

Reports on Scientific Meetings

3rd Regional Conference in Dermatological Surgical Laser and Facial Cosmetic Surgery 2008 (Part I)

Reported by WM Au 區慧明, GJ Chan 陳慶釗, KF Loo 盧景勳

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appropriate filler for specific anatomical sites, and technique and experience with filler injection.

Before injection, a thorough medical evaluation is essential such as any bruising tendency, herpes labialis, hypertrophic or keloid scar formation and a list of current medications especially aspirin, vitamin E and NSAIDs should be obtained. Absolute contraindications include injection into areas of infection or inflammation, known hypersensitivity or a history of anaphylaxis. Any active dermatological diseases or autoimmune diseases, patients on immunosuppressive therapy, aspirin or anticoagulant treatment, pregnancy or lactation, unstable psychology or body dysmorphic syndrome are relative contraindications to filler injection.

Reports on Workshops

Filler workshop: Overall review on the aesthetic use of dermal fillers

Speaker: Dr. Daniel TC Lee
Private Plastic Surgeon, Private Practice, Hong Kong

With increasing public demand, higher patient expectations and increasing popularity of non-surgical aesthetic procedures, soft tissue fillers have become the first line treatment to restore facial volume and contours. In the search for a safe, efficacious and practical filler, an ever-increasing list of soft tissue filling materials are being developed for use. A comprehensive review on the various types of dermal fillers, their durability, advantages and disadvantages and their FDA approval status was presented.

Important practical factors to consider when using dermal fillers include knowing the right patient for the correct indications, knowing the filler material and its limitations, choosing the

An aesthetic evaluation of the patient is also required including any previous soft tissue filler injection experience, addressing their concerns and expectations and their expected degree of improvement. The physician should consider the volume of filler required, whether for superficial, deep or correction of a contour defects. The limitations of fillers should also be taken into account and where applicable, to consider better alternatives or need for simultaneous treatments.

Patients should be aware of potential adverse effects and complications before obtaining informed consent. Acute effects of erythema, pain, oedema/swelling, bleeding/bruising are common and often transient. Delayed effects are rare but difficult to treat and eradicate. This includes

inflammation, infection/abscess formation, hypersensitivity reactions, formation of granulomatous nodules, scarring/keloid formation, calcification, asymmetry and disfigurement, extrusion and migration. Rare complications such as necrosis and blindness have been reported.

Various clinical indications of fillers and injection techniques were also discussed.

Learning points:

An 'ideal' filler should be safe, efficacious and practical. Choosing the right patient for the correct indication is essential, and knowledge of the filler materials is important to choose the appropriate filler for the given anatomical region. Experience and proper technique are also required.

Botox injection workshop: Management of complications

Speaker: Dr. Kenneth Hui

Specialist in Plastic and Reconstructive Surgery, Private Practice, Hong Kong

Botulinum toxin type A (BTX-A) injections have become the most commonly performed cosmetic procedure worldwide. Proper injection technique and thorough knowledge of the muscles of facial expression and the underlying anatomical structures are essential to avoid complications with its use. Physicians must understand that the doses of different brands of BTX-A are not equivalent and beware of illicit or unknown sources of BTX-A.

Prevention of complications begins with careful patient selection. BTX-A is contraindicated in those with previous allergic reaction to BTX-A, injection into infected or inflamed skin, and in pregnancy (FDA category C) and breast-feeding. It is also relatively contraindicated in myasthenia gravis and in patients taking aminoglycosides, penicillamine,

calcium channel blockers, which may potentiate the effects of BTX-A. Careful counselling and discussion should be carried out with actors and politicians about the effects of BTX-A on their facial expressions.

Pain and bruising are minor side effects associated with BTX-A injection. Topical anaesthetics, ice gel pads, and oral analgesics can reduce pain. Patients should be advised to avoid aspirin, NSAIDs, ginkgo biloba, and vitamin E 10 days before injection to avoid bruising. When bruising does occur, immediate gentle pressure and ice packs may help, while make-up may be used to mask the discoloration.

