastric pedicle. (Lower right) A conventional TRAM flap showing inclusion of a segment of rectus muscle.



Fig. 5 (Left) Immediate breast reconstruction using a DIEP flap. (Right) Appearance after one year.



Fig. 6 (Upper left) Patient presented with carcinoma of the right lateral border of the tongue. (Upper right) Anterolateral thigh perforator flap (ALT) outlined. (Lower left) Resected specimen of partial glossectomy and right supraomohyoid neck dissection. (Lower right) Perforator identified and its course traced through the vastus lateralis muscle.



Fig. 7 (Left) The ALT flap harvested. (Center) Flap insetted in the oral cavity to reconstruct the partial glossectomy defect. (Right) The donor site of the thigh could be closed primarily.

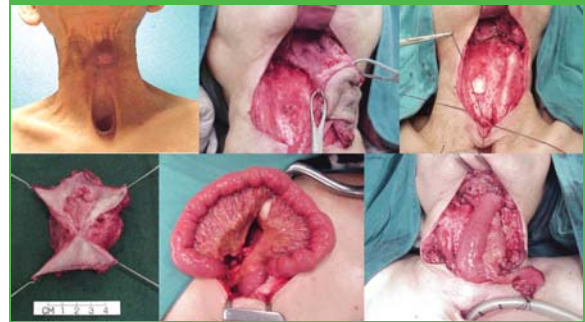


Fig. 8 (Upper left) Patient presented with a second primary tumor in the neopharynx after total laryngectomy for carcinoma of the larynx. Tumor extended to involve the overlying skin. (Upper center) Wide excision of the skin with circumferential pharyngectomy done. (Upper right) Circumferential pharyngeal defect showing the upper cut oropharyngeal end and the lower esophageal end secured with 4 silk stay stitches. (Lower left) Resected specimen showing tumor in the neopharynx with a tight stricture. (Lower center) A segment of jejunum isolated on a single jejunal pedicle. (Lower right) Jejunum interposed between the oropharynx and the esophagus, a small segment used for observation of the circulation of the flap after the operation.



Fig. 9 (Left) Patient presented with dermatofibrosarcoma protuberance of the left face with extent of resection outlined. (Center left) Defect after resection showing exposed zygoma, masseter muscle and buccal fat pad. (Center right) Appearance one month after reconstruction with a tensor fasciae lata myocutaneous flap. (Right) Appearance after debulking and revision of the flap.

Table 1 Indications for microvascular free flaps

Indication	n=412 (%)
Malignant	381 (92)
Head & neck	218 (53)
Breast	147 (36)
Skin tumor	16 (4)
Benign	31 (8)
Complicated wound	22 (5)
Burn	9 (2)
DM foot ulcer	7 (2)
Trauma	4 (1)
Necrotising fasciitis	2 (1)
Others	9 (2)
Oro-nasal fistula	1 (0)
Secondary breast reconstruction	1 (0)
Congenital giant nevus	1 (0)
Longitudinal deficiency of femur	1 (0)
Exposed vascular vein graft	1 (0)
Recurrent frontal fistula	1 (0)
Submandibular abscess	1 (0)
Ameloblastoma	1 (0)
Extravasation injury	1 (0)

Table 2 Frequency of different types of free flaps

Type of free flap	Free flap	n = 412 (%)
Myocutaneous	Rectus	122 (30)
	Latissimus dorsi	2 (0)
	Tensa fascia lata	2 (0)
Fasciocutaneous	Lateral arm	13 (3)
	Radial forearm	33 (8)
	Scapular	6 (1)
	Groin	2 (0)
	Osteocutaneous	Fibular
Visceral	Jejunal	29 (7)
Muscle	Rectus	11 (2)
	Latissimus dorsi	3 (0)
	Graclilis	4 (1)
Perforator	DIEP	58 (14)
	ALT	


Table 3 Frequency of different types of microvascular free flaps performed between 1994 and 2006

Year	Type of flap						n
	Myocutaneous	Fasciocutaneous	Osteocutaneous	Visceral	Muscle	Perforator	
1994	1	0	0	0	0	0	1
1995	9	6	2	2	0	0	19
1996	18	5	3	4	0	0	30
1997	2	8	3	2	2	0	17
1998	7	8	6	4	0	0	25
1999	10	6	5	4	3	0	28
2000	12	5	9	1	3	0	30
2001	5	4	5	3	1	13	31
2002	4	6	7	2	3	20	42
2003	5	1	11	1	4	23	45
2004	19	1	3	3	2	23	51
2005	12	1	7	1	0	13	34
2006	20	3	11	2	2	21	59
Total	124	54	72	29	20	113	412

