



IADVL

IADVL SIG Dermatosurgery (IADVL Academy) Newsletter (Issue 1) January 2020



Chander Grover

Coordinator, SIG Dermatosurgery
Professor, Dermatology and STD,
UCMS and GTB Hospital,
Delhi



Anup Lahiry

Convener, SIG Dermatosurgery



Dr Syed Mubashir
Editor

Members

Anirudha Gulanikar

KT Ashique

Nilesh Goyal

Sanjeev Gupta

Sidhartha Das

Madura C

Syed Mubashir



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Welcome Note!

Happy Sculpting, Happy Suturing and Happy Learning!



Chander Grover

Coordinator, SIG Dermatosurgery



Anup Lahiry

Covener, SIG Dermatosurgery

Dear IADVL Members,

Welcome to the 3rd News letter from SIG Dermatosurgery!

The SIG Dermatosurgery tries to publish brief Dermatosurgery articles to activate and generate interest among budding Dermatologist in the field of Dermatosurgery.

We at SIG Dermatosurgery, are making concerted efforts along with IADVL and IADVL Academy to conduct Zonal video workshop to disseminate first-hand information about commonly performed Dermatosurgeries through experts in the field. A brief report of two full-fledged dermatosurgery workshops conducted in this half year (At Karad and Ajmer) are included in this issue. Additionally, the SIG involved itself in raising awareness about vitiligo and vitiligo surgeries during the week long observance of World Vitiligo Day in June 2019. A detailed report of the same is also included.

The SIG is also engaged in developing guidelines and curriculum requirements for an effective dermatosurgery training at various institutions. The IADVL Academy has initiated efforts towards an ambitious Dermatosurgery Training fellowships for which the SIG is committed towards chalking out the minutest details for a smooth implementation when the program rolls out.

In addition, the present issue includes very informative articles on different dermatosurgical techniques. These include Excision of premalignant and malignant lesions, Management of auricular keloids, Autologous fat as an effective filler and Pearls in Hair transplant surgery.

SIG Dermatosurgery along with IADVL and IADVL Academy remains committed in imparting and upgrading Dermatosurgery skills of IADVL members. We are thankful to IADVL and IADVL Academy for giving us a platform for the same. We have carefully curated this issue with the efforts of the Guest Editor- Dr Syed Mubashir. We apologise for the delay in its release due to unforeseen and unavoidable circumstances. We hope that our readers will find the topics useful. Please do share your valuable opinion, suggestions and comments so that we can improve upon in our future works.

Editor's Desk



Syed Mubashir

On behalf of the SIG Dermatosurgery along with IADVL and IADVL Academy i would like to assure all our readers that our consistent efforts in making this newsletter more informative and helpful for all dermatologists so that they can implement it in their routine practice. This newsletter is a sincere and dedicated effort by all the members who have put lot of efforts in formulating this newsletter .We very much look forward in strengthening the impact of this newsletter in future and apologise for getting it delayed due to some unavoidable circumstances.I would like to take this opportunity to thank our coordinator, convener and all the members of SIG Dermatosurgery for their contributions towards this newsletter.

Finally we hope this newsletter will continue to be an important conduit for scientific and dermatosurgical information for our readers.

Syed Mubashir

Conference Report, IADVL Dermatosurgery Workshop

Karad, Maharashtra, 7th July, 2019

The first **IADVL Dermatosurgery Workshop** for the year 2019 was held in the West Zone. It was conducted by the Department of Dermatology, Krishna Institute of Medical Sciences, Karad, under the aegis of IADVL Maharashtra on the 7th of July 2019. The workshop was a major draw for IADVL Members from surrounding areas with around 206 delegates attending the same.

The workshop started with a session on Emergency preparedness in Dermatosurgery by Dr Madhavi Goyal, Consultant Anaesthesiologist, Mumbai. This was followed by video demonstration of Vitiligo surgery procedures by Dr Somesh Gupta, Professor at AIIMS, Delhi. He was the Key note speaker who also lectured on the topic “My love affair with Dermatosurgery”. This was followed by a talk on Radiofrequency ablation in Dermatology by Dr Dhanashree Bhide, Consultant Dermatologist from Pune through a video demonstration.

The morning lectures were followed by a formal inauguration by the Organising Secretary for the workshop and Head of Department of Dermatology KIMS Karad, Dr Mohan Kale. All the speakers were felicitated.

Post Inauguration, there were sessions on Management of Acne scars by Dr Savitha AS, Consultant Dermatologist, Bengaluru. Various methods of post acne scar management were demonstrated like subcision, microneedling. Our eminent Fat transfer surgeon from Mumbai, Dr Nilesh Goyal, talked about Autologous Fat transfer



for the beginners. Dr Dhanraj Chavan, Consultant Dermatologist from Karad gave a talk on Sclerotherapy for varicose veins, stasis eczema and ulcers. This was followed by an enlightening talk on Interventional management of keloids and hypertrophic scars by Dr Raghunatha Reddy, Consultant Dermatologist from Bengaluru. Dr Aniruddha Gulanikar, Head of Department, MGM Aurangabad gave a lecture on Suture materials and needles which was followed by a talk on various suture techniques by Dr Madura C, Consultant Dermatologist, Cutis, Bengaluru.



The afternoon session started with a talk on Excisions and Narrow hole Extrusion surgery by Dr Savitha AS followed by Dr Madura C's talk on Chemical peels and the power of combinations.

Dr Chander Grover, Professor, UCMS and GTB Hospital, Delhi gave an insightful talk on an array of nail surgeries like intramatricial injections, nail biopsies etc. In her second session, she talked in detail about various nail avulsion techniques, and the need to minimize the need and extent of nail



avulsions. She also talked about mucosal surgery techniques, where she highlighted the surgical management of mucocele. This talk was followed by Ingrown and Pincer nail management and Facial moles management by Dr Raghunatha Reddy.

Dr Anirudha Gulanikar educated us again on different vitiligo surgeries like suction blister and punch grafting. Dr Dhanashree Bhide gave an enriching talk on the role of platelet rich plasma and platelet rich fibrin matrix in Dermatology. The concluding session was by Dr Dhanraj Chavan on Microblading for hypotrichosis of eyebrows. It was followed by a vote of thanks by Dr Varsha Jamale, Associate Professor, Department of Dermatology, KIMS, Karad. The queries from the participants were clarified by the respective faculties at the end of the program.