Improper injection of BTX-A in the upper face may lead to diffusion into the orbital rim and resulting in eyelid ptosis. Physicians are cautioned not to over-treat and avoid those patients with pre-existing brow ptosis and are elevating their frontalis in compensation. Injection should not be performed within the region 1 cm above the supraorbital rim lateral to the mid-pupillary line. Patients should be advised not to rub the injected area and not to lie down within 4 hours after treatment. Eyelid ptosis usually resolves in 1-6 weeks and may be symptomatically treated with sympathomimetic eyedrops. On the other hand, excessive brow elevation referred to as "quizzical" brows may be corrected with BTX-A injected into the frontalis above the lateral brow.

When treating hypertrophic mandibular angles by injection of BTX-A into the masseter, complications include a weakened opening of the jaw (diffusion into the pterygoids), weakened chewing of hard foods, temporary tenderness/pain at the injection site, haematoma, facial swelling and headaches. To avoid such side effects from diffusion, injection sites should be kept to the lower masseter, concentric around the area of maximal thickness and inside the muscle borders.

In addition, dysphagia may result from diffusion in platysma injections, which should alert the physician to watch out for potential aspiration pneumonia. Neck weakness may complicate

sternocleidomastoid injections resulting in weakness in raising the head from a supine position. Precise injection is essential in avoiding such complications.

Other complications include ineffective treatment that may be related to inadequate dose, denatured toxin and neutralising antibodies. Facial pain, flu-like symptoms, facial asymmetry are other potential complications.

Learning points:

BTX-A injection is a common cosmetic procedure that requires careful evaluation and knowledge of the musculature of facial expression and the underlying facial anatomy. Good patient selection and counselling of expected effects and potential complications are necessary for optimising outcomes. Precise injection technique and experience are also essential.

Medico-legal workshop: Complications and implications case mastering in the first instance

Speaker: Mr. Woody Chang

Partner, Johnson Stokes & Master, Hong Kong

The patients who request to receive cosmetic procedures are a special type of patient. Their expectations from doctors are exceptionally high. These patients require doctors' special attention. Demonstrating professionalism and gaining respect from patients are advised to avoid getting entangled with dissatisfied clients.

Knowing the high expectations of patients seeking cosmetic treatments, it is suggested that doctors should always obtain informed consent from their clients. Although the law does not always require disclosure of all the risks of surgery, in the context of cosmetic procedures however, Mr. Chang advises doctors to give full advice whenever

possible. A proper informed consent has the following essential elements: (1) advice on the diagnosis and prognosis, including any uncertainties and options for further investigations; (2) various treatment options including the option not to treat; (3) the purposes, benefits and risks of any proposed investigations or treatment; (4) reasonable details of the proposed procedures and the possible outcomes; (5) patient's right to seek second opinion; (6) estimates of fees / hospital charges. Sufficient time should be allowed for answering the patients' questions and concerns.

A system of obtaining and documenting informed consent is essential. Pre- and post-operative clinical photos/films should be clearly dated. Peer reviewed and updated information leaflets on the proposed cosmetic procedure are suggested and written acknowledgement by the patient of having read and understood the information should be obtained. Well-documented medical records (recording the substance of advice) and the doctor's consistent practice of giving full advice will greatly help protect doctors from medical litigation. Where applicable, aids and pictures to illustrate cosmetic outcomes are also useful. Written consent should always be obtained. Presence of a nurse chaperone during the consultation is also recommended. Patients must be given sufficient time to think over any procedure and discuss with the family before coming to a decision. Opportunity for questions and change of mind must also be offered.

In the doctor's daily practice, the handling of dissatisfied patients is an important art. There are no hard and fast rules as to how to handle these patients. As general comments, prompt handling of patients' concerns is important when there are signs of dissatisfaction. Various scenarios were used to illustrate the practical steps doctors may take in dealing with patients' complaints in the first instance. In general, doctors should show interest and care, maintain a professional demeanour, and avoid shutting off communication with the patients. Doctors are advised to obtain expert

advice and discuss legal strategies with a lawyer. If there are surgical complications as a result of the cosmetic procedures, the immediate focus must be on handling the complications in the best interest of patients.

Learning points:

Patients seeking cosmetic treatments have high expectations and require special attention from doctors. Full advice should be given. Proper informed consent documentations and a proper system of obtaining informed consent in medical practice are essential for protection against medical litigation. When handling dissatisfied patients in the first instance, demonstrating concern and care, and willingness to listen and maintain communication is important. Doctors should seek advice from experts and lawyers if there are concerns.

