



IADVL ACADEMY SPECIAL INTEREST GROUP-LASERS AND AESTHETICS E-Newsletter

Issue 01, May 2015

Editors: Dr Shehnaz Arsiwala, Dr Sanjeev Aurangabadkar

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Message from the President

Dear members

I am delighted that SIG lasers is bringing out a bulletin. Instead of sending out a formal message as a president, I would like to give a message as a laserologist!!!



My generation of dermatologists got in to lasers at a rather late stage in our careers, when we were well past in to our forties. We had a strong backing of dermatology and in my case dermatopathology too. This ensured a solid understanding of pathophysiology as a base for trying out the new modality and was a great advantage.

But we had a great disadvantage too- understanding physics and technology. Medical curriculum does not teach you biophysics- at least not much of it. And that meant understanding laser physics needed a lot of self effort. In fact I found that I learnt the real meaning of photoelectric effect when I was teaching physics to my daughter in her class nine - her text book illustrated the concept more lucidly than any our laser books!!

Then I read three books to understand the quantum physics - Quantum by Manjit Kumar, In Search of Schrodinger's cat by John Gibbon, and an autobiography of Einstein. These books gave a fascinating account of the most exciting discoveries in physics. I would strongly recommend all young dermatologists to read these while starting out on lasers.

It is important to learn while starting laserology that, using lasers does not mean learning from the company's manual. It should not get limited to sticking to recommendations and applying the hand piece blindly. It should mean understanding the complexities of spot size, pulse width, fluence, and wavelength and then modulate and innovate these parameters in to handling difficult aesthetic and more importantly dermatological problems. To cite some examples, we have used lasers to treat amyloidosis, Hailey Hailey disease, complex pigmentation problems.

It is often the opinion of some conventional dermatologists that Lasers are 'commercial'- nothing could be farther from truth. What is unfortunate however is the entry of non dermatologists in to cutaneous lasers and their commercial exploitation. It is therefore incumbent on dermatologists to use the lasers judiciously, exploit their potential scientifically and practice ethically.

In order to do these, The IADVL needs to hold CMEs in lasers for our member's education. In this year, we will organize several laser CMEs in different parts of India. Furthermore I would strongly recommend to my younger colleagues to read and understand dermatology and pathophysiology of skin diseases.

I wish to convey my compliments to Drs Sanjeev and Shehnaz and all members of SIG lasers for their effort. I am sure our members will appreciate this effort

Dr. Venkataram Mysore
President, IADVL

Message from the Secretary

It is a matter of great pride for us that IADVL SIG Lasers and Aesthetics is coming up with its first e- News letter. This publication will be a great source of information on this topic which has inspired and lured many a youngster into dermatology. This News Bulletin is our President, Dr Venkat Mysore's brainchild and has been lovingly nurtured by the SIG. I must congratulate the SIG Chair, Dr Sanjeev Aurangabadkar and Convener, Dr Shehnaz Arsiwala for a well done job and all contributing authors. I hope this e-publication provides information to our IADVL readers.



Dr. Rashmi Sarkar
Hon. Secretary General, IADVL



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Message from Chairman and Convener, IADVL Academy

IADVL Special Interest Group on Lasers and Aesthetics is coming out with its first newsletter on two allied but different aspects of modern dermatology. Its members are well known authorities and Dr Sanjeev Aurangabadkar's internationally known expertise on lasers and Dr Shehnaz Arsiwala's grasp of the science of aesthetics have complemented each other in successfully guiding the SIG. This 'jugalbandi' has led to the amalgamation of these two fields and their hand-in-hand growth.

The SIG's activities include preparation of patient information material and FAQs, and conduct of workshops as well as this newsletter. This quarterly newsletter would disseminate educational material relevant to Indian aesthetic and laser practitioners and help our members counter the incorrect and misleading claims flooding various media in this rapidly expanding and unregulated field. There can be no better source of accurate information on this subject than the best that the country has to offer. It would also inform them of the series of workshops to be conducted all over the country as a Presidential project with the support of the Secretary General and the entire EC. We wish the SIG the very best in this ambitious venture and are sure that our members will benefit.



Dr. Manas Chatterjee
Chairman,
IADVL Academy



Dr. Ameet Valia
Convener and
Chairman designate,
IADVL Academy

Message from Coordinator



Dr. Sanjeev J Aurangabadkar
Co-ordinator,
SIG Laser and Aesthetics

Aesthetic procedures, lasers, light and energy based devices have added a new dimension to the ever increasing popularity of dermatology practice. Growth and progressiveness in any field is desirable, but chaotic and directionless expansion without evidence base can quickly bring the specialty in to disrepute in the long run. The special interest group of lasers and aesthetics, was initiated by the IADVL academy with the aim of streamlining and rationalizing the rapidly evolving & dynamically changing field, to impart unbiased training, to refine standard operating procedures & techniques, conduct trials and to dissipate knowledge & expertise.

The current scenario in aesthetics & lasers is all about novelty & changing concepts. Conventional laser hair removal has paved way for low-fluence, in motion HR where as newer techniques such as R20 and R0 for tattoo removal with Q switched lasers have sped up the clearing & combination of laser techniques, multi wavelength systems seem to be the flavor of the season. Aesthetics has also seen a paradigm shift with changing concepts from local to global filling with fillers, lower dosages of botulinum toxin for dynamic wrinkles & platelet rich plasma (PRP) gaining acceptance into mainstream aesthetic practice. Radio frequency, ultra sound & cryotherapy based technologies have shown great promise in tightening and body contouring/shaping and seem to have a bright future.