Balakrishna Nikam

Conference Report, IADVL Dermatosurgery Workshop

Ajmer, Rajasthan, 13th Oct, 2019

IADVL SIG Dermatosurgery Workshop was a major success, held at Ajmer (Rajasthan) on the 13th of Oct 2019. Around 100 delegates attended this one-day event from different cities of Rajasthan as well as from different states. Dr Chander Grover, Dr Anup Lahiry along with other SIG Dermatosurgery members Dr Anirudha Gulanikar, Dr Nilesh Goyal, Dr Siddartha Das graced the occasion. In addition, many eminent dermatosurgeons including Dr Dilip Kachhwa, Dr Vishal Chugh, Dr Saurabh Singh, and Dr Madhavi Goyal (anesthesiologist) graced the event with their presence and with their respective interactive session.

Workshop began with Basics of dermatosurgery detailed by Dr Anirudha, covering basics of suture material and wound closure methods. An informative demonstration of suture techniques was covered in detail by Dr Saurabh Singh. Suturing cannot be done without anaesthesia, hence Dr Nilesh discussed anaesthesia techniques and different types of nerve block through video demonstration. Dr Vishal Chugh emphasised the basics of sterilization and precautions to be taken routinely for minimizing secondary infection, ensuring safety of dermatosurgeon and patients.

The recent boom in dermatology, Platelet Rich Plasma and Platelet Rich Fibrin, were covered by Dr Dilip Kachhwa. Their team demonstrated how to prepare PRP, PRFM and PRF. Dr Nilesh Goyal made Autologus Fat Transfer look very simple by discussing it in length through informative video demos. Most of the residents are looking forward to start this after completely understanding this recent procedure. Hair transplant is considered to be a very complicated procedure but Dr Prashant Agarwal discussed about patient selection, desired hair line, and detailed procedure



of FUT and FUE through video demonstration. A good team work is essential to carry hair transplant successfully.

SIG Dermatosuregry Coordinator Dr Chander Grover discussed nail surgery in detail, through a step wise approach. She covered injectables, nail biopsy, avulsion and ingrown nail through video demonstration of the essential steps. Dr Anup Lahiry cleared myths about keloid surgery. He explained various methods to remove keloids by dermatosurgeons. Though keloid over ear lobe had major success as compared to keloids over body, keloids having larger sinuses can also be treated with surgery. Video demonstration was shown for these steps. Removal of cysts, nevi, benign tumors etc. was covered under the heading, excisional surgery, by Dr Sidhartha Das. This session was followed by lunch

Post lunch session was about the war against acne scars. Acne scar surgery was beautifully covered by Dr Anirudha. Different methods like punch elevation, excision, subcision etc were discussed in detail. Acne scar management improves the mind set and helps to boost the confidence of the patient. Mucocele management was discussed by Dr Chander Grover. She explained marsupilization in detail through video demonstration. Basic radiofrequency surgery including intralesional radiofrequency was discussed & various videos are shown by Dr Saurabh Singh. He also explained how we can minimize bleeding in pyogenic granuloma through intralesional radio frequency.

Any type of surgery has some risks associated. Patient can collapse or can experience seizures. To tackle dermatosurgical emergencies, Dr Madhavi Goyal shared her experiences and explained how easily we can deal with such types of emergencies. A basic dermatosurgery performed mostly by dermatologist is ear lobe repair. Dr Vishal Chugh not only showed the correct method to perform but also showed how by using just a 16 g needle we can do ear piercing. Vitiligo surgery mainly Jodhpur Technique was explained by Dr Dilip Kacchawa through video demonstration. He made us realize that this procedure is not only cost effective but really beneficial to patients. At last non cultured epidermal cell suspension method was discussed by Dr Saurabh Singh for vitiligo patients.



Dr Rajkumar Kothiwala

Global Vitiligo day Observation 2019

Activities by SIG Dermatosurgery

The Global vitiligo day is observed on 25th June every year. This year, SIG Dermatosurgery participated enthusiastically to mark the event. The following activities were carried out

Vitiligo surgery Workshop

KMCT Medical College, Calicut- 16th June, 2019

A one-day workshop on Surgical management of Vitiligo was conducted by **Dr Ashique KT**, Member, SIG [Medical director and senior consultant dermatologist. Amanza Health Care Perinthalmanna]. The program had a total of 10 participants who enthusiastically learnt the procedures. A brief introduction followed by an elaborate talk on different vitiligo surgeries, their current relevance and various case scenarios was delivered. Following this, there was a methodical and illustrative live workshop demonstrating Autologous non cultured melanocyte keratinocyte transplantation for a patient with stable focal vitiligo. The event was well received and concluded by noon.



CME on World vitiligo Day, Bemina, Srinagar- 23rd June, 2019

A CME on World vitiligo day was organised by IADVL-J&K Office on Sunday, 23rd June. Dr Syed Mubashir, Member, SIG delivered a lecture on surgical aspects of vitiligo to the audience. It was well received.



Vitiligo Awareness Program, IMA Hall, Aurangabad, 23rd June

Dr Anirudha Gulanikar, Member SIG, collaborated with IMA and Lions Club, Aurangabad, Maharashtra, to organise awareness camp regarding vitiligo. 30 patients were screened and 2 were selected for free vitiligo surgery at his centre, Advya Medical Foundation, to commemorate Global vitiligo day. The press release outlined the impact of disease and contained sensitizing information.



CME on Vitiligo, Rourkela, Odisha, 23rd June

A CME to observe Global vitiligo day was organised by IADVL Odisha at Rourkela. **Dr Sidhartha Das, Member SIG**, spoke on various aspects of vitiligo surgery, highlighting its role in difficult to treat conditions.



Global vitiligo Day CME, Hotel Holiday Inn, Delhi, 25th June

Global vitiligo day CME was organised by IADVL Delhi State Branch and IADVL SIG Pigmentary Disorders. It was attended by 90 delegates. SIG Dermatosurgery contributed towards raising awareness about vitiligo surgery. **Dr Chander Grover, Coordinator, SIG** moderated a panel discussion on Vitiligo surgery where a panel of eminent dermatosurgeons shared their tips and tricks regarding vitiligo surgery methods, sensitising more and more dermatologists to take up this surgery. She also highlighted the standardised consent forms uploaded by the SIG for free download and use by IADVL Members in their practice.