Reports on Plenary Lectures

Tissue engineering and research and its potential application in cosmetic surgery

Speaker: Dr. Yi-lin Cao

Professor of Plastic Surgery, Shanghai Second Medical University, Shanghai, China

Cosmetic surgery deals with tissue rejuvenation and tissue repair. In recent years, tissue engineering and stem cell research reveals its great potential in tissue repair or body contouring.

Various types of tissues could be engineered in the laboratory. The general approach of tissue engineering is: first, harvest stem cells from bone marrow aspirate or living chondrocytes, then induce cell expansion *in vitro* so that stem cells together with a polymer scaffold would finally develop into a cell-polymer construct. The cell-

polymer construct could be used for repairing various types of tissue defects in order to improve the cosmetic effect of afflicted patients.

These engineered tissues include bone, cartilage, tendon, skin and blood vessels. Clinical uses include replacing a damaged ear, repair of cleft palate and repair of cortical bone defects, etc.

Learning points:

Various viable tissues including cartilage, bone, tendon, skin and blood vessels can be engineered in the laboratory to facilitate tissue repair and enhance cosmetic results.

Reports on Symposiums

A) Use of laser and light source for the treatment of pigmentary disorders

Management of pigment problems - My approach

Speaker: Professor Chee-leok Goh

Clinical Professor, National Skin Centre, National University of Singapore, Singapore

Lasers and light devices introduced recently have greatly helped dermatologists to remove many of these pigmentary disorders. However, not all pigmentary and vascular disorders respond equally well.

There are many causes of pigmentary disorders on the face of Asian skin. Some are acquired and some are congenital, some are epidermal, some are dermal and others involve mixed melanin deposition.

There are 3 major causes of acquired cosmetic facial disorders: lentigines or ephelides, dermal melanocytosis (Hori's naevus) and melasma (superficial and deep). A patient can have a combination of 2 or more of these disorders. Lentigines are readily removed by pigment lasers

or intense pulsed light (IPL) after single or few treatments. Hori's naevi can be removed with long wavelength pigment laser but require multiple treatments. Melasma usually does not respond to any treatment and is best treated with sunlight avoidance, sunscreens and topical bleaching creams. IPL is generally preferred for those with widespread superficial pigmented lesions e.g. lentigines and ephelides. Photodynamic therapy can enhance the effects of IPL. Post-inflammatory hyperpigmentation from the frequency doubled 532 nm Q-Switched (QS) Nd:YAG laser on Asian skin is not uncommon and should be used with caution and lower fluence.

For congenital pigmentation disorders, treatment response is also predictable. Naevus of Ota can be effectively treated with QS lasers but multiple treatments would be required. The response of treatment of café-au-lait patches is variable with about half relapsing shortly after treatment. Becker's naevus does not respond to any laser or topical treatment. Congenital naevi may respond partially to QS lasers and should be used only on areas where surgical excision is not recommended.

Learning points:

Different types of pigmented lesions respond differently to lasers or light devices. Often a single patient has multiple pigmentation disorders. Recognition of the types and locations of pigmentation are important as treatment regimens and prognosis varies.

Treatment of epidermal hyperpigmentation - My approach

Speaker: Dr. Kei Negishi

Clinical Instructor and Lecturer, Aoyama Institute of Women's Medicine, Tokyo Women's Medical University, Tokyo, Japan

Many kinds of modalities are used for skin rejuvenation and patient demand is increasing every

year. In Japan, removal of pigmented lesions is still the aesthetic procedure in highest demand. The two major problems when treating Japanese patients are a high risk of post-inflammatory hyperpigmentation (PIH) and a high incidence of epidermal melasma.

The most efficacious treatment method for epidermal pigmentation is Q-switched (QS) laser, but the incidence of PIH is reported to be about 40% when treating solar lentigines in Japan. In a clinical trial conducted on 118 patients with QS Ruby 694 nm laser done for lentigo, the use of a bleaching cream (5% hydroquinone+0.025/0.05% retinoic acid+0.025% dexamethasone) every night after the crusts peel off after QS Ruby laser would reduce the incidence of PIH from 40.6% to 19.6%. Another option to reduce PIH is the use of intense pulsed light (IPL) for high risk cases such as the skin type V patients and patients who concurrently present with melasma.

To treat epidermal melasma, the combination of a bleaching cream, oral tranexamic acid with gentle IPL settings provides good results.