Table 4 Complication rates of microvascular free flaps

Complication		n = 412 (%)
General	Chest infection	61 (15)
	Urinary tract infection	23 (6)
	Cardiac arrhythmia	12 (3)
	Myocardial infarction	6 (1)
	Cerebrovascular accident	3 (1)
	Pleural effusion	3 (1)
	Pneumothorax	2 (0)
	Acute retention of urine	2 (0)
	Miscellaneous	6 (1)
	Flap circulation-related	Flap congestion
Flap ischemia/failure		12 (2)
Skin island necrosis		9 (2)
Anastomotic blow-out		2 (0)
Recipient site	Wound infection	71 (17)
	Wound edge necrosis	25 (6)
	Seroma	16 (4)
	Hematoma	12 (3)
	Fistula/anastomotic leak	10 (2)
	Miscellaneous	7 (2)
Donor site	Wound infection	1 (0)
	Loss of skin graft	33 (8)
	Skin necrosis/dehiscence	19 (5)
	Fat necrosis	7 (2)
	Miscellaneous	4 (1)
		2 (0)

Table 5 Indications for re-operation in microvascular free flaps

		n=43 (%)
Flap circulation-related	Flap congestion	24 (56)
	Flap ischemia/failure	12
	Skin island necrosis	9
	Anastomotic blow-out	2
		1
Recipient site	Partial flap loss	15 (35)
	Fistula/wound infection	5
	Osteomyelitis	4
	Wound necrosis	2
	Chyle leakage	2
	Avulsed sentinel jejunal loop	1
		1
Donor site	Wound infection/necrosis	3 (7)
		3
General	GIB / acalculous cholecystitis	1 (2)
		1

Table 6 Risk factors with reference to complications

Risk factor	n=412	Complication	
		Partial flap loss (%)	Total flap loss (%)
Past health	25	8	18
DM	8	4 (16)	1 (4)
DM + PVD	379	1 (13)	2 (25)
Control		3 (1)	15 (4)
Site		8	18
Head & neck	238	5 (2)	9 (4)
Breast	148	1 (1)	5 (3)
Lower limb	22	2 (10)	4 (19)
Upper limb	4	0 (0)	0 (0)
Type of flap		8	18
Myocutaneous	124	3 (2)	3 (2)
Fasciocutaneous	54	1 (2)	5 (9)
Osteocutaneous	72	2 (3)	3 (4)
Visceral	29	0 (0)	1 (3)
Muscle	20	2 (10)	1 (5)
Perforator	113	0 (0)	5 (4)

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Treatment of Acne Scars in Asian Skin with Affirm Combined Apex Pulse Technology

Dr. Connia LY Ho

MB,BS, MRCP, FHKCP, FHKAM(Med), Dip. Derm(London)

Specialist in Dermatology

Introduction

Acne is a common disease and has been estimated to affect 95-100% of 16-17 year old boys and 83-85% of 16-17 year old girls. Acne resolves in the vast majority by 23-25 years of age, but 1% of males and 5% of females continue to exhibit acne lesions at 40 years of age.¹⁻⁵

There are many factors that influence the onset of acne and the eventual sequela of acne scarring. There does appear to be a hereditary component to acne, but it also is strongly influenced by external factors.⁶⁻⁷

Acne is highly embarrassing for adolescents. Post-acne scarring is particularly devastating. These scars appear as multiple depressive scars, cause problems cosmetically and impact self-confidence, especially in young people.⁸

Post-acne scars are dermal depressions that are most commonly caused by collagen damage. Many different treatments including chemical peels, surgical excision, punch grafting, dermabrasion, and tissue augmentation with a variety of filler substances, have been used to treat post-acne scars with varying degrees of success.⁹⁻¹⁰

Recontouring of post-acne scars with CO₂ and Er: YAG lasers have become popular over the last decade. Though more effective than other methods due to its precision with depth control and variable methods of surface cutting, laser resurfacing has an extended post-laser recovery period and the potential risks of delayed wound healing, pigmentary changes, and scarring.^{8, 11}

These procedures have not been widely accepted in Asian countries due to the increase in post inflammatory hyperpigmentation. In fact, these complications and downtime can sometimes last more than one year. Some post inflammatory hyperpigmentation may be permanent. For these reasons Asian patients have been less willing to undergo ablative laser skin resurfacing.¹²⁻¹³

In general, Asian skin types have a tendency to develop pigmentation and other complications with most conventional skin rejuvenation procedures.

In a previous study conducted at the National Skin Center in Singapore a 1450 nm nonablative diode laser was found to result in clinical improvement of atrophic acne scars in Asian skin types after 4-6 treatments with a fluence of 11-12 J/cm².