These new technologies have brought in new challenges in the form of medico legal issues, purchase, and maintenance & service matters. It is the endeavor of this SIG to address some of these burning issues and this newsletter hopes to cover some of these aspects in this and forthcoming editions. This first newsletter, compiled by our SIG's esteemed members covers an SOP, comparison of one laser system (giving an overview of the available machines with their technical details & analysis), service and maintenance aspects of lasers, tips and pearls etc. Watch out for more information in this space and enjoy reading!



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LET THERE BE LIGHT (A Workshop on Lasers)

Sunday, May 10, 2015. IRISSET-RAILWAYS CONVENTION CENTRE, Hyderabad.

Organized by the IADVL SIG Lasers and Aesthetics (IADVL Academy) in Association with IADVL (Telangana) and IADVL (Andhra Pradesh) State Branches

How does one choose the best parameters for lasers in Indian skin? Do skin tightening lasers work? What patient profile and clinical parameters are conducive to fractional lasers? What are appropriate clinical end points for lasers in Indian skin?

To answer these and other questions faced in daily laser practice, join us for a one day laser workshop on Sunday, May 10, 2015 at Hyderabad, India. Through live and video demonstrations, short practical lectures, panel discussions, audience interactions and a unique "laser blast", you should end up with a better understanding of your machine and new laser technologies.

HIGHLIGHTS

- **PROGRAMME SIG LASER WORKSHOP HYDERABAD MAY 10, 2015**
- **INAUGURATION AND ADDRESS BY GUEST OF HONOR, STATE BRANCH OFFICIALS, SIG CO-ORDINATOR**
- **LASER BASICS: RIGHT AIM FOR THE BEAM! - DR ANIL GANJOO**
- **LASER HAIR REDUCTION: PRACTICAL PROBLEMS WORTH SOLVING- DR SUSHIL TAHILIANI**
- **ADVANCES IN LASER HAIR REDUCTION- DR ANURAG TIWARI**
- **Q SWITCHED LASERS AND INDIAN SKIN: DR SHEHNAZ ARSIWALA**
- **Q SWITCHED LASERS- TRUE FACTS AND ADVANCES-DR SANJEEV AURANGABADKAR**
- **ENERGY BASED DEVICES- DR NITEEN DHEPE**
- **MICRONEEDLE RF- DR NITEEN DHEPE/COMPARISON- DR SWAPNIL SHAH LIVE DEMONSTRATIONS OF VARIOUS SYSTEMS - LHR, QS,**
- **EXCIMER .ALL FACULTY**
- **LASER BLAST PANEL DISCUSSION—MODERATOR - DR ANIL GANJOO**
- **FRACTIONAL LASERS: BASICS AND COMPARISONS -DR SHEHNAZ ARSIWALA**
- **FRACTIONAL LASERS -BREAK THE BEAM-NEW HORIZONS WITH FRACTIONAL LASERS – DR SANJEEV AURANGABADKAR**
- **EXCIMER LASERS IN INDIAN SKIN- APPLICATIONS AND OUTCOMES-DR SATISH UDARE**
- **DEMONSTRATION OF VARIOUS SYSTEMS.**
- **DEMONSTRATION OF VISUAL PHOTO SYSTEMS- DR SANJEEV**
- **LASER BLAST- PANEL DISCUSSION WITH EXPERTS-DIFFICULT CASES AND LASER APPROACH-) MODERATOR- DR SUSHIL TAHILIANI**
- **ANATOMY OF A LASER-LASER INDUSTRY**

4 HOURS OF CME CREDIT POINTS APPROVED BY MCI.

Topics covered

- Acne and non acne scars
- Pigmented lesions
- Melasma
- Tattoos
- Photoaging and wrinkles
- Hair removal
- Vascular lesions and rosacea
- Lasers and ethnic skin
- Laser assisted drug deliveries
- Complications and legal issues in aesthetics
- Today's most required lasers in practice, private and institutional
- Are all the new laser technologies effective??
- Challenging cases discussion – best therapies to offer



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DEMONSTRATION OF OVER 20 SYSTEMS OF LASERS, LIGHTS AND ENERGY BASED DEVICES

Coordinator : Dr Sanjeev Aurangabadkar. **Convener:** Dr Shehnaz Arsiwala

Faculty Members: Dr Niteen Dhepe, Dr Swapnil Shah, Dr Sushil Tahiliani, Dr Anil Ganjoo, Dr Anurag Tiwari, Dr Satish Udare.

Local Organizing Team (Hyderabad)

Dr BN Reddy, President, IADVL (Telangana) State Branch

Dr G Manmohan, Gen Secretary, IADVL (Telangana) State Branch

Dr. G Venkatramana, Dr. A Geetha Kiran, Dr. Nayeem, Dr. N Ramesh, Dr. AG Rao, Dr Seetaram, Dr. Satyanth R

IADVL

Dr Venkataram Mysore, President, IADVL

Dr Rashmi Sarkar, Hon Gen Secretary, IADVL

IADVL Academy

Dr Manas Chatterjee, Chairperson, IADVL Academy

Dr Ameet Valia, Convener, IADVL Academy

Venue for workshop: IRISSET-RAILWAYS CONVENTION CENTRE,

ON THE ROAD FROM METTUGUDA TO TARANAKA ADJACENT TO RAILWAY DEGREE COLLEGE, HYDERABAD.