Learning points:

QS laser is very useful for removing epidermal pigmentations. IPL is a good choice for removal of epidermal pigmentation and rejuvenation in high risk patients to avoid PIH. The use of a bleaching cream after laser or light sources in Asian skin is important to prevent PIH.

Treatment of melasma - My approach

Speaker: Dr. Woraphong Manuskiatti

Associate Professor, Department of Dermatology, Siriraj Hospital, Mahidol University, Bangkok, Thailand

Melasma is an acquired hyperpigmentation involving the cheeks, forehead, nose, upper lip, and chin, often affecting women of darker skin types, especially those living in areas of intense ultraviolet (UV) radiation. The pathogenesis of melasma is

unknown. Genetic, racial predilection, exogenous hormonal therapy, and UV light exposure have been identified as causative and exacerbating factors. There is no cure for the condition yet, and the responses to treatment are variable.

Treatment of melasma can be grossly divided into medical and surgical modalities. Medical modalities include topical bleaching agents, oral tranexamic acid, chemical peels, iontophoresis and sunscreens. Surgical modalities are dermabrasion, lasers (pigment-specific and/or resurfacing lasers) and intense pulsed light (IPL). A combination of the various modalities may improve results. Despite various treatment modalities, there is still a portion of patients who remain unresponsive.

Learning points:

Melasma treatment remains a challenge for dermatologists. Various treatment modalities, both medical and surgical, produce variable results.

Treatment of congenital melanocytic naevi - My approach

Speaker: Dr. Taro Kono

Chief of Laser Unit, Department of Plastic and Reconstructive Surgery, Tokyo Women's Medical University, Tokyo, Japan

Some congenital melanocytic naevi (CMN) may occur in cosmetically or functionally sensitive areas where a surgical excision is difficult to achieve or leaves a noticeable or disfiguring scar. The obvious disfigurement and unquantified risk of malignant transformation have led to current opinion to favour some form of ablation of the naevus during childhood. The apparent ability to peel off the superficial parts of the naevus during the first few weeks of life followed by healing through reepithelialization has led to neonatal treatment by curettage becoming an accepted option.

Several initial studies examined the role of Q-switched (QS) lasers in the treatment of small- to medium-sized CMN showed partial and incomplete clearing even after multiple treatment sessions. The incomplete response of the naevi to QS laser therapy was attributed in part to the short pulse duration, which was not sufficient enough to destroy all naevomelanocytic nests. Studies show that combining both the long pulsed and QS lasers (ruby, alexandrite, diode and YAG) to treat CMN in selected patients are more effective than using the long pulsed laser or QS laser alone.

However, the treatment of CMN with lasers raised the concern of future malignant change. Whether selective destruction of abnormal melanocytes is a means of reducing the number of cells at risk of transformation or whether the light source may stimulate malignant transformation is still controversial. The removal of CMN in Caucasians by laser is generally considered a non-standard, experimental therapy. Even among Asians, such therapy should be avoided when the lesion is located in acral areas, as melanomas in Asians tend to be acral in location.

Learning points:

Congenital melanocytic naevi may occur in areas where surgical treatment is precluded. A combination of long pulsed laser and Q-switched laser was shown to be more effective in removing these lesions. However, the inherent risk of malignant transformation of CMN should be borne in mind.

B) Facelift and skin tightening

Skin tightening - Overall view

Speaker: Dr. Murad Alam

Chief of the Section of Cutaneous and Aesthetic Surgery, Department of Dermatology at Northwestern University, Chicago, USA

Skin tightening without surgical excision offers the

promise of a younger, smoother skin contour without the risks and downtime of surgery. At present, energy based skin-tightening devices are non-ablative and well tolerated. Common side effects include erythema and oedema. Various technologies can be used for skin tightening. They include monopolar and bipolar radiofrequency, intense pulse light in the infrared range, laser light in the infrared range, therapeutic ultrasound, and hybrids of these. The hypothetic goal of skin tightening is to replicate the benefits of a face-lift with deep and precise energy delivery to the Superficial Musculo-Aponeurotic System (SMAS) that mimics the action of placating sutures. Skin tightening may also be combined with surface photorejuvenation and other contouring procedures for maximal patient benefit.

Learning points:

Energy based skin-tightening devices have a modest efficacy in skin tightening and have a good safety profile if they are used cautiously.