Vitiligo Awareness Camp, Department of Dermatology, GMC, Baramulla, 27th June

SIG Dermatosurgery and Department of Dermatology, Government Medical College, Baramulla organised a “Vitiligo Awareness Camp” on the 27th of June. **Dr Syed Mubashir, Member, SIG** was instrumental in examining and providing counselling to 120 vitiligo patients. Free drugs were distributed with the help of Alkem Pharmaceuticals and patients were shortlisted for subsequent surgical intervention



Dr Chander Grover
Coordinator, SIG Dermatosurgery

Management of Auricular Keloids



Dr Anup Kumar Lahiry, MD,DD
Consultant Dermatologist, Apollo Hospital, Secunderabad

Keloids are benign dermal fibroproliferative tumors with no malignant potential. The incidence of ear lobe and helix keloids is about 2.5% in general population and 15 times higher incidence is seen in the colored races. Difference in morphology of auricular keloids (**FIG 1**) possibly contribute to different results of treatment. Modified Chang-Park classification of auricular keloids into Type 1 to type 5 helps us to guess what possibly will be the right method to treat. Treatment options are still controversial, and any single best treatment or combination of treatments has not been proved to be surely effective.



Fig 1: Different morphological types of auricular keloids

The mechanism that brings about Keloid/Hypertrophic scar are not completely understood. The rate of collagen synthesis in keloid fibroblasts increases by 2.7 times on exposure to TGF beta while normal skin fibroblast did not, this increased sensitivity of keloidal fibroblasts to TGF beta causes increased collagen production. Collagen synthesis is 20 times more in keloidal tissue than in normal scars. Genetic predisposition and race are important factors in keloid development. Other factors that predisposes to keloid development in a predisposed individual are, wound in tension, inadequate closure, prolonged healing time more than 3 weeks, infection, foreign body or spontaneous without trauma.

Managing keloid is a tough proposition and since there is no sure shot treatment or protocol, multiple methods, medical and surgical are available.

Generally reasonable size Keloids are treated with multiple options, like topical potent steroids, silicone gel, silicone gel sheet and intralesional medications like, triamcinolone, 5FU, Hyaluronidase, intralesional cryotherapy and radiotherapy pre and post-surgery, etc. The aim is to reduce the collagen synthesis in the scar tissue, which needs an induction and maintenance phase. Patients need to be told that it's a suppressible condition and not curable. Use of PDL and ablative Co2 lasers have also benefited in remitting the keloids. In Larger or bilateral lesions doing Dermaroller or Fractional Co2 on surface followed by topical potent steroid or 5 FU, in multiple sessions has also been tried with reasonably good results. One can reduce the amount of intralesional medication injected by above procedure.

In bulky or lobular lesions fibrous core extirpation with or without follow up intralesional medication has a long remissions **FIG²**. In these cases by removing the excess fibrous tissue we are reducing the fibroblast exposure to TGF beta and so a lesser production of collagen is seen.

Preventive aspects like reducing suture tension, clean wound, early suture removal and avoiding elective surgeries in predisposed individuals helps in reducing the incidence. One can do procedures like laser hair removal in patients with keloid as long as dermal tissue is not disturbed.

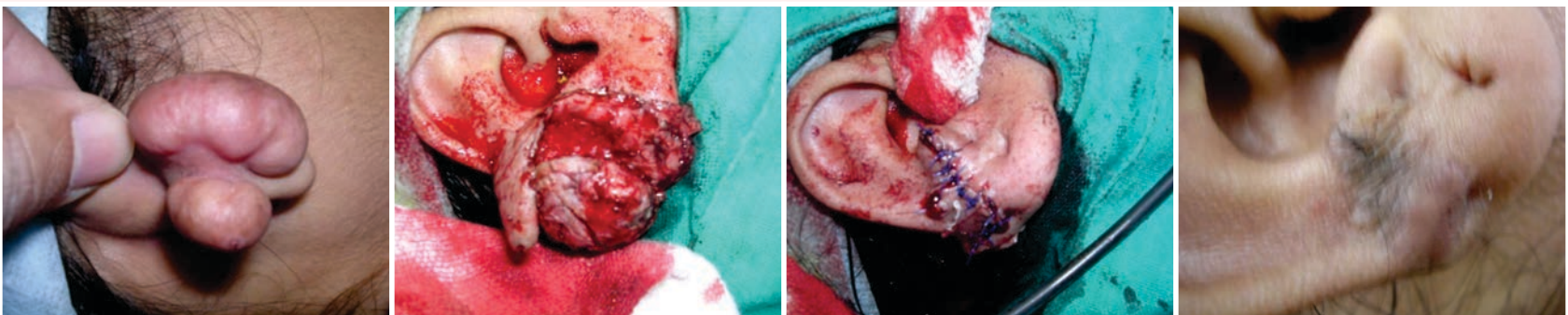


FIG 2: Core extirpation for keloids

Surgical pearls in hair transplantation



Dr Syed Mubashir MD; FRGUHS(Dermatosurgery)

Associate and Head Dept of Dermatology GMC Baramulla

Hair transplantation which involves teamwork and abundant time. It is a widely conducted dermatosurgical procedure across the world. Emphasis is being laid over cosmetic and aesthetic outcomes.

For better cosmetic and aesthetic results. The following are few surgical pearls we put forth:

- 1. Trichophytic Closure:** Trichophytic closure by trimming the edges using a simple shaving blade: The upper edge or lower edge of the donor area from which the strip is taken is trimmed by a shaving blade just by holding it between thumb and index finger.

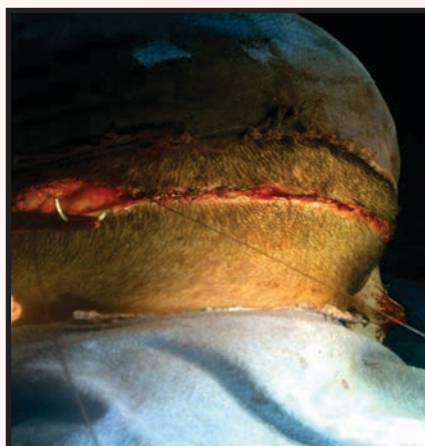
Advantage:

- A. Easy to perform and aesthetically better scar



1. Intradermal sutures using Vicryl 3-0

Advantage: Dead space is minimised and tissue opposition is better which promotes better healing.