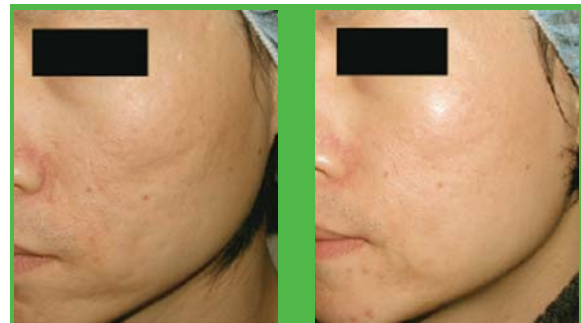


Figure 1 -Improvement of left lateral acne scars, before (left) and post-treatment (right)

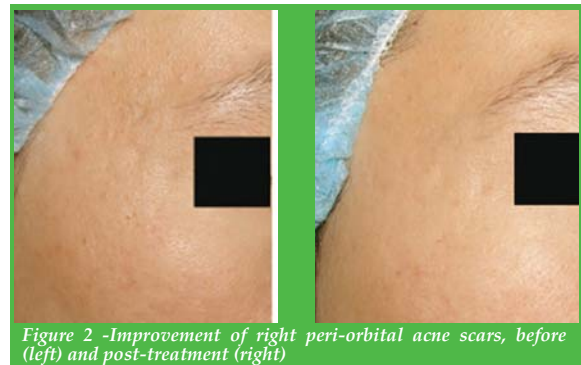


Figure 2 -Improvement of right peri-orbital acne scars, before (left) and post-treatment (right)

However, in this study the side effect of postlaser hyperpigmentation was significant. The possible contributing factor to this postlaser hyperpigmentation may be the high fluence used in the aforementioned study. Pain experienced during treatment was also significant in this study despite the use of pre-treatment anesthetic cream and cryogen precooling.¹⁵

It is for these reasons that novel treatments for acne scars in Asian skin types have been sought.¹⁴

Methods

The objective of this study is to evaluate the performance of the Affirm, 1440 nm Nd: YAG laser device with Combined Apex Pulse (CAP) technology in the treatment of ten subjects of Asian skin type presenting with acne scars.

Subjects were evaluated and photographed prior to the initiation of treatment, prior to each subsequent



treatment, and at one and three months following the final treatment. Subjects received five treatments at 3-4 week intervals. Prior to treatment the skin was cleaned and any makeup was removed.

Subjects were treated using the Affirm laser system. The strong absorption of the 1440 nm wavelength makes the Affirm a safe and effective treatment of the area of solar elastosis (100-300 microns) and deeper penetration into the tissue is rendered unnecessary. The CAP array in the 1440 nm Nd:YAG Affirm laser system was developed to combine the effects of both high-fluence aggressive heating resulting in collagen remodeling and the mechanism of low-fluence low level heating resulting in collagen stimulation.

The CAP array consists of a special lens which creates apexes of high-fluence regions surrounded by low-fluence treatment zones. The high-fluence apexes create a pattern of columns surrounded by low-fluence background heat. This combination improves treatment efficacy while maintaining the existing side effects profile.

The Affirm 1440 nm wavelength was delivered using the 10 mm spot size with the CAP array and a 3 msec pulse duration. Treatment fluences ranged from 2.5-4.0 J/cm², and 1-2 Hz pulse repetition rate.

Initial subject treatment fluences were 2.5-3.0 J/cm². Treatment fluences increased with each subsequent treatment based upon patient tolerance. Subjects received two treatment passes. All treatments were delivered in conjunction with SmartCool™ (Cynosure, Inc., Westford, MA) cold-air cooling, with a fan speed of 3 or 4. No additional anesthesia was required. The CAP array tip requires full contact with the skin for safe and effective treatment. When treating acne scars, compression is used to flatten the scar, for more direct delivery of the laser energy to the area. Subjects could resume normal activities following treatment.

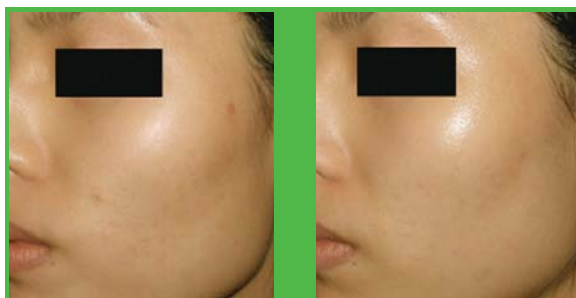


Figure 3 -Improvement of left lateral acne scars, before (left) and post-treatment (right)

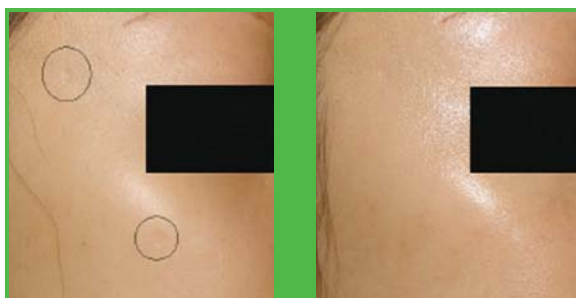


Figure 4 -Improvement of right peri-orbital scars, before (left) and post-treatment (right)



Figure 5 - Improvement of left lateral acne scars, before (left) and post-treatment (right)

Ten subjects participated in this investigation. Nine of the ten subjects completed all five treatment procedures. The remaining one patient completed her fourth treatment. All ten subjects have returned for their one-month post-treatment evaluation. As of 7 May 2007 two patients have returned for their three-month post-treatment evaluation.