Facelift by botulinum toxin

Speaker: Dr. Mauricio de Maio
Department of Plastic Surgery, Faculty of Medicine,
University of Sao Paulo, Brazil

Understanding of the synergistic and antagonistic behaviour of facial muscles has enabled the development of new techniques such as the Botox™ lifting.

For the upper third of the face, by blocking the procerus and corrugators, the medial portion of the eyebrow is lifted. The blocking of the lateral orbital fibres of the orbicularis oculi enables the lifting of its lateral portion.

For the mid third, the lift of the cheek bones may result from blocking the levator alaeque nasi labii superioris and the depressor anguli oris.

The lower third of the face often shows the most undesirable ageing signs such as deep oral commissures, loss of definition of the mandible arch and platysmal bands. Blocking the depressor anguli oris will lift the corner of the mouth. Blocking the mentalis muscle may improve the cobblestone appearance of the chin. The neck contour could be improved by blocking the medial and lateral platysmal bands.

Learning points:

Aesthetic effect of face lifting could be partly achieved by skillful injection of botulinum toxin in different parts of the face.

Facial rejuvenation - Ancillary procedures

Speaker: Professor Luiz Toledo
Professor in Plastic Surgery, Department of Plastic Surgery, International Modern Hospital, Dubai, United Arab Emirates

Liposuction and fat grafting were used to improve facial contours. The jaw line was redefined by liposuction along the submandibular area. Fat grafting by injection through fine 3 mm cannulas was used for volumising the facial contour. Botulinum toxin is often used as a complementary treatment to improve forehead and zygomatic wrinkles.

Learning points:

Liposuction and fat grafting could be used for facial rejuvenation and improving facial contours with a high rate of patient satisfaction.

Use of radiofrequency for longevity on the face

Speaker: Professor Flor Mayoral

Associate Clinical Professor, Department of Dermatology and Cutaneous Surgery, University of Miami School of Medicine, Florida, USA

Monopolar radiofrequency for skin tightening was approved for use in the periorbital area in 2002. Two years later, it was approved for skin tightening of the entire face. This procedure could improve the appearance of redundant skin on the face and neck with minimal downtime. Long lasting and predictable clinical results could be obtained in the majority of patients by using a technique that allows for the use of multiple passes at lower energies. Treatment was individualized and based on patient's feedback on heat sensation.

Learning points:

Radiofrequency could be used as a treatment modality in fighting against the aging face with minimal downtime when compared to traditional surgical procedures.

C) Fractional technology

Experience with fixed array novel 1540 nm fractional erbium laser for acne scars

Speaker: Dr. Robert Weiss

Director, Maryland Laser, Skin and Vein Institute, Baltimore, USA

Fixed array novel 1540 nm fractional laser was used for more than three years in thousands of patients with acne scars. A study was conducted in Maryland Laser, Skin and Vein Institute to evaluate the optimal settings of a fixed array of 1540 nm with 100 microbeams/cm² (Lux 1540, Palomar, Burlington, MA) for improvement of

acne scars. Over 500 treatments were performed. Three treatments at 4-week intervals were given using the 10 nm, 100 microbeam per pulse handpiece for three passes at 10 msec pulse duration. Fluence was 50-70 mJ/microbeam with a minimum of 3 passes for each treatment site. Topical anaesthetic and contact cooling were utilised. The subjects were followed for 3 months post-treatment and self-assessed treatment results and pain.

Results assessed by blinded photographic evaluation (Canfield Omnia System, Canfield Scientific, Inc.) showed a median of 3 (50-70% improvement). Side effects were minimal and included mild post-treatment erythema and oedema resolving within 24 hours. Pain was reported as minimal (2.75 out of 10). Eighty-five percent of patients rated their skin as improved.

Learning points:

A fixed array fractional 1540 nm erbium is a valuable approach for improvement of scars and rhytids. A minimal fluence of 50 mJ/microbeam with 3 passes is required. A regularly spaced array minimises pain and side effects while potentially increasing treatment efficiency. Settings of 70 mJ/microbeam are ideal.

Fractional resurfacing

Speaker: Dr. Zakia Rahman

Clinical Instructor, Department of Dermatology, Stanford University, San Jose, USA

Fractional laser technology has been commercially available since 2004. The first technology used non-ablative wavelengths that targeted water as the chromophore. More recently, ablative fractional technologies have been introduced utilising traditional wavelengths of 10600 and 1940 nm.