3. Staplers are used as cutaneous sutures:

Advantage:

- A. It takes less time
- B. less discomfort in removing staplers.



- 4. Depth of the strip should not be more than one inch for better cosmetic scar.
- 5. The breadth of the strip should not be more than 1.3 to 1.5 cms as it gives barely visible scar.
- 6. Adding Triamcinolone acetonide {40 mg} to the tumescent anaesthesia when recipient area is being prepared reduces periorbital oedema.
- 7. Using Cryotrays for keeping follicular units.
Advantage: Viability of follicles is increased.
- 8. .Using customised blades Vs 18 and 16 gauge needles Vs Nokor needles, customised blades are better

Advantage: (a) Depth of slits is same (b) convenient to do slits with blades

FOLLICULAR UNIT EXTRACTION

- Hair in donor area should be trimmed to 1 to 3 mm
- Entire shaving of donor area will yield around 2500 to 3000 grafts which is dependent on size of punch and patients' follicular density
- Microstrips will yield 1200 to 1500 grafts

Advantage of FUE over strip grafts can be taken from supra auricular region and lower occiput and are fine hairs

Test sessions should be carried in these populations

- African patients who have a high degree of follicular curvature which will lead to high transection rates

Noteworthy points in each FUE Procedure: *Skin traction, Proper punch alignment, Effective punch alignment, Punch advancement, Check for graft elevation, Rotation speed*

Excision surgery for premalignant/malignant lesions



Dr Madura C

Consultant dermatologist, Dermatologist and Hair transplant surgeon,
Cutis Academy, Bangalore

Introduction

Dermatologic surgeons often face difficulty in repairing complex defects following excision of various benign and malignant lesions. There are various techniques available to tackle these surgical defects, ranging from simple fusiform closure to more complex closures like skin flaps. The choice of closure technique depends on the patient, size and location of the defect and the local tissue characteristics and availability. The reconstruction of complex defects created after wide surgical excision is best treated by flaps, to avoid excessive tissue tension or anatomical distortion associated with fusiform closure. Scar camouflage is the major advantage of flaps. The fusiform closure has the advantage of simple small straight or slightly curved line scar with minimal risk of complications, such as necrosis. However, a flap is considered when excessive tension or anatomical distortion is expected or if cosmetic units or relaxed skin tension lines (RSTL) will be breached by fusiform closure. The defect is filled with tissue of the same thickness and color and with good vascularity to give both better cosmetic and functional benefits to the patients. This paper addresses excision surgeries for benign and malignant lesions within safe oncologic limits.

Evaluation: Dermatologist performing excision surgeries for premalignant/malignant lesions should evaluate lesions to be excised, to choose the appropriate technique to obtain the best result.

Before proceeding to excision surgeries on face, basic anatomical considerations like RSTL, functional structures and important underlying structures are looked for. (Fig 1) For optimizing facial surgery incisions to be placed into relaxed skin tension lines and observing the formation of the lines with animation of the face (e.g. grimace, frown, smile, pucker etc), while the patient being seated becomes an important part of pre-surgical evaluation.

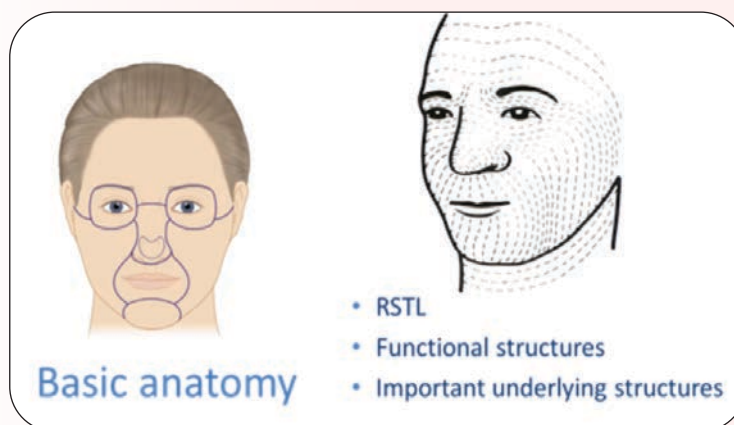


Fig 1: Basic Anatomy

Flap techniques

The greatest contributions to the flap reconstructive surgery have come from plastic surgeons and otorhinolaryngologists. History of flap surgery dates back to 700BC where Indian surgeons used local Flaps in nasal reconstruction. In 1700s, the Indian forehead Flap technique was first published. In the recent years there is explosion of interest among dermatologic surgeons to achieve high levels of expertise in the repair of facial surgical wounds and have contributed greatly to the field of facial reconstructive surgery. Flap is derived from Dutch word “Flappe” means a broad and loose structure hung and fastened only by one side. It is defined as skin and subcutaneous tissue with an intact vascular supply moved to cover an adjacent primary defect. The basic fundamental aspect of flap survival is the tissue perfusion, which is derived through an intact blood supply. Here the flap design plays the key role. Any segment of skin derives its blood supply from periphery and through deeper tissues, it is imperative to keep an intact tissue bridge when other incisions are made to mobilize the flap and transfer it into the defect. The perfusion pressure in the capillaries has to be maintained above the critical capillary closure pressure to ensure the tissue is adequately perfused and kept viable. Length to breadth ratio can be extended in face up to 3:1 or 4:1 due to its rich blood supply. But 3:1 ratio is a good safe limit in the face. In axial pattern flap this ratio can be 6:1.