IADVL Special Interest Group (SIG) Lasers and Aesthetics

The IADVL SIG Lasers and Aesthetics group is conceived to focus on this rapidly growing subspecialty under the IADVL Academy of Dermatology, which spearheads the IADVL's academic activities. It aims to keep our members abreast of the latest advances in lasers and aesthetics, while also satisfying patient demands for safe, effective and evidence based practices. Its emphasis is on fundamental laser science, biophysics, light-tissue interaction, ethics and laser safety. The SIGLA team tries to critically evaluate new and old technologies in lasers using clinical and technological parameters.



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IADVL SIG LASERS AND AESTHETICS SYMPOSIA WITH IADVL MAHARASHTRA BRANCH AT PUNE- DR SANJEEV AURANGABADKAR AT WORKSHOP 2013



IADVL SIG LASERS AND AESTHETICS TEAM- SESSION ON LASERS AT DERMACON 2015 MANGALORE.

STANDARD OPERATING PROTOCOL FOR LASER HAIR REMOVAL



Dr. SUSHIL TAHILIANI

Member-IADVL SIG Lasers and Aesthetics
Consultant dermatologist, Mumbai
Honorary dermatologist-Hinduja healthcare,
Asian heart institute, Bharatiya Arogya Nidhi hospital

Patient Evaluation:

History	Physical
Age - ≥ 15 yrs	Tanning
H/O herpes simplex on face	Infection, acne on affected area
H/O intake of drugs causing hypertrichosis	Calibre, color of hair
H/O intake of oral isotretinoin	Evidence of hyperandrogenism
H/O PIH	Presence of PIH/ Keloids
H/O previous methods of hair removal	
H/O Keloidal tendency	

Pre-procedure investigation and checklist:

Last date of hair removal & method used

Skin of treated area should be healthy (no cuts/ atrophy/scaling/crusting/vesicles)

Basic investigations (clinical evidence of hirsutism):

- Serum Testosterone
- Serum DHEAS
- Serum Prolactin
- Pelvic USG

More advanced investigations should be based on results of above-mentioned investigations and should be under domain of an endocrinologist.

Priming protocol (for 3 weeks before LHR):

- Broad spectrum sunscreen
- Avoidance of excessive sun exposure
- Use of a bleaching cream in those with a suntan or with darker skin type
- Instructions to avoid plucking, threading, waxing, electrolysis
- Shaving/depilatory cream can be used till day before the procedure
- Prophylactic antiviral drug should be started 1 day before the procedure
- ? Oral isotretinoin / photosensitizing drugs should be not taken routinely.

Consent:

Both verbal & written

Photograph:

Pretreatment clinical photograph in standardized is desirable

Standard steps of procedure:



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Treated area should be cleansed.

A local anesthetic cream should be applied for 60 minutes for sensitive patients and sensitive areas. It must be removed at the time of procedure

Any visible hair above the surface should be removed

In patients/ clients with braces, a guard/gauze should be placed in the gingival sulcus

Client should be in a reclining position and comfortable

Client's eyes should be covered with a laser shield and the operator and all others in the laser room must wear appropriate protective goggles

The room should be well illuminated and free of clutter and the door must be shut

Area to be treated could be marked with a white / red make up pencil or a yellow fluorescent highlighter

Appropriate cooling methods must be used and checked

Appropriate fluence and pulse width should be chosen for the case and minimal overlapping of treated areas as per the device manufacturer's recommendation. A test site treatment could be done for safety 1 to 2 days prior to treatment to allay apprehensions of client and to reduce risk of damage to skin.

End point:

Immediately after the procedure, there is no visible change or a slight 'popping' of carbonized hair shaft. Soon thereafter slight erythema and perifollicular edema usually develops.

Signals of impending complications:

Severe pain during procedure

Grayish / blackish discoloration of skin

Blistering/epidermolysis

Post treatment care:

Application of ice packs helps in reducing erythema, edema & discomfort.

Application of a mid to high potency TCS (in cream base) once or twice daily for 1-2 days helps in reducing swelling and erythema.

Use of a sunscreen with broad spectrum and SPF ≥ 30 is recommended.

Prophylactic drug course-if started is completed.

Tips to improve outcome:

Use a device made by a reputed company and get the machine regularly maintained

Avoid doing treatment for hair that is easily bleached (thin slightly pigmented hair)

Avoid the procedure in a client with very little contrast between hair to be treated and the background skin

Counsel the client well

Avoid leaving the machine in care of a therapist or poorly trained assistant when you are not around.

COMPARISON OF FRACTIONAL CO₂ LASERS



Dr. SWAPNILSHAH,MD

Member, IADVL SIG Lasers and Aesthetics

Associate professor of Dermatology, Ashvini rural medical college, Solapur.

Huzaira et al first described the concept of FT in 2003 following which the first fractional device was introduced by Manastein et al in year 2004. This shifted the focus From "**Bulk Heating/Ablation**" to "**Localized Heating/ Ablation**".