Results

While evaluating the treatment of ten subjects using the Affirm laser system at 1440 nm wavelength an improvement in acne scars was noted.

Improvement in enlarged pores, dyschromia, post inflammatory hyperpigmentation (PIH), skin color, pigmentation and skin texture also was noted. Patients tolerated the procedures well and were very satisfied with the outcome.

Of the ten subjects treated eighteen distinct treatment areas were evaluated. Treatment area photos were graded according to the following scale: 0 = no improvement, 1 = mild improvement, 2 = moderate improvement, 3 = good improvement, 4 = excellent improvement. Of these twenty seven treatment areas all showed some improvement. No treatment areas showed less than a 25% improvement. Seven treatment areas showed a 25-50% improvement, seven showed a 50-75% improvement and four showed a 75-100% improvement. The overall average improvement for all treatment areas was 50-75%.

Pain experienced during the procedure was minimal to moderate. Patient discomfort was evaluated on a scale of 0-5. Only one patient reported experiencing discomfort of 4 during just one of the treatments. Patients reported an average discomfort level of 2.3. No topical anesthesia was used during treatments.

Postlaser hyperpigmentation was minimal with many patients seeing improvement in existing post inflammatory hyperpigmentation.

Discussion

Treatment with the Affirm laser system at 1440 nm wavelength is an effective treatment for acne scars. Improvement can also be observed in enlarged pores, dyschromia, postinflammatory hyperpigmentation,



skin color, pigmentation and skin texture. Treatment with the Affirm laser system at 1440 nm wavelength may result in post treatment erythema that may last up to 24-48 hours. Patients may apply a mineral based make-up post treatment and resume activities. The procedure is well tolerated by patients.

Theory

The most general simplified morphology of a depressed acne scar is a region of normal epidermis pulled down by a compacted nodule consisting mostly of damaged collagen. The depth of the compacted nodule is determined by the depth and subsequent re-epithelialization of the original acne inflammation. The compacted nodules closer to the surface present more cosmetic issues than deeper nodules. Prior studies have shown that CO₂ and uniform spot 1450 nm laser can improve the appearance of depressed acne scars, although these modalities are associated with various side effects¹⁶. The 1440 nm wavelength of the Affirm laser has similar depth of penetration as the 1450 nm uniform spot or the ablative depth of the CO₂ laser. The main advantage of the Affirm is that using CAP technology it creates background uniform heating and precisely tailored columnar damage and promotes collagen rejuvenation without the side effects. As a result of the treatment, damaged collagen in the compacted nodules is partially or totally replaced and the appearance of the depressed acne scars is alleviated or eliminated.

Conclusion

The Affirm with CAP technology provides good improvement in acne scars, as well as enlarged pores, dyschromia, post inflammatory hyperpigmentation, skin color, pigmentation and skin texture, and offers significant practical advantages over other conventional treatments including traditional laser resurfacing.

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Clinical Quiz

Dr. Wendy WM Lam

Consultant, Department of Radiology, Queen Mary Hospital



Case of the Week

F/24 yr

C/O pain over femur after a minor fall.

This is the X-ray of her pelvis.

- What are the findings?
- What is your diagnosis?

(See P.36 for answers)



The Federation Soccer Five Tournament 2007

The Opening Ceremony and the first matches of the Soccer Five Tournament were held on 7 October 2007 at the Hong Kong International Trade and Exhibition Centre (HKITEC), Kowloon Bay. Various guests attended the ceremony such as Dr Dawson Fong, President of the Federation of Medical Societies of Hong Kong (FMSHK); Prof. Raymond Cheung, Assistant Dean, The University of Hong Kong; Prof. Fok Tai Fai, Dean, The Chinese University of Hong Kong and Dr Chu Kin Wah.



Official ribbon cutting at the Opening Ceremony of the Federation Soccer Five Tournament. From left: Dr. Nancy Yuen, Dr. Chu Kin Wah, Prof. Raymond Cheung (Assistant Dean, HKU), Dr. Dawson Fong (President, FMSHK), Prof. Fok Tai Fai (Dean, CUHK), Dr. Robert Tsang, Dr. Yip Siu Fai.



Group photograph at the Opening Ceremony

Results from matches held on 7 October 2007

Group A		Group B		Group D
Alcon vs HKMA (Team 1)	3 : 5	HKMA (Team 2) vs CUHK	1 : 4	Pfizer (Team 1) vs AstraZeneca 8 : 1
FMSHK (QEH) vs HKOS White	2 : 1	HKOA vs HKOS Blue	1 : 1	
HKDA vs Alcon	3 : 0	HKU vs CUHK	1 : 5	
HKMA (Team 1) vs FMSHK (QEH)	1 : 2	HKMA (Team 2) vs HKOS Blue	0 : 1	
HKOS White vs HKDA	3 : 6	HKOA vs HKU	3 : 3	

Central & Western Health Festival 2007

HKFMS Foundation Limited participated in the Central & Western Health Festival 2007 held at 6/F, Smithfield Sports Complex, Kennedy Town on 29 and 30 September 2007 with over 3500 general public attending the 2-day event. HKFMS Foundation Limited contributed with 4 exhibition booths on Elderly Health and Screening to promote the health message and education.