Based on blood supply flaps can be either axial or random flaps. Random flaps do not carry a named blood vessel; rather it depends on sub dermal plexus for its survival. The flap has 3 components, the primary defect, body and pedicle. Definition of Flap and its components are shown in (Table 1). Based on movement of flaps, it is classified as advancement, rotation and transposition flaps. (Table 2)

Table 1: Flap components and movements

Primary defect	Defect created after Excision of primary defect.
Secondary defect	Operative defect created by the flap movement.
Primary motion	The direction of tissue movement that closes the primary defect
Secondary motion	Motion of surrounding tissue to close primary and secondary defects.
Pedicle	Portion of skin and subcutaneous that provides vascularity to the flap
Primary lobe	The portion of a flap that is designed to cover the primary defect
Secondary lobe	The portion of a flap that is used to cover the secondary defect
Pivotal points	The point at the base of the flap about which the flap rotates and/ or transposes
Flap size	The entire area of flap elevation combined with the primary operative defect.
Tension vector	The direction of force on a given motion of the flap.

Table 2: Classification of flaps

	Type	Definition
1.	Advancement flap	Flap that generated by unidirectional movement to close the defect
2.	Rotation flap	Rotational flaps is a pivotal flap with curvilinear configuration. the arc is 30° or less with the radius approximately two to three times the diameter of the defect and the length approximately four to five times the width of the defect
3.	Transposition flap	It is a Pivotal flap with linear configuration which is transferred primarily by transposition with some intervening skin in between

1) **Pivotal flap** - there are 4 types of pivotal flap; Rotational flap, transposition flap, interpolated flap and island flap. In pivotal flap tissues are moved towards defect by pivoting flap around a fixed point at the base of the pedicle. Pivoting flap at 45° will reduce the length of flap by 5%. Hence forth pivoting the flap should be always less than 90° and pivoting flap will generate standing cone deformity which has to corrected by giving back cut.

A. Rotational flap : It is a pivotal flap with curvilinear configuration. In rotational flap the lax tissue adjacent to the defect is mobilized in circular or curvilinear configuration to close the defect. Rotation flaps are ideal to close defect in cheek, scalp, nose and temple. In Rotational flap the surgical defects created are usually round or oval; which has to be viewed as isosceles triangle (A, B, C) along the arc of the tissue movement. The arc of the incision is placed along the relaxed skin tension line to close along the aesthetic border. Burrows triangle will be corrected by giving back cut. Modifications in Rotational Flap include Double rotation flap (O-Z flap), which is used for defects that are too large to close with a single rotation flap. Typically, used on the scalp, due to its inelastic nature. Planning of a double rotation flap starts with a single point on the defect with an arc forming in opposite directions. Each flap is mobilized and rotated in opposite directions and closed which provides a z shaped closure. Similarly, there is triple rotation flap known as Pinwheel flap. It is used to close a larger defect by raising 3 or more rotational flap around the defect. Other modifications of roational flap include Dorsal nasal flap¹¹ and Tenzelflap which are less commonly used by dermatosurgeons. Limitation of rotation flap is long incision line, but it if well planned it can be settled well in RSTL. The other limitation includes tethering effect known as pivotal restraint. Pivotal strain may lead to shortening of the flap length to completely cover the most distal edge of the primary defect. This point of pivotal restraint is located at the end of the incision. This can be overcome by wide

undermining and increasing the radius of the arc greater than the length of the defect. We found rotational flap was also successful on lesion over the toe area though only few studies are reported in literature.

How to design Rotation flap: A & B Mark the lesion to be excised and convert into an isosceles triangle, from the base of triangle line is drawn which is 2-3 times the length of the base. Line is drawn in curvilinear fashion from this midpoint along tissue of maximum laxity. C&D Excision of lesion, incision of flap, undermining the flap and surrounding tissue done and rotating the flap. E. Appearance after closure of defect. Fig 1