The concept behind FP is to treat small "fraction" of skin leaving intact, undamaged skin around each treated area to act as a reservoir for rapid healing. Re-epithelialization of treatment zones occurs rapidly resulting in significant less risk.

The scientific concept underlying FP involves the application of microscopic beams of pixilated light, which induce small, focal zones of tissue injury. These beams produce small columns of thermal injury to the skin, which are known as microthermal zones (MTZs).

Fractional ablative lasers with CO₂, were introduced with the intent of providing more significant results than non ablative systems while achieving shorter healing times and complications of full field ablative resurfacing.

All of the currently available fractional CO₂ ablative laser systems allow the operator to adjust the energy and density. Some of the laser systems also allow adjustment of the pulse duration, whereas others have fixed or automatically adjusting pulse duration.

There is lot of confusion regarding choosing a correct fractional system. One has to carefully choose a machine based on following parameters.

PARAMETERS TO CHOOSE

Pulse duration:

Shorter pulse durations are desirable. When pulse duration is longer or with continuous wave lasers bulk heating of the tissue occurs. This results in increase of the width of the MTZ, potential for charring of the epidermis, and the persistence of a visible pattern of laser impacts on the skin for a prolonged period following treatment.

Low-end CO₂ fractional devices will use a "chopper blade" in an attempt to make their CW beam perform in a similar fashion as a Super pulse beam. Essentially they use a spinning fan with multiple blades that alternately block and release the CW laser beam to create short pulses that looks similar to super pulses. Ultra pulse technology is a slight improvement over super pulse technology.

CO₂ Generators

The low-end/low priced CO₂ fractional lasers have a glass tube generator that is light or DC excited and water cooled. The vast majority of these low-end tubes produce a CW beam. This is due to the fact the pump energy provided by a flash lamp or DC is somewhat variable and is not consistent enough to support a Super pulse beam technology

RF delivers a much more precise and consistent source of pump energy, ideal for producing a Super pulse beam, but is expensive to incorporate into a design.

Metal tubes, which are the most expensive and last 2 to 3 times longer than any glass tube.

A metal, RF excited tube is the best combination of beam quality and component longevity.

Spot Size

Spot sizes <200 um allow for deeper penetration into tissue, whereas spot sizes greater than 300 Um result in a shallower depth of penetration at the same energies.

Density:

Determines the distance between MTZs. Increasing the density decreases the distance between MTZs, resulting in treatment of a larger percentage of the skin surface.



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Power:

Most of the machine has power between 30W to 60W. It is important to know what the actual power available while performing the treatments is. Non-FDA approved machines which claim to be ultra pulse machine have power in the range of 6W to 10W with that pulse duration.

Pulse energy= Power x time

Single most important criteria to choose the outcome. High pulse energies with short pulse duration and spot size are associated with deep penetration.

Machine should be powerful enough to deliver the energy in single shot. Low-end CO2 lasers automatically stack the pulses to deliver the chosen energy. Stacking does not linearly increase depth of penetration but it also heat the tissue laterally. Every machine has a different recommendation and that is mostly based on **Histological** studies carried out on that machine.

Fractional beam generation

Fractional laser beam is generated by taking a single beam of laser light and splitting it into multiple, smaller beams (also called micro-spots). This is done with optics that consists of lens to split up the single beam and distribute the smaller beams into some type of pattern, usually a grid of equally spaced micro-spots of laser; using this method is known as stamping Laser.

Fractional beam can also be produced by a scanner system that takes the single beam emitted from the laser generator, shrinks it down into a very narrow beam, and delivers it one at a time as individual micro-spots. Thus a scanner concentrates the energy of the entire laser system into one spot. Obviously a scanned-pattern laser can be made with less peak power than a stamped-pattern laser.

Heat Index:

Heat index is a relative value that measures a laser's ability to deposit heat in tissue. It is the maximum Energy per pulse with maximum pulse width. It is not based on fluence or maximum power. It is both the energy and time that results in the greatest derivation of heat.

Take home message:

It is important to choose a laser that gives you freehand to choose various above parameters. Also histology carried out with that machine plays an important role in choosing the correct parameters.

The Chart elaborates various comparable parameters in different systems of CO₂

NAME	COMPANY NAME	PULSE TYPE	PULSE DURATION [usec]	TUBE TYPE	POWER	SPOT SIZE [uM]	HEAT INDEX	INCISIONAL HANDPIECE	PARAMETER ADJUSTMENT
PIXEL Co2	ALMA LASER	SP/CW	50-1000	RF	70W/ 40W	250	3	YES	iTED - Trans epidermal delivery of cosmeceuticals with IMPACT accelerates healing, improve results and reduce downtime. Pixel CO2 comes with a wide array of advanced scanners, rollers and surgical tools.
ULTRA PULSE	LUMENIS		UP	100	RF	60W	120-1300	11.25 YES	Three handpieces active fx for superficial ablation, deep fx for deep ablation and scaarfx for very deep ablation useful in mnangment of burn scars and contractures.
ACUPULSE	LUMENIS		SP	100-200	DC	40W	120-1300	YES	
EcO2	LUTRONIC	SP	40-4000	RF	30W	120-350-500	102	OPTIONAL	
EXEL O2	QUANTEL DERMA	SP/CW	100-10000	RF	40W	200	16880	YES	Cold air-cooling can be directly attachable to scanner.
SMARTXIDE DOT	DEKA	SP	80-200	RF	50W	350	12	YES	DOT Scanner and freehand handpiece; touchscreen monitor; Stack feature; Smart Track delivery mode, Smart Pulse; patient database; CW, PW, traditional and fractional scanning modes available.