HKFMS Foundation Limited contributed with 4 booths on Elderly Health and Screening



From left: Cora Tsang, Dr Dawson Fong (President, HKFMS Foundation), Dr Raymond Lo (Chairman, Organising Committee, HKFMS Foundation), Ms Sue Cheng, Dr Chan Chi Kuen (FMSHK)



The new FMSHK Team (Administrative Officer - Miss. Paulina P.K. Tang)



Miss Paulina Tang has been appointed as the Administrative Officer of FMSHK since 8 October 2007, a role she comes to after 13 years experiences in the banking industry. She has been active in volunteer services, thus she is bringing along with her invaluable experience and skills that can be an asset to our Federation.

Miss Tang is energetic and dedicated to serve the evolving needs of our member societies.



News from Member Societies:

Hong Kong Paediatric Haematology and Oncology Study Group

Updated office-bearers for the year 2007-2008 are as follows: Chairman: Dr. CHIANG Kwok-shing, Alan, Vice-Chairman: Dr. YAU Ping-wa, Secretary: Dr Vincent LEE, Treasurer: Dr. LI Chak-ho, Rever, Council Members: Dr CHAN Chi-fung, Godfrey, Dr LING Siu-cheung, Dr SHING Ming-kong, Dr YUEN Hui-leung



Dr. Se-fong Hung

The Hong Kong College of Psychiatrists

The forerunner of the Hong Kong College of Psychiatrists was the Hong Kong Psychiatric Association. The College was founded in September 1990 with the following objectives:

- (1) To promote the study and advancement of the science and practice of psychiatry and ancillary sciences and branches of medicine
- (2) To contribute to the improvement of mental health care for Hong Kong citizens through the provision of specially trained psychiatrists
- (3) To ensure the highest professional standard of competence and ethical integrity in Psychiatry

Apart from the above objectives, the College has been, in the past year, devoting more emphasis on public education with a view to raising public awareness on the importance of mental health as well as contributing towards de-stigmatisation of mental disorder. In addition, the College has also engaged the government and submitted our views on the future development of mental health development in Hong Kong to the Secretary of Food and Health and one of the suggestions is enhanced collaboration with the primary care sector to ensure quality psychiatric service at all levels.



Hong Kong Geriatrics Society

Founded in 1981, the Hong Kong Geriatrics Society is the only local professional society for doctors practicing geriatric medicine. There are up to now 180 members with 42 associate members. Geriatricians are responsible for the management of acute and chronic illnesses, including severe disability and terminal conditions in older people. The Society's objectives are to promote research, training and development in geriatric medicine, and to improve the standard of care for older people.

In order to attract more young people to develop an interest in care for the elderly to meet the growing demand of a rapidly aging population, the Society have now set up scholarship prizes, one for each of the two local medical schools, to facilitate medical students to undergo elective period in geriatric medicine overseas. With the introduction of the sponsorship, we are hoping to "catch them young" and sow seeds in their hearts by facilitating medical students' earlier exposure to reputable academic as well as service geriatric units. Applications should be made via the scholarship application offices of the 2 universities respectively.