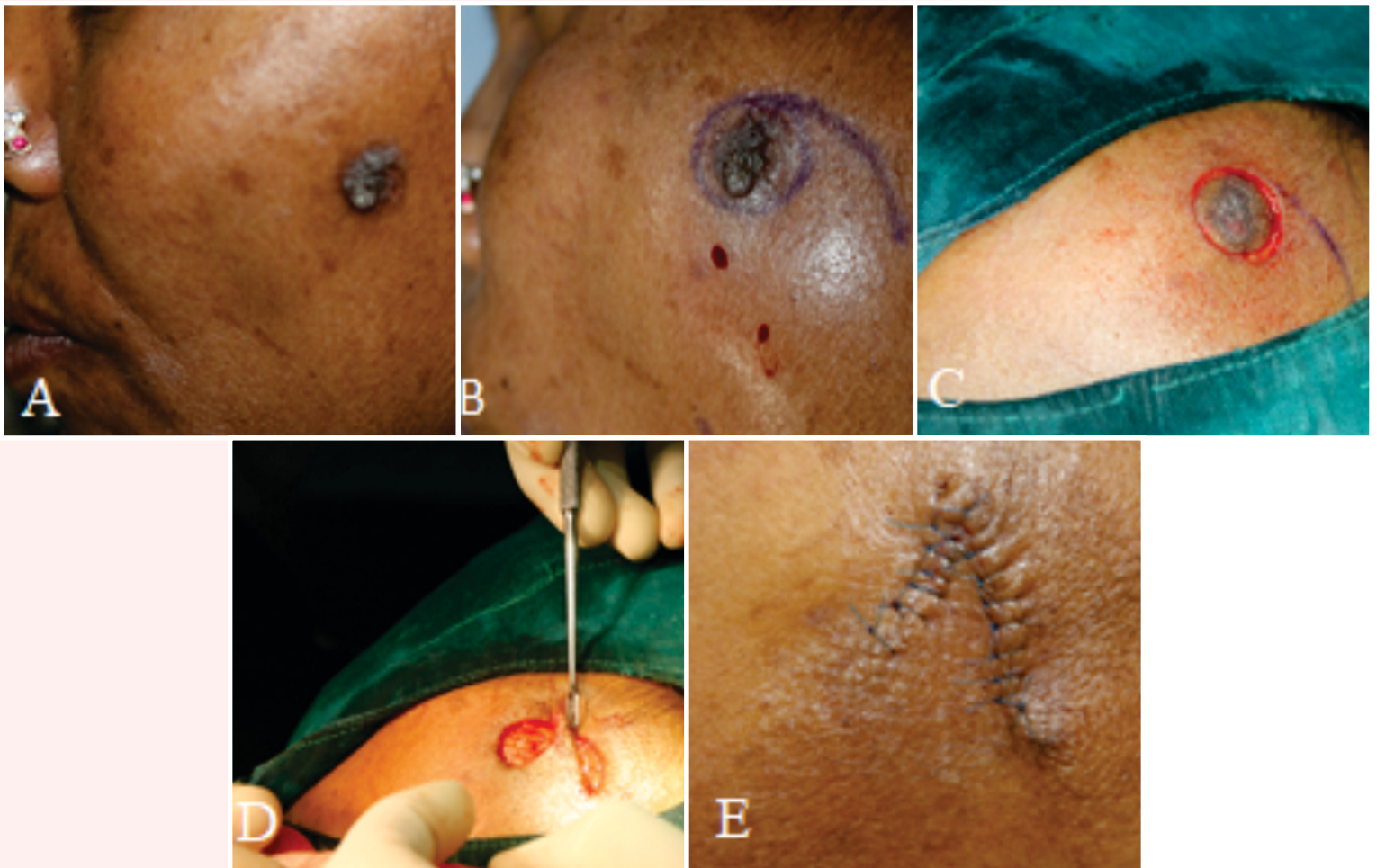


Fig 1: Asymptomatic lesion measuring 3x2 cm over left cheek B: AB- Indicates diameter of defect. AC- An arc is drawn from point a to c and the length will be 3-4 times that of AB C: Scoring and excision of lesion D: Rotating the flap to close the primary defect around pivotal point E: Final closure of the defect

2) Transposition Flap: The rhomboid flap is the easier and more commonly used amongst all flaps and is called

versatile flap. It is a Pivotal flap with linear configuration which is transferred primarily by transposition with some intervening skin in between. Survival of the flap depends on its dermal and subdermal plexus. Alexander A. Limberg described the first rhombus shaped transposition flap in 1946. He described the use of rhombus shaped transposition flap with internal angles of 60° and 120° to fill a rhombus shaped surgical defect with similar internal angles. If the defect did not have the configuration of a 60° to 120° rhombus, then additional skin was removed in order to create the rhombus shape. In constructing the flap, the short diagonal is extended in one or other direction by its length equal to its short diagonal length. Parallel line is drawn from this point equal to each of the sides completes the design. For every defect, four Limberg flaps can be drawn. Then, according to the skin tension lines, thickness of the skin and the orientation and location of the defect, the flap that best suits the defect is chosen. The base of the flap, whenever possible, should be inferiorly positioned in order to facilitate lymphatic drainage of the flap. The Limberg flap has been used to repair defects of the cheek, temple, eyelids, nose, lip, chin and neck. The main advantage of limberg flap is the the scar that has acute broken angles, making the risk of scar complications such as trapping and hypertrophy, extremely low. Limitation of limberg flapis need to discard normal skin surrounding the defect in order to convert it into a rhombus (if it does not already have the configuration of a 60° and 120° rhombus) and part of the scar resulting from the flap does not lie in RSTLs. Hence Proper execution of the Limberg flap requires careful presurgical planning and a thorough understanding of how the flap will affect the surrounding tissues. This can be obviated by square in the peg design. When it is properly used, it can provide excellent aesthetic results with minimal distortion of surrounding facial features and predictable scar lines. Modifications of rhomboid flap include Dufourmental (can be used for any rhomboid), Becker and Webster. The main advantage of transposition flap is geometric broken lines types of scars which are not linear but multiple

How to design Rhomboid flap: A. Mark rhomboid/circle with safe margins around lesion to be excised with internal angles of 60° and 120° B. Draw a line from defect along maximal skin laxity equal to diameter of defect . Draw another line of the same length at a 60° angle to the first line which should be parallel to the adjacent side of the rhombic defect . C. Excise the lesion, Incise the lines, undermine the area adequately D. Transpose flap to cover the primary defect E. Appearance after closure of primary and secondary defect. Fig 2 and 2a