The wound size is critical in defining the term "fractional" because the benefits associated with this modality, including lower risk of pigmentary and infectious complications, are dependent on expedited reepithelialization. Quick wound healing is produced when tissue injury widths are 500 μm or less. This produces wounds that heal within 24 hours for non-ablative modalities and 48 hours for ablative modalities.

Indications for fractional laser treatment are acne scars, rhytides, pigmented lesions and melasma. When performed properly, non-ablative fractional treatment carries very few permanent or severe risks. The most common side effect is post-inflammatory hyperpigmentation, which can be observed in 5-15% of patients. Fractional ablative lasers carry a much greater risk profile as compared to their non-ablative counterparts. While infection and scarring are possible, the risk of hypopigmentation is much less than traditional ablative resurfacing. Factors to consider when choosing between non-ablative and ablative fractional treatments include indication, patient tolerance of downtime, comorbidities, and multiple versus single treatment.

Learning points:

The term "fractional" should be used for a device that produces wound widths of 500 μm or less. Fractional resurfacing has the advantages of quick wound healing, short downtime, less complications of pigmentation and infection. There are ablative and non-ablative fractional laser devices. The choice between ablative or non-ablative treatments mainly depends on indication, downtime tolerated and side effects profile.

Non-ablative fractional resurfacing in Asians

Speaker: Professor Chee-leok Goh
Clinical Professor, National Skin Centre, National University of Singapore, Singapore

CO₂ laser skin resurfacing revolutionised skin rejuvenation in the 1990s. The procedure produces tremendous benefits including improving skin texture, tone, colour and sagging in photoaged skin as well as acne scarring. However, the procedure can also lead to a variety of unwanted side effects and complications. After CO₂ laser resurfacing, patients are usually out of work for at least 2 weeks and erythema remains for at least 6 weeks after treatment. A high proportion of Asians developed post-inflammatory hyperpigmentation. Other side effects include infection and scarring. As a result, CO₂ laser resurfacing has lost popularity over the past few years. For the above reasons, non-ablative skin rejuvenation was introduced. But non-ablative procedures were less effective for skin rejuvenation.

A variety of new ablative and coagulative non-ablative laser-, light-, and energy-based technologies have been developed over the past few years. These devices include variable pulse 2940 nm Er:YAG laser resurfacing, 1540 nm and 1420 nm fractional erbium doped glass laser and Er:YAG laser resurfacing and recently the fractional 10600 nm CO₂ laser resurfacing. With the earlier variable pulsed fractional Er laser resurfacing, the amount of energy can be dialed in to coagulate predictable amounts of the epidermis and dermis. In fractional resurfacing columns of skin, up to 100 μm in depth, are thermally damaged leaving completely unaltered areas of skin between the treated columns. The term "fractional" is used because only a fraction of the treated area is affected with each treatment. Each procedure produces redness and swelling that lasts a mean of 3 days. A series of 5 to 6 treatments is usually

needed to achieve optimal improvement. Reports also showed efficacy in the treatment of acne scars and pigmentary disorders with little down time. The recent introduction of the fractional CO₂ laser resurfacing exploits the technical advances of fractional Er:YAG resurfacing. Its healing phase is a bit longer than the fractional Er laser resurfacing.

Learning points:

A variety of new ablative and coagulative non-ablative laser technologies have been developed over the past few years. They are effective in treatment of acne scars and pigmentary disorders with a shorter downtime. However, multiple treatments would be needed to achieve optimal results.

Microspot Rejuvenation utilising the 532 nm Microthermal Fractional System has improved treatment outcome when compared to standard non-ablative 532 nm photorejuvenation. This system also provided significant advantage in enhancing the evenness of the complexion, smoothness of skin, refinement of tone and texture and reduction of fine facial rhytides.

Learning points:

An investigational MicroSpot hand piece for the Gemini (532 nm/1064 nm, Iridex Corporation) laser seems to improve treatment outcomes for rejuvenation of moderate photodamaged skin. Further study is recommended to evaluate fully the efficacy and safety of the system.

Microscopic rejuvenation with experimental handpiece

Speaker: Dr. William Baugh
Medical Director, Full Spectrum Dermatology, Fullerton, USA

A pilot study was conducted utilising an investigational hand piece for the Gemini laser (532 nm/1064 nm, Iridex Corporation). This device produces a 532 nm non-ablative microthermal fractional photothermolysis whereby high energy fractioned focal treatments target lentigines and telangiectases on photodamaged skin. Microspots are delivered in 245 µm and 400 µm sizes. Microspot densities are either 10% or 25% coverage of the area. The wavelength of 532 nm remains fixed while fluence, pulse duration, and density may be varied.