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<ul style="list-style-type: none"> ★ 9th BHME in Beijing ★ HKMA Structured CME Programme at Queen Elizabeth Hospital Year 07/08 (VIII) - Psychiatry ★ HKMA Tennis Tournament <p style="text-align: center;">4</p>	<ul style="list-style-type: none"> ★ Seminar on Nursing Audit & Accreditation (Code No. SE-NAA-01-07) <p style="text-align: center;">5</p>	<ul style="list-style-type: none"> ★ FMSHK Officers' Meeting ★ HKMA Newsletter Editorial Meeting <p style="text-align: center;">6</p>	<p style="text-align: center;">7</p> <ul style="list-style-type: none"> ★ Hong Kong Neurosurgical Society Monthly Academic Meeting - Intraoperative Monitoring in Neurosurgery 	<ul style="list-style-type: none"> ★ HKMA Council Meeting ★ HKMA Structured CME Programme with Hong Kong Sanatorium & Hospital Year 2007 (XI) - An Update on the Management of Infertility ★ FMSHK Executive Committee Meeting & Council Meeting ★ FMSHK AGM & FMSHK Foundation AGM <p style="text-align: center;">8</p>	<ul style="list-style-type: none"> ★ Trailwalker 2007 ★ Certificate Course in Ward Management - Module I: "Managing people in health service" (Code No. TC-WM-01071) ★ Certificate Course in Ward Management - Module I: "Managing people in health service" (Code No. TC-WM-01071) ★ Certificate Course in Ward Management - Module I: "Managing people in health service" (Code No. TC-WM-01071) ★ Certificate Course in Ward Management - Module I: "Managing people in health service" (Code No. TC-WM-01071) <p style="text-align: center;">9</p>	<ul style="list-style-type: none"> ★ 9th BHME in Beijing ★ Refresher Course for Health Care Providers 2007/2008 (III) - Approach to Patients with Depression ★ Trailwalker 2007 ★ Annual Scientific Meeting in Anaesthesiology 2007 - Expanding the Boundaries ★ 4th Asian Pacific Diabetic Limb Problems ★ 1st Guangdong, Hong Kong & Macau Sports Meet <p style="text-align: center;">10</p>
<ul style="list-style-type: none"> ★ HKMA Tennis Tournament ★ Trailwalker 2007 <p style="text-align: center;">11</p>	<p style="text-align: center;">12</p>	<p style="text-align: center;">13</p>	<p style="text-align: center;">14</p>	<ul style="list-style-type: none"> ★ FMSHK AGM & FMSHK Foundation AGM <p style="text-align: center;">15</p>	<ul style="list-style-type: none"> ★ Certificate Course in Ward Management - Module I: "Managing people in health service" (Code No. TC-WM-01071) <p style="text-align: center;">16</p>	<ul style="list-style-type: none"> ★ Annual Scientific Meeting in Anaesthesiology 2007 - Expanding the Boundaries ★ 4th Asian Pacific Diabetic Limb Problems ★ 1st Guangdong, Hong Kong & Macau Sports Meet <p style="text-align: center;">17</p>
<ul style="list-style-type: none"> ★ HKMA Tennis Tournament ★ Annual Scientific Meeting in Anaesthesiology 2007 - Expanding the Boundaries <p style="text-align: center;">18</p>	<p style="text-align: center;">19</p>	<p style="text-align: center;">20</p>	<p style="text-align: center;">21</p>	<p style="text-align: center;">22</p>	<ul style="list-style-type: none"> ★ Certificate Course in Ward Management - Module I: "Managing people in health service" (Code No. TC-WM-01071) <p style="text-align: center;">23</p>	<ul style="list-style-type: none"> ★ 4th Asian Pacific Diabetic Limb Problems ★ 1st Guangdong, Hong Kong & Macau Sports Meet <p style="text-align: center;">24</p>
<ul style="list-style-type: none"> ★ HKMA Tennis Tournament ★ 4th Asian Pacific Diabetic Limb Problems ★ 1st Guangdong, Hong Kong & Macau Sports Meet ★ HKMA Structured CME Programme at Kwong Wah Hospital Year 07/08 (VIII) - Nephrology <p style="text-align: center;">25</p>	<p style="text-align: center;">26</p>	<p style="text-align: center;">27</p>	<p style="text-align: center;">28</p>	<p style="text-align: center;">29</p>	<ul style="list-style-type: none"> ★ Certificate Course in Ward Management - Module I: "Managing people in health service" (Code No. TC-WM-01071) <p style="text-align: center;">30</p>	