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SMARTXIDE DOT/RF	DEKA	SP	80-100	RF	300W	350	12	YES	
REPAIR	SOLTA	UP	150-3000	RF	40W	135-600	21	YES	Built-in smokeless evacuation system. IOTS. Ergonomic handpiece and roller tip. Precise dosimetry increasing patient comfort for targeted indications.
CO2RE	SYNERON-CANDELA	SP/CW	20-1166	RF	60W	250-150 [OPTIONAL]		YES	Fusion mode delivers deep and superficial energy in one pass, Versatile: control depth from 10 to 750 microns and density from 1% to 100%
SMARTSKIN PLUS	CYNOSURE	SP	200 - 20,000	RF	30W	350	12	YES	Built in smoke evacuator
MIXEL	HIRONIC	UP	70-5000	RF	30W	150-300	n/a	YES	
FRAXIS	ILODA	UP	100-5000	RF	30W	less than 100	n/a	YES -	
UNIEXEL	UNION	UP/CW	200-2000	RF	30W	70-150-300	n/a	YES	pulse duration, power, stacking, spot size, pitch can be adjusted independently.
SELLAS	DINONA	UP	n/a	RF	30W	70-150-300	n/a	YES	2 modes moving and stamping, Easy Drawing Mode for irregular lesions.
FUTURA	n/a	UP	100-10000	RF or DC	40W, 30W	100-1250	n/a	YES	
PROFRAX C-2	PROTOCA-DMUS	SP	2-50 MS	RF	30W	150-300	n/a	YES	

COMPARABLE PARAMETERS IN DIFFERENT SYSTEMS OF Co2

MIDFACE FILLERS- CHECKPOINTS FOR CHEEKS



Dr. Shehnaz Arsiwala, MD

Convener-IADVL- SIG- lasers and aesthetics

Associate editor- Journal of Cutaneous and Aesthetic Surgery

Consultant dermatologist cosmetic dermatosurgeon and laser specialist

Saifee Hospital, Prince Aly Khan Hospital

Mumbai, Maharashtra, India

Volumetric rejuvenation of the face has undergone a dynamic shift in approach. Focal wrinkle filling has slowly been replaced by global corrections. The mid face constitutes theatre of action when volumetric rejuvenation is sought. The fat compartment depletion in the mid face is reflected in the lateral and middle periorbital and malar zones in deep compartments and temporal as well as pre-auricular and submalar zones in superficial compartment, with fixation by central retaining ligaments and loosening of lateral ligaments. These are seen as loss of cheek volume, submalar flattening, nasojugal groove, and tear trough and nasolabial crease appearance

As a result while initial assessment of the aging face, often mid face is the first zone the physician wishes to treat while achieving volumetric rejuvenation.

Step 1

- Volume check- periorbital, midcheek, submalar,
- Folds check- nasojugal, tear trough, nasolabial
- Details of the volume depletion and resultant grooves/ folds are discussed realistically with the patient
- Degree of corrections and realistic results discussed

Step 2

- After contraindications are ruled out, a treatment plan is charted
- Aspirin, VIT E, anti-inflammatory agents to be stopped 3-4 days prior to procedure

Step 3

- Informed valid consent obtained and Pre-treatment photographs recorded
- Mapping of the points to be injected (see diagram)
- Type of filler to be used chosen, Particle size /G prime (viscoelastic character) of the filler decided
- Amount of filler that may be tentatively required calculated
- Multiple syringes of different G and particle size are desirable for work on periorbital and cheek area
- Surface or block anesthesia achieved

Step 4

Technique: Focus on

- Needle mapping, particle size mapping and volume of filler injected
- Preference for deep followed by superficial placement
- Lateral to medial point injections
- Superior to inferior injections
- Small boli in periorbital, deep large boli in malar, submalar
- Needles / canulas for deep cheek zones, microcanulas for periorbital
- Utmost care for vascularity (ice compresses, aspirate before injecting, knowledge of vessel anatomy)
- Deep placements no massage
- Superficial placements massage essential, can be diluted with normal saline for better spreadability
- Slight under correction is desirable

Points for mid-face augmentation include

Ogee curve first point- needle-27-30gauge, ½ inch, deep supraperiosteal

Below tear trough 2nd point- 27- 30gauge , may use microcanula, superiomedially,deep placement supra-periosteally, interrupted small aliquots(effaces upper nasojugal fold)

Deep submalar 3rd point , 2-3 boli, 0.2-0.3 ml each (Mostly effaces upper part of nasolabial fold)

4thpoint on pyriform fossa- deep, single bolus after aspiration, 0.2 -0.3 ml

Linear threads / serial puncture to efface remaining nasojugal or nasolabial folds