Six patients with ages from 42 to 52 years with moderate photodamaged skin were treated in a split face study to evaluate the safety and potential enhanced benefits of 10 nm non-fractionated 532 nm treatments. Results of this pilot study demonstrated that

D) Use of ultrasound in dermatology and cosmetic surgery

Introduction of ultrasound and focusing ultrasound

Speaker: Dr. Ben Yu
Senior Medical Physicist, Department of Radiotherapy, Hong Kong Sanatorium & Hospital, Hong Kong

Ultrasound energy can be focused to result in high acoustic intensities. It can lead to local thermal ablation that can cause irreversible lethal damage to cells within seconds. The tissue temperatures proximal and distal to the focus are low, preventing tissue damage outside the focal point. At long exposure times, the thermal energy may spread through the tissue and lead to spatial variations of the temperature elevation within the tissue.

Learning points:

Understanding of the basic physics of ultrasound leads to the advancement of medical treatment.

Ultrasound application in cosmetic surgery and dermatology

Speaker: Dr. Michael Slayton
Chairman, Ulthera, Inc., Arizona, USA

The recent resurgence of therapeutic ultrasound applications in general medicine and non-invasive and minimally invasive surgery in the last decade has led to the introduction of intense ultrasound (IUS) to the applications of therapeutic ultrasound in cosmetic surgery and dermatology.

Learning points:

Future clinical applications of ultrasound in cosmetic surgery become feasible.

Focused ultrasound for skin tightening and body contouring - Local experience

Speaker: Dr. Henry Chan
Honorary Clinical Associate Professor, Division of Dermatology, Department of Medicine, The University of Hong Kong, Hong Kong

Ultrasound waves are high frequency sound waves. It requires a medium for propagation, and ultrasound energy losses in the form of heat are absorbed by the medium. The mechanism of ultrasound-tissue interaction includes tissue coagulation, ablation and cavitation. The property of non-invasive selective fat cell destruction while sparing surrounding critical structures was employed for body contouring. Local experience was shared and the possible complication of skin burns through reflection of the ultrasound wave was discussed.

Learning points:

Focused ultrasound is one of the noninvasive tools for body contouring and fat removal.

Focused ultrasound for fat removal

Speaker: Dr. Arie Benchetrit
Founder and Medical Director, Cosmedica, Montreal, Canada

Applications in improving body contour and removing unwanted fat was discussed. A novel device using non-thermal selective focused ultrasound for non-invasive lipolysis and body contouring has been developed and used on over 100,000 patients worldwide.

Learning points:

Focused ultrasound has a modest efficacy for body contouring and fat removal. Complications could be minimised with cautious use.

E) Laser and IPL for vascular lesion

Advances in treatment of vascular lesions

Speaker: Dr. Robert Weiss
Director, Maryland Laser, Skin and Vein Institute, Baltimore, USA

Cutaneous vascular lesions are some of the most common lesions presenting to the dermatologist. These include haemangiomas, vascular ectasia and congenital malformations such as port wine stain. The treatment target for these lesions is haemoglobin. The vessels may be arterial, capillary or venous and therefore the state of oxygenation and proximity to the surface may be very different. Selection of proper wavelength of light for treatment is essential. Bright red superficial lesions are best treated by yellow light while deeper violaceous lesions of the leg are best treated by infrared light. The pulse duration utilised is based on the vessel size. Since larger vessels take longer to heat up, a longer pulse duration is required.

Wavelengths of 577 nm to 585 nm coincide with one of the oxyhaemoglobin absorption peaks, and are most frequently utilised for the oxygenated superficial vessels in port wine stain. Shorter wavelengths interact with melanin, therefore cooling of the epidermis is often essential to minimise side effects.

Learning points:

Successful treatment of cutaneous vascular lesions by laser surgery could be achieved by proper selection of laser wavelength, pulse duration and fluence along with careful clinical assessment of the skin lesions and patient selection.