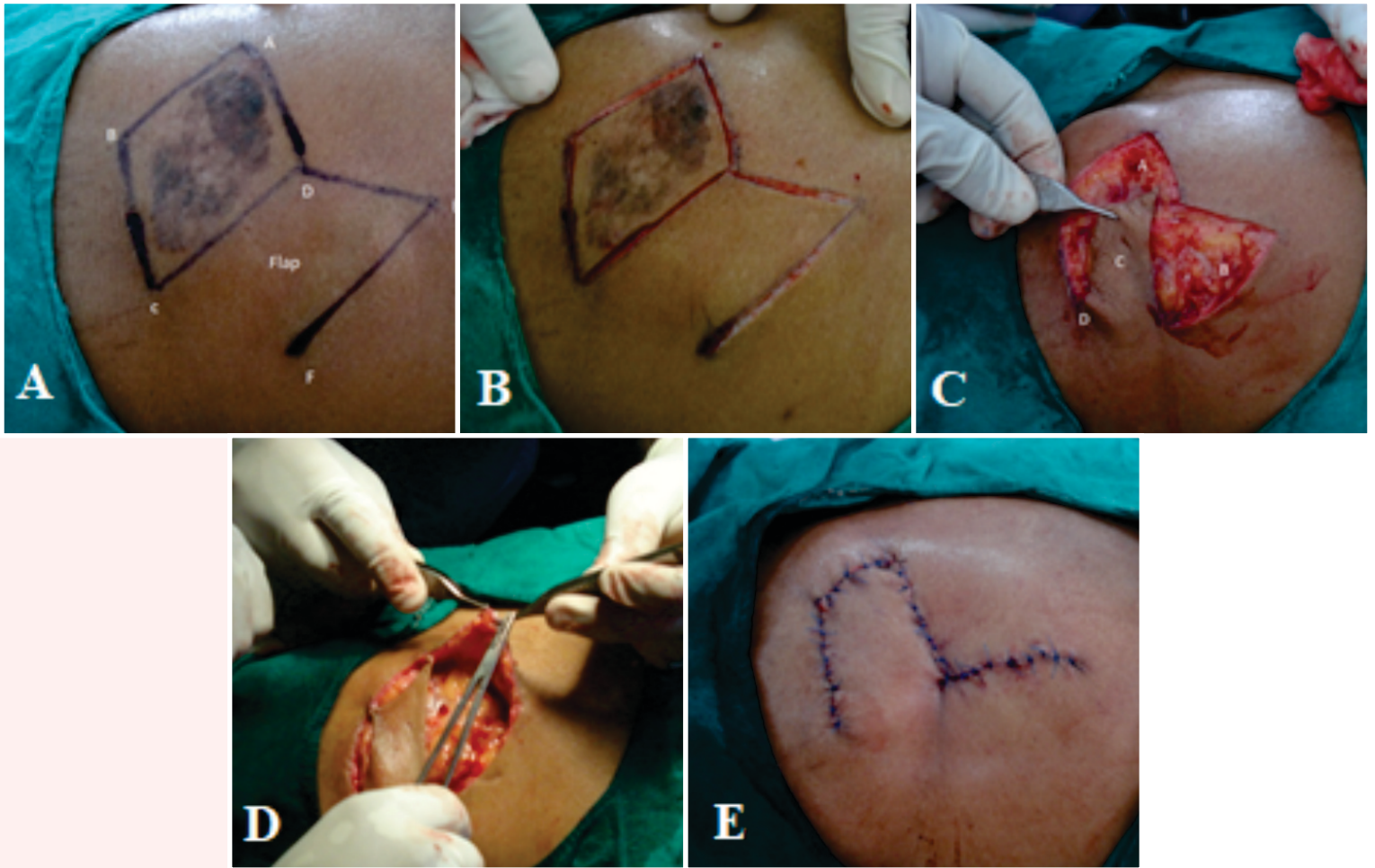


Fig 2 **A**: The defect is converted into a rhomboid (ABCD). Length of each side will be equal ($AB=BC=CD=DA$). Along the short axis (BD) line is extended (DE) with the length equal to sides of the rhomboid. Another line is drawn from point E depending on laxity of skin with length equal to DC and should be parallel to the sides of rhomboid **B**:Scoring of marked area **C**:a- Primary Defect, b- Secondary Defect ,c- Flap that is transposed, d- Pivotal point at flap is transposed **D**: Undermining **E**: Final closure of the defect



Fig 2a: Pre and post op images of rhomboid flap

c. **Advancement flap:** Advancement flaps are the flaps that are generated by unidirectional movement of surrounding lax tissue to cover the existing defect. Here the movement of the flap is in single vector. It was first described in ancient Roman times by Celsus. It may be unidirectional, bidirectional, V-Y flap and burrows flap. In advancement flap the surgical defect created following excision is measured with greatest diameter (X) marked as A and B. Flap is raised by parallel incision placed on either side of the defect about 2-3 times (2-3x) the diameter of the defect. The burrows triangle has to be corrected on either side. The main limitation is the Length – width ratio, which should not be more than 3:1 to maintain vascular supply and to nourish tip of the flap. Modification of advancement Flap includes Bipedical flap (H-plasty): Here the flap is designed by 2 opposing unilateral advancing edges that allow redistribution of flap tension, which creates an H-shaped scar. It is used to close defect seen over the forehead, eyebrow, glabella, central lip, and chin. V-Y Flap: It is also known as the island pedicle flap; it is called so because the flap is separated from all its sides and the pedicle is formed by the base of the flap. It is designed by creating a triangular flap raised adjacent to the defect, the width of the triangle is equal to the greatest diameter, and length is twice the height of the defect. The apical angle of the triangle is approximately 30. It is incised into the subcutis and undermined. Undermining at the pedicle should be performed only in as much as needed for advancement, as every effort should be made to maintain a robust blood supply. At minimum, one-third of the total flap surface should remain attached to the pedicle. Care should be taken to not disrupt the pedicle, which includes subcutaneous fat, muscle, and occasionally the superficial musculoaponeurotic system. This flap is used to close the defect present over upper lip, nasolabial fold, forehead, brow, and nose. Burrows Flap: Karl August von Burrow first described The Burrow's triangle or wedge flap, in 1855. It is the modification of the basic side-to-side closure to avoid the crimps at the closure site and avoid distortion of anatomical structure. Here the defect created is viewed as a triangle and an incision is placed horizontally along its base of any length placed along RSTL. After incision medial displacement of the flap produces a redundancy below and inferiorly which is removed in the form of an inverted triangle, geometrically equal to the original defect but in inverted fashion. In Burrow's advancement flap, lines of closure are within RSTL, providing an excellent camouflage effect with good blood supply due to wide pedicle. The Burrow's wedge flap is ideally suited for large defects adjacent to free margins like eyebrows, nasal ala groove, and preauricular cheek and temple. The less commonly used advancement flap include Rintala and Peng Flaps, East–West Flap and Crescentic Advancement Flap.

How to design Advancement flap (Burrows wedge advancement flap): Here the flap is design is marked with triangular wedge along the side of defect which finally closure along Nasolabial fold A . Mark the flap design with 3 times the diameter of the defect. B. Excision of lesion, incision of flap with adequate undermining C. Advancement of flap to cover the primary defect with dog-ear correction. D. Final closure. Fig 3