Step 5

Post treatment instructions for patient

- Drink plenty of water
- No massaging or molding
- Avoid harsh facial exercises

Follow up

- Reassess at three to five weeks
- Second phase for superficial lateral temporal, preauricular and submalar area can be conducted. For any residual nasolabial or nasojugal groove direct small linear threads or serial punctures can be undertaken for complete effacement.
- Patient asked to report back for any untoward effects- lumpiness, tenderness, nodule formation etc

Results of a good aesthetic filling

- Best appreciated at 2 months after completion of deep and superficial volume restoration
- Smooth cheek contour
- Seamless eyelid to cheek transition
- Reflection of light at ogee curve point on smiling
- Effacement of nasojugal and nasolabial folds
- Harmony of midface with the rest of face
- Balance between central and peripheral restoration and lift (avoidance of ' rat face')

Reading material

- Volumizing effect of a new hyaluronic acid sub-dermal facial filler: A Retrospective analysis based on 102 cases. Herve Raspaldo
- The evolving role of hyaluronic acid fillers for facial volume restoration and contouring: a Canadian overview. Arthur swift



Before and after - Correction with HA filler for mid cheek augmentation.

LASER AND ENERGY BASED DEVICES: NEW TRENDS ON HORIZON



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Laser and light based devices are becoming integral parts of dermatology practice in India in current days. It will be interesting to understand the current trends and future possibilities.

- “Laser -Tissue interactions” have become more complex. Extended theory of selective photothermolysis, thermal destruction time (TDT) versus thermal relaxation time (TRT), reinterpretation of Arrhenius rate equation are a few MUST learn points to the understand newer devices
- In today's world all lasers and energy based devices are going fractional, be it CO₂ or QS Nd-YAG. Even radiofrequency, excimer and IPL are being tried on fractional mode. Fractional is the mode of energy delivery that changes the tissue healing pattern from secondary to primary intention.
- Deep Narrow fractional CO₂: In CO₂ lasers lateral thermal damage is directly proportional to the ratio of width to height. If we want to go deep in the dermis, it is at the cost of lateral damage. Deep dermal penetration without causing a substantial lateral damage was not possible previously. Similar to concept of drilling like 'borewell' i.e. very narrow width but very deep at the same time (e.g. 1200 microns to 1500 microns deep but only 100 – 200 microns width), which was desirable theoretically is now possible with the new technologies that promise excellent remodeling of scars because of minimal side effects.
- Fractional QS Nd - YAG Laser is another new modality, which is being tried for pigmentation and as “Laser-peel”. This achieves selective dendrectomy of melanocytes meaning selective decrease in melanin granules without inflammation in melanocytes. This has opened a possibility of adopting Q- switched lasers to darker skin types.
- Fractional Micro Needle RF (MNRF) is being used for skin tightening and for acne scars and has shown promising results. Though theoretically it has advantages over CO₂ lasers, in reality CO₂ lasers are still accepted as superior option in scar treatment and rejuvenation. Combination of MNRF with fractional CO₂ is showing better promise in darker skin.
- Lasers for Onychomycosis: Fungi are heat labile hence anything that can heat the dermis is assumed to kill the fungi. Many fungi are pigmented; hence any pigment laser would break the cell wall of fungi therefore killing it. Hence lasers for rejuvenation and lasers for pigment can be modified as “Nail-Fungus lasers” and are reported successful with literature evidence.
- Lasing media or lasing material is becoming more liberal: Now pulse dye laser need not come from a liquid dye source. Semiconductor diodes are taking over most of frequencies. Pulsed dye wavelength is now tried through a diode source. Alexandrite, excimer or any wavelength may be possible from a diode source.
- Alexandrite (755nm wavelength) was originally a solid laser which has been recently been produced through a Diode. E.g. Soprano – ICE.
- Excimer laser is not being produced using helium gas as laser medium, but by passing LP-Nd-YAG 1320nm beam through subsequent crystals hence attaining 308-311nm. We know when 1064 laser is passed through KTP crystals it doubles the frequency and reduces wavelength to ½. There are crystals now that can change wavelength to ¼, ¾ etc. Hence an easy to manufacture LP Nd YAG is passed through multiple crystals to get 308 or any other wavelength that was earlier difficult to achieve. Example UV laser of photomedex.
- Development of Sandwich filter for IPL has led to more specific wavelength outcome eg. (540 – 600nm) can be used for vascular lesions. E.g. Dye-VL of Alma. Previously IPL used to have only lower filter below which all ultraviolet wavelengths were blocked. Upper filter used to be water to filter infra red wavelengths beyond 1200nm. Now upper filter to block wavelengths above specific window are available opening possibilities of very narrow band IPLs. These IPLs will compete with PDL for vascular and 800nm diodes for hair reduction.