Date / Time	Function	Enquiry / Remarks
1 THU 8:00 pm	HKMA Council Meeting Organised by: The Hong Kong Medical Association Chairman: Dr. K CHOI # HKMA Head Office, 5/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Christine WONG Tel: 2527 8285
3 SAT (4)	9th BHME in Beijing Organised by: The Hong Kong Medical Association Chairman: Dr. T.C. SHIH & Dr. S.W. LI	Ms. Candy YUEN Tel: 2527 8285
4 SUN 2:00 pm	HKMA Structured CME Programme at Queen Elizabeth Hospital Year 07/08 (VIII) - Psychiatry Organised by: The Hong Kong Medical Association & Queen Elizabeth Hospital Speaker: Dr. CHU Lap Sun, Dr. WONG Man Tak & Dr. LAM Wai Keung # Lecture Theatre, G/F., Block M, Queen Elizabeth Hospital, Kowloon	Miss Viviane LAM Tel: 2527 8452 (Registration fee is required) 3 CME Points
7:30 pm (11,18,25)	HKMA Tennis Tournament Organised by: The Hong Kong Medical Association Chairman: Dr. C.W. CHIN # Kowloon Tong Club	Ms. Dora HO Tel: 2527 8285
5 MON 6:30pm to 9:30pm	Seminar on Nursing Audit & Accreditation (Code No. SE-NAA-01-07) Organised by: College of Nursing, Hong Kong	Secretariat Tel: 2572 9255 Fax: 2838 6280 3 CNE Points
6 TUE 8:00 pm - 10:00pm	FMSHK Officers' Meeting Organised by: The Federation of Medical Societies of Hong Kong # Gallop, 2/F., Hong Kong Jockey Club Club House, Shan Kwong Road, Happy Valley, Hong Kong	Secretariat Tel: 2527 8898 Fax: 2865 0345
8:00 pm	HKMA Newsletter Editorial Meeting Organised by: The Hong Kong Medical Association Chairman: Dr. H.H. TSE # HKMA Head Office, 5/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Tammy TAM Tel: 2527 8941
8 THU 2:00 pm	HKMA Structured CME Programme with Hong Kong Sanatorium & Hospital Year 2007 (XI) - An Update on the Management of Infertility Organised by: The Hong Kong Medical Association & Hong Kong Sanatorium & Hospital Speaker: Dr. TANG Oi Shan # 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 (Registration fee is required) 1 CME Point
9 FRI 9:00 am (10,11)	Trailwalker 2007 Organised by: The Hong Kong Medical Association Chairman: Dr. Y.H. CHOW # MacLehose Trail	Ms. Dora HO Tel: 2527 8285
6:30pm to 9:30pm (16,23,30)	Certificate Course in Ward Management - Module I : "Managing people in health service" (Code No. TC-WM-0107I) Organised by: College of Nursing, Hong Kong	Secretariat Tel: 2572 9255 Fax: 2838 6280 24 CNE Points
10 SAT 2:30 pm	Refresher Course for Health Care Providers 2007/2008 (III) - Approach to Patients with Depression Organised by: The Hong Kong Medical Association & Our Lady of Maryknoll Hospital Speaker: Dr. CHAN Sai Yin # Training Room II, 1/F., OPD Block, Our Lady of Maryknoll Hospital, 118 Shatin Pass Road, Wong Tai Sin, Kowloon	Ms. Clara TSANG Tel: 2354 2440 2 CME Points
14 WED 7:30 am	Hong Kong Neurosurgical Society Monthly Academic Meeting - Intraoperative Monitoring in Neurosurgery Organised by: Hong Kong Neurosurgical Society Chairman: Dr. TSE Tat Shing Speaker: Dr. LAW Hing Yuen # Seminar Room, G/F, Block A, Queen Elizabeth Hospital, Kowloon	Dr. Y.C. PO Tel: 2990 3788 Fax: 2990 3789 2 CME Points College of Surgeons of HK
15 THU 7:00 pm - 8:45 pm	FMSHK Executive Committee Meeting & Council Meeting Organised by: The Federation of Medical Societies of Hong Kong # Council Chambers, 4/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Secretariat Tel: 2527 8898 Fax: 2865 0345
8:45 pm - 10:00 pm	FMSHK AGM & FMSHK Foundation AGM Organised by: The Federation of Medical Societies of Hong Kong # Lecture Hall, 4/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Secretariat Tel: 2527 8898 Fax: 2865 0345
17 SAT (18)	Annual Scientific Meeting in Anaesthesiology 2007 - Expanding the Boundaries Organised by: The Hong Kong College of Anaesthesiology & The Society of Anaesthetists of Hong Kong # Hong Kong Convention and Exhibition Centre	Secretariat (CMPMedica Pacific Limited) Tel: 2559 5888 Fax: 2559 6910 Email: meeting.hk@asia.cmpmedica.com Website: www.hkca.edu.hk/asm2007.htm
24 SAT (25)	4th Asian Pacific Diabetic Limb Problems Organised by: Various # William MW Mong Block, Li Ka Shing Faculty of Medicine, The University of Hong Kong, 21 Sassoon Road, Hong Kong	Website: http://www.diabeticlimb.hk/
(25)	1st Guangdong, Hong Kong & Macau Sports Meet Organised by: The Hong Kong Medical Association Chairman: Dr. H YEUNG # Macau	Ms. Dora HO Tel: 2527 8285
25 SUN 2:00 pm	HKMA Structured CME Programme at Kwong Wah Hospital Year 07/08 (VIII) - Nephrology Organised by: The Hong Kong Medical Association & Kwong Wah Hospital Speaker: Dr. LO Kin Yee & Dr. TONG Mei Wah # Lecture Theatre, 10/F., Yu Chun Keung Memorial Medical Centre, Kwong Wah Hospital	Miss Viviane LAM Tel: 2527 8452 (Registration fee is required) 3 CME Points

**Meetings**

11-12/1/2008	Hong Kong Surgical Forum, Winter 2008 Organised by: Department of Surgery, Li Ka Shing Faculty of Medicine, University of Hong Kong Medical Centre; Queen Mary Hospital & Hong Kong Chapter of the American College of Surgeons # Underground Lecture Theatre, New Clinical Building, Queen Mary Hospital, Pokfulam, Hong Kong Enquiry: Forum Secretary Tel: 2855 4885 Fax: 2819 3416 Email: hksf@hkucc.hku.hk Website: http://www.hku.hk/surgery
11-12/7/2008	Hong Kong Surgical Forum, Summer 2008 Organised by: Department of Surgery, Li Ka Shing Faculty of Medicine, University of Hong Kong Medical Centre; Queen Mary Hospital & Hong Kong Chapter of the American College of Surgeons # Underground Lecture Theatre, New Clinical Building, Queen Mary Hospital, Pokfulam, Hong Kong Enquiry: Forum Secretary Tel: 2855 4885 Fax: 2819 3416 Email: hksf@hkucc.hku.hk Website: http://www.hku.hk/surgery