Management of complications in laser and IPL for vascular lesions

Speaker: Dr. Raymond Ng

Consultant in Plastic Surgery, Department of Surgery, Queen Mary Hospital, Hong Kong

Nowadays the vascular specific lasers employ the principle of selective photothermolysis that limit the energy to the intended target and therefore reduce the damage to the normal surrounding skin. Common side effects include post operative bruising, swelling, blisters or scabs formation, which are often self limiting and resolve within 1 to 2 weeks. Nonetheless, treatment complications can occur as a result of technologic limitations, lack of operative skill or poor patient selection.

Transient post inflammatory hyperpigmentation (PIH) is the most common complication. This is more common in patients with dark skin tones and can make worse if the laser treated area has sun exposure. In majority of the case, the PIH will slowly resolve.

On the contrary, hypopigmentation is a delayed and apparently permanent complication of laser surgery, and can be seen in any skin type. It is

related to the photodamage of the epidermal melanin overlying the targeted blood vessel. Patients with severely photodamaged skin with baseline dyspigmentation and areas of skin lightening are at risk of post-operative hypopigmentation and therefore should be carefully evaluated.

With proper wound care including the use of prophylactic antibiotics, strict avoidance of sensitising products and close patient follow up, the incidence of infection and contact dermatitis can usually be limited. Finally, skin texture changes and scar formation are possible but unusual, especially when excessive energy densities or overlapping laser spots are used.

Learning points:

Complications after laser treatment of vascular lesions can still occur despite the specificity of lasers available today. Most of them are related to inexperience in laser machine operation or mismanagement during the early postoperative period. When proper laser parameters and postoperative care are used in correctly chosen patients, the rate of complications remains low.

F) Reliant-sponsored symposium: Gold standard in daily practice

Fraxel: Gold standard in ablative and non-ablative resurfacing

Speaker: Dr. Zakia Rahman

Clinical Instructor, Department of Dermatology, Stanford University, San Jose, USA

Laser resurfacing procedures can be grossly divided into ablative and non-ablative type. Ablative procedures involve vaporisation of the epidermis overlying the treatment site whereas non-ablative procedures produce dermal thermal injury without damaging the epidermis. The term "fractional" should be limited to the technologies

that produce a wound size of 500 μm or less. It should result in fast wound healing (within 24 hours for non-ablative and within 48 hours for ablative procedures) to reduce the infection rate and downtime.

For non-ablative procedures, dermatologists could choose between deep or superficial treatment, and a stamping or scanning handpiece. For ablative procedures, in addition to the above mentioned considerations, one should also consider whether there is smoke evacuation at the treatment site or not. Other factors to be considered include duration of the procedure, degree of pain, appearance immediately after treatment (looking natural or not), long term results and FDA approved indications.

In general, non-ablative procedures carry the advantages of rapid healing, lower side effects profile, no lines of demarcation, and are suitable for all skin types. The disadvantages are mainly less dramatic results and multiple treatments are needed. On the other hand, ablative procedures can produce dramatic results after single treatment. However, the downtime is longer, the procedure is more operator dependent, has risk of scarring and only limited data were available on its safety in darker skin types.

Learning points:

To choose between ablative and non-ablative procedures, dermatologists should strike a balance between the indications, side effects profile and patients' expectations.

Report on Free Paper Session**Short cut-off filter IPL (Starlux White™ Palomar Medical Technologies, Inc.) for treatment of lentiginos in Asian skin**

Speaker: Dr. Carol S Yu

Division of Dermatology, Department of Medicine, The University of Hong Kong, Hong Kong

Intense pulse light (IPL) has been studied and was used to treat vascular and pigmented lesions. This study investigated the effectiveness of IPL using a short cut-off filter handpiece for the treatment of pigmented lesions in Asians.

Eighteen Chinese female patients with skin type III-IV with freckles were recruited. They received up to 7 treatments with 1-month interval between each treatment. A single pass of IPL using the Starlux White™ (Palomar Medical Technologies, Inc.) handpiece with wavelength of 400-1400 nm, along with spot size of 12 x 28 mm and maximum fluence of 100J/cm² was used. There was a statistically significant improvement in pigmented lesions ($p=0.034$). 47.1% of subjects were moderately to significantly satisfied. In terms of treatment complications, post-inflammatory hyperpigmentation was recorded in 21.6% of subjects and one case developed hypopigmentation.

Learning points:

Short cut-off filter IPL (Starlux White™, Palomar Medical Technologies, Inc.) is effective for treating lentiginos in Asians. There is risk of post-inflammatory hyper- and hypopigmentation.