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Editors: Dr Shehnaz Arsiwala, Dr Sanjeev Aurangabadkar

- Tunable lasers: what if a single laser device will emit all the wavelengths? Such devices are in pipeline and soon we can see a machine that will have all the required wavelengths.
- Er:YAG traditionally have more of evaporation and less of thermal effect but the upcoming tuneable Er:YAG have more of thermal effect, while the CO₂ are being manufactured with less thermal effect like Ultra pulse mode CO₂. All in all CO₂ is becoming gentler while Erbium becoming aggressive.
- Hair removal lasers are becoming more long-pulsed. Nowadays we don't want to be very selective only for hair shaft destruction. Ideally it is also required to destroy the stem cells around the below hair bulb which are colorless and hence we require energy more than the "Thermal Relaxation Time." According to "Arrhenius Rate Equation" Slow and prolonged heating is enough. As we understand biology more, we now know that coagulation is not required, denaturation of protein is enough. So instead of 10-20ms pulses, hair removal is shifted on 100-200ms pulses.
- Stacking is what is newly explored.
- Traditional laser protocols had big NO for stacking of pulses. Also passing again over the treated area was not encouraged. Now stacking or multiple passes is explored in most of technologies. The Arrhenius Rate Equation explaining relation of protein denaturation with heating is re-interpreted currently. Now we believe that fast heating of collagen in short time has the same effect as slow but prolonged heating. So all energy based devices have evolved less aggressive protocols as heating hair shaft or dermis to 80-85°C is no more essential.
- "Low energy - Multiple passes" / "Low energy - Multiple stacks" are equally effective as high energy single shot protocols and gives us to use less fluence, hence less side effects.
- "Super Hair Removal" is a very good example. 'In motion' protocols for IPL, Diode and RF allow to drop recommended fluences to 20-50%.
- Vascular lasers are becoming multiplexed, like two lasers in one shot. E.g. Combination of PDL and Nd YAG sequenced in same pulse. This is like stacking of different lasers. PDL lasers are being competed by long pulsed Nd YAG laser and sandwich filtered IPLs. More over PDL wavelengths are being produced in diode media.
- Newer energies: Newer technologies such as Plasma, Microwave, LED, and focused Ultrasonic are coming into the market. Microwave energy causes microwave sweat ablation, and is being used for axillary hyperhidrosis (e.g. Miradry). It has potential to adapt for various other indications like dermal collagen remodeling and single session hair removal. High intensity Ultrasound for skin tightening is another upcoming technique.
- LED is coming in a big way. It has already established itself for wound healing, hair growth, rejuvenation, acne. Very large investment in research for LED in other fields has laterally benefited the medical field.
- Newer indications: Vaginal tightening with fractional CO₂ laser, microwave heating of whole body in case of hypothermia and shock are some examples of exciting future possibilities.
- Fibre lasers as the new development are being used for laser assisted liposuction. These are also adopted for laser sweat ablation (LSA) for axillary hyperhidrosis. 1370nm fibre laser of Alma is adopted for liposuction, LSA and endovascular ablation of varicose veins.
- Fractional Drug Delivery or device assisted transcutaneous drug delivery is the future of therapeutics according to R Rox Anderson.
- Presently drugs are regulated by FDA while devices by Device Control division. When the Drug is combined with Devices the newer modality "Drug - Device Combination" will be a reality. Then would be the time when drug would be readily penetrable overcoming the main barrier i.e., stratum corneum, and will change the face of pharmaceutical and laser industry. 'Impact' ultrasound by ALMA is based on such principle. This new mode of drug delivery will make many oral drugs obsolete and open many new possibilities for future.
- Robotic lasers: In future, the lasers will be ultrasound with combined diagnostic and therapeutic uses. Real time imaging with high resolution ultrasound will allow giving different energy to thick hair and thin hair.
- What will be the energy of future...?. Rox - Anderson says energy of future will be ultrasound not laser or radiofrequency. Color blind nature and simultaneous diagnostic and therapeutic application of ultrasound makes it very friendly for any type of skin. Manufacturing of ultrasound and its modulation are very easy. So this will prove to be very versatile energy for most of the indications.

TIPS FOR MAINTENANCE OF LASER MACHINES *



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Since their inception in late 50s lasers have come a long way. From the Ruby laser of the 1960s which was used for multiple indications we now have a huge range of lasers for different indications. We now have more than one device available for many laser amenable conditions. With this sea change in the laser practice more and more machines are being added to our clinics every now and then. As the number of machines increase the need for proper maintenance also arises. The laser equipments are very expensive and therefore need utmost care to ensure long life and optimal results.

Let's start with our laser room. For the lasers to have a long life and work efficiently it is imperative that the laser room

Should be of a good size of at least 12 x 12 ft to accommodate the operation couch, a trolley and a few laser machines

The room should be airy and well lit up

The room should be dust proof as far as possible as dust can be a major threat to the proper functioning of the laser optics

The room should be properly air-conditioned Proper warning should be exhibited at the door of the laser room so that no unauthorized person can enter the room The floor should be easily washable and should be kept absolutely clean

Reflective surfaces like mirrors or shiny ones should be avoided on the walls, ceiling and floor

The electric supply should be uninterrupted and fluctuation free. We should ensure that A three phase connection is provided

The supply should come through a good quality UPS, with a good battery back up Proper earthing is extremely essential to avoid damage to the sensitive electrical circuits Avoid using extension chords as they can produce sparking which can be damaging to the machines

Use a good quality voltage stabilizer to avoid voltage fluctuations

To ensure that the laser machine remains snag free and gives uninterrupted service for long years we need to Maintain a dust free environment in the laser room Have a continuous, voltage stabilized and grounded power supply Maintain cool ambient temperature in the laser room Clean the machines periodically so that no dust collects on the lenses or mirrors Schedule regular service visits as per the manufacturer's recommendation AMC should always be taken so that you are free of worries of the machine breaking down. The AMC should be properly drafted to cover the spare part as far as possible The machine should be insured against technical break down, fire and theft. Sensitive machines under multiple operators should always be insured. While drafting the insurance policy one should make sure that the required parts are covered and mentioned in the policy External cooling devices if used should be properly taken care of. They should be provided with separate electric supply

References

Dhepe N. Minimum standard guidelines of care on requirements for setting up a laser room. Indian J Dermatol Venereol Leprol 2009;75, Suppl S2:101-10

Kerr DR. Electrical design and safety in the operating room and intensive care unit. Int Anesthesiol Clin 1981; 19:27-48.