Courses

18/12/2007 6:30pm to 9:30pm	Workshop on Neonatal Touch and its updated information (Code No. SE-NT-0107) Organised by: College of Nursing, Hong Kong Enquiry: Secretariat Tel: 2572 9255 Fax: 2838 6280
25/1/2008 1,15,22,29/2/2008 7,14,28/3/2008 11/4/2008 6:30pm to 9:30pm	Certificate Course in Ward Management - Module II: "Managing resources in health service" (Code No. TC-WM-0107II) Organised by: College of Nursing, Hong Kong Enquiry: Secretariat Tel: 2572 9255 Fax: 2838 6280
2,9,16,23,30/5/2008 6,13,20,27/6/2008 6:30pm to 9:30pm	Certificate Course in Ward Management - Module III: "Managing risk at workplace" (Code No. TC-WM-0107III) Organised by: College of Nursing, Hong Kong Enquiry: Secretariat Tel: 2572 9255 Fax: 2838 6280

Answer to Clinical Quiz**Answer :****Findings:**

Well-defined expansile cystic lesion with a sclerotic border is seen at Rt upper femur. Internal ground-glass appearance is noted. Pathological fracture is seen across the lesion. Mild shepherd crook deformity is seen at proximal femur.

Diagnosis:

Fibrous dysplasia involving Rt upper femur with pathological fracture.

Discussion:

Fibrous dysplasia is a disease with unknown pathogenesis. Medullary bone is replaced by fibrous tissue. The diagnosis is usually made between 3-15 yrs old. It may be monostotic or polyostotic. In polyostotic cases the lesions tend to be unilateral; if bilateral then asymmetrical. Most frequent sites are femur, pelvis, skull, mandible, ribs and humerus. Other bones are less frequently affected.

Radiological changes include:

1. Cyst-like lesion in diaphysis or metaphysis with endosteal scalloping +/- bone expansion. No periosteal reaction. The epiphysis is only involved after fusion. Thick sclerotic border gives rise to 'rind' sign. Internally the lesion shows ground-glass appearance +/- irregular calcifications together with irregular sclerotic areas.
2. Bone deformity, such as shepherd crook deformity of proximal femur.
3. Growth disparity.
4. Accelerated bone maturation.
5. Skull shows mixed lucencies and sclerosis mainly on the convexity of calvarium and floor of anterior fossa.
6. Associated endocrine abnormalities include sexual precocity in McCune-Albright syndrome, rarely acromegaly, Cushing's syndrome and parathyroid hyperplasia.

Dr. Wendy WM Lam

Consultant, Department of Radiology, Queen Mary Hospital

CERTIFICATE COURSE FOR GENERAL PRACTITIONERS & PARAMEDIC

Clinical Management of Vertigo

暈眩的臨牀處理

Course No. C126



The Federation of Medical Societies of Hong Kong
香港醫學組織聯會

- Objective:** The course aim at providing
1. A practical approach to patients who present with vertigo
 2. A basic understanding of vestibular function tests
 3. Management principles

Date & Time	Topic	Lecturer & Title
22 Nov 07	Introduction Causes of vertigo History taking and physical examination	Dr Hui Yau ENT Surgeon
29 Nov 07	Vestibular function tests, Basic principles of vestibular function testing, Types of test and Which one to order	Dr Dennis Au Audiologist
6 Dec 07	Common causes and their treatment (part 1): Vestibular neuronitis, BPPV and Meniere's disease	Dr Hui Yau ENT Surgeon Dr Dennis Au Audiologist
13 Dec 07	Common causes and their treatment (part 2): Acoustic neuroma, Stroke	Dr. Y.W. Fan Neurosurgeon
	Vestibular rehabilitation	Mr. Chris Wong Physiotherapist I

Date : 22 November 2007 - 13 December 2007 (Every Thursday)
Time : 7:00 pm - 8:30 pm
Venue : Lecture Hall, 4/F, Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong
Course Fee : HK\$ 500
Language : Cantonese Supplemented with English
Certificate : Awarded to participants with a minimum attendance of 70%
Enquiry : The Secretariat of the Federation of Medical Societies of Hong Kong
Tel. : 2527 8898 Fax : 2865 0345 Email : info@fmshk.org

CME/CPD Accreditation applied for
To download the application form, please visit our website: <http://www.fmshk.org>



The Federation of Medical Societies of Hong Kong
香港醫學組織聯會

New Year's Eve on Broadway

The Federation Annual Dinner 2007

7:00 pm, 31st December, 2007 (Monday)

Run Run Shaw Hall

The Hong Kong Academy of Medicine Jockey Club Building
99 Wong Chuk Hang Road, Aberdeen, Hong Kong

Ticket on sale from 1 October 2007 (HK\$900 per person)

For further information and assistance,
please contact our secretariat

Ms Karen Chu on 2821 3515 or Email: karen.chu@fmshk.org

www.fmshk.org

Please reserve _____ table(s) / _____ seat(s) for me at the Federation Annual Dinner 2007.

Surname _____ First name _____
(Please use block letter)

Position _____ Society / Association _____

Address _____

Tel No. _____

Fax No. _____

Signature _____

Date _____