Klebanoff G. Operating room design. Am Coll Surg Bull 1979;64:6-10

SALICYLIC ACID PEELS:PRACTICAL PEARLS



Dr. Madhuri Agarwal, MD

Chemical peels have been used since centuries to perform cutaneous exfoliation for achieving a smooth, even skin. One of the most preferred superficial chemical peels is salicylic acid peel for treating acne and skin irregularities. I will be sharing some of my practical tips and suggestions for a better outcome with the salicylic peels.

Benefits of Salicylic Acid:

Salicylic acid is a beta-hydroxy acid that has a phenolic ring in its chemical structure. It is an excellent keratolytic agent by way of its ability to dissolve intercellular cement thereby reducing corneocyte adhesion. Due to its lipophilicity, it has better penetration into the pilosebaceous unit. This property of salicylic acid accounts for its strong comedolytic effect, and its utility in the treatment of acne. The anti-inflammatory activity of SA makes it useful in rapidly decreasing facial erythema. Salicylic acid also has very good safety profile with no incidences of salicylism reported till date. It is low in cost, easy to apply and has the ability of self-neutralization. Another benefit of SA is its lightening effect on post-inflammatory pigmentation due to acne.

Indications:

1. Acne Vulgaris
2. Seborrhea and enlarged pores
3. Photoaging
4. Post inflammatory hyperpigmentation

Contraindications:

1. Allergy to aspirin
2. Pregnancy
3. Lactation
4. Past reactions or hypersensitivity to peels

Tip: It gives excellent results in inflammatory acne, seborrhea and enlarged pores. For PIH, a combination with mandelic acid yields a superior result.

Patient Preparation:

The right selection of patient is essential for optimum results. A detailed history and clinical examination must be done before planning the peel. Written consent and pre treatment pictures must be documented at the start of peel.

Priming:

Preparing the skin with tretinoin or alpha hydroxyl topical cream 2 weeks before the initial peel is recommended.

Procedure:

- Check the label on peel bottle before application to ensure the right peel.
- 30% concentration of Salicylic peel is effective in reducing acne.
- Check for social commitments before the peel. There should be a gap of 3-4 days after the peel.
- Peel sensitivity test on the neck is advisable to prevent any sensitivity reaction for first time patients.
- For all first time patients, the peel should not exceed 4 minutes. From the second sitting onwards the timing can be increased to maximum of 6 min.
- Gap between two peel sessions should be minimum 15 days. For best results gap should be not more than one month.
- Always ensure that the open peel bottle or cup is not passed over the patient's face or body during the peel to avoid accidental spillage of the peel.
- Inform the patient that a slight reddening will be expected. Sometimes the skin may become dry, advise them to use a moisturizer.
- Vaseline should be applied to sensitive areas like the inner canthus of the eyes and nasolabial folds.
- The peel must be applied quickly in 30-40 seconds in cosmetic units on the entire face, beginning from the forehead, then the right cheek, nose, left cheek and chin in that order. 1-3 coats of salicylic peel can be applied to achieve an even frost.
- Ideally 4-6 sessions are required for visibly, appreciable results.
- Once a month maintenance peel is recommended to maintain the results.

Tip: On application of salicylic peel, the patient starts experiencing a burning or pricking sensation which increases over next 2 minutes, reaches its peak at 3 min and then quickly settles down within the next minute leaving behind a pseudo frost. Thus salicylic acid peel is a self neutralizing peel and requires only cold water to remove the residue of peel.

After Care:

1. Normal tap water must be used for the next 12 hours.
2. Direct excessive sunlight exposure should be avoided for 3-4 days post peel.
3. A broad spectrum sunscreen should be applied 20 minutes before stepping out in the sun. Reapply the sunscreen after every 3-4 hours if there is fresh exposure to sunlight.
4. If there is excessive redness or any discomfort advise the patient to apply cold compress.
5. Activities such as steam, sauna or swimming can be resumed after 4-5 days



Fig 1: Acne grade 2 before salicylic peel



Fig 2: Acne grade 2 lesions clearance and reduction of seborrhea after 4 sessions salicylic peel

References:

- 1) Kim IH. Salicylic acid peel (Acne peel) Hong Kong J Dermatol Venereol. 2005;13:83-5.
- 2) Lee HS, Kim IH. Salicylic acid peels for the treatment of acne vulgaris in Asian patients. Dermatol Surg. 2003;29:1196-9.
- 3) Evageline BH, Maria LD, Ivan AS. Chemical Peels for Acne and Acne Scars in Asians: Evidence Based Review J Cutan Aesthet Surg. 2012 Oct-Dec; 5(4): 239-246.
- 4) Kligman D, Kligman AM. Salicylic acid as a peeling agent for the treatment of acne. Cosmetic Dermatol. 1997;10:44-7.