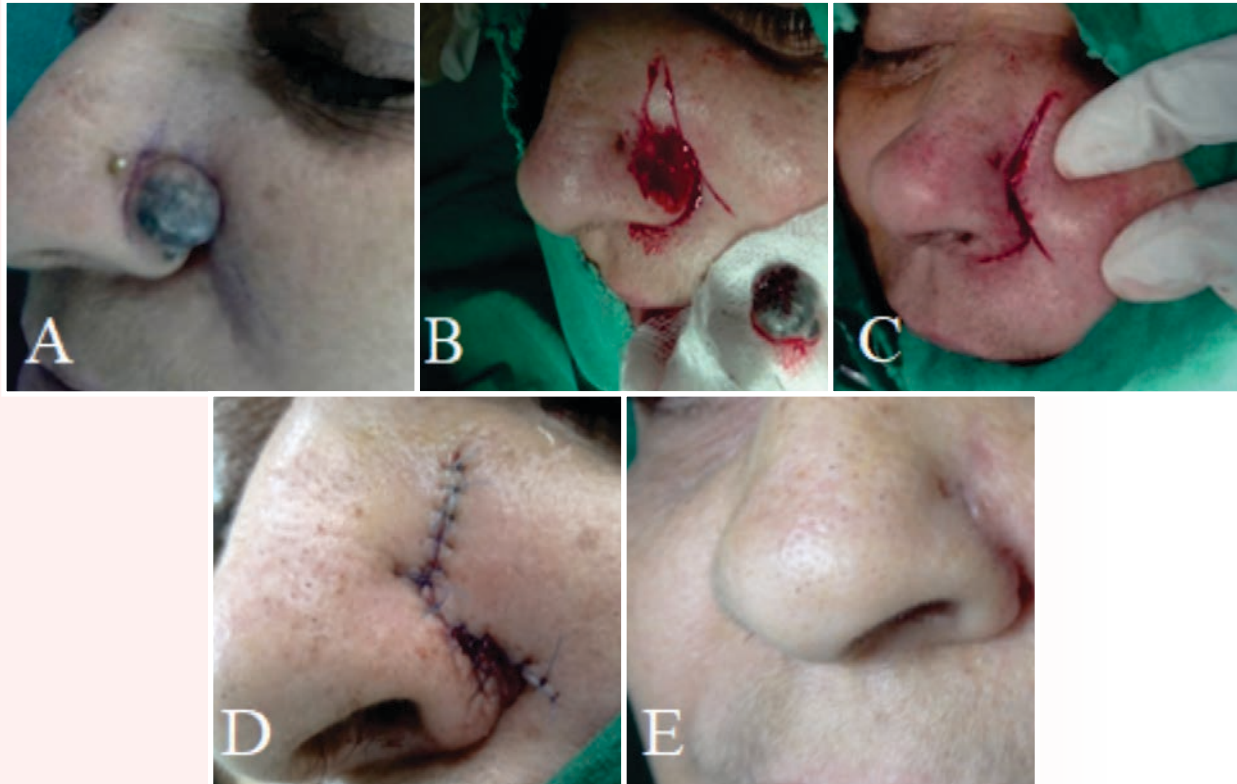


Fig 3: A-Asymptomatic nodule seen over the left ala of nose B- An burrows wedge advancement flap is planned with the linear extension and a triangular area is marked along the border of the defect c- after excision the adjacent skin is advanced to close the defect D- Closure of the defect E- Post op 3 months

Complications: The most common complication encountered with flap surgeries are Bleeding & Hematoma, Secondary infection, Wound dehiscence, Flap Failure & Flap necrosis, Pin- cushioning effect and Trap door deformity. The main causes for flap complications are Poor anatomical knowledge, flap closed with too much tension, local sepsis and too much tight dressing at pedicle. Hence to avoid complication look for tissue color, turgor and tissue blanchability. On post-operative day 2, wound has to be inspected for any hematoma collections, tissue tension and gaping. If any signs of tension seen, one or two stitches has to be removed and it has to be drained. The flap must be monitored for vascularity both immediately and post operatively for better outcome

Conclusion: In reconstructive surgery it's a challenge for dermatosurgeons, to cover defect resulting after excisions of large lesions like skin tumors. Designing the flap is important so that suture lines lie along cosmetic unit junction lines and or lie within relaxed skin tension lines. With proper planning and execution, flaps provide a versatile technique that can be used in a number of situations to produce excellent functional and cosmetic outcomes. As a rule of thumb, facial flaps should keep the ratio of length- width of the pedicle to be less than 4:1. However, flaps located on the body should have a length to width ratios of less than 2:1. The flaps offer a versatile tool for reconstruction of large defect. Local random flaps have advantage of an excellent skin color and texture match giving to good aesthetic result.

Autologous Fat Transfer: the best filler in town



Dr Nilesh Goyal
MRCP UK, DNB, DVD, SCS Dip

Consultant Dermatologist, Juvenis Clinic, Lilavati Hospital and Bombay Hospital

Autologous fat transfer is the injection of person's own fat under the wrinkles and depressed areas to help with correcting defects and rejuvenation.

Dermatologists have long been using fillers for rejuvenation of aging features on face, hands and on chest. Fillers have also been used for lifting depressed scars and atrophic areas due to diseases. But fat has been used as filler since more than a century. It was **first reported in 1893** in Germany by Neuber who transferred slabs of fat taken from abdomen to under scars of tuberculosis on face for improving their appearance. Fat transfer was in vogue for nearly fifty years before it fell out of favor because of difficulty in harvesting fat. At the time, accessing fat for injection would result in a surgical scar at the donor site. Since the advent of Liposuction using cannulae in the 1970s, fat could be accessed easily. This brought about the resurrection of fat transfer for repair of defects and rejuvenation. It was Prof Pierre Fournier an Aesthetic surgeon from Paris who showed that **fat once deposited in the new site could last for more than 20 years**. Prof Illouz, another surgeon from Paris, showed that **fat transferred to breasts prevented the women from getting breast cancer**.

Fat is usually harvested from waist, lateral thighs and lower abdomen as it is less fibrous and is replete with **stem cells and reparative factors** that are very beneficial in healing wounds and repair of aging skin. These stem cells can be isolated and have been prepped in labs. The stem cell preparation along with adipocyte mixture called a **Stromal Vascular Fraction**, can be added to the fat and then injected into the recipient area. This is known to enhance fat cell graft uptake and survival. One of the biggest advantages of fat injection under skin is that it gives a new life to the skin. The skin tends to look more hydrated, young and brighter than before.

These properties have been put to good use by harvesting fat from the bulging areas and injecting under the wrinkles and depressed areas. It can be done under depressed surgical scars, non-healing wounds or ulcers on legs, atrophic skin following burns or stretched out scars and also under certain skin damaging conditions like morphea and lichen sclerosis.

One recent development in the field of fat transfer has been the use of **Nanofat**. Fat aspirated is usually injected as small lobules ie. Micro fat. It is advised to lay this fat in a retrograde manner in micro droplets rather than large blobs. This prevents destruction of fat by resorption and formation of oil cysts and calcifications. The harvested fat can be broken

down by repeated transfers across syringes via narrow lumen transfer channel. The remnant solution is then filtered via a Nanofat filter which separates the adipose cell wall debris from the stem cells and regenerative factors. This is termed as Nanofat which is very thin in consistency. It can be injected within the dermis like a filler injection with thin gauge needles. It is specifically used for filling very superficial wrinkles.

Autologous fat transfer is a **day care procedure**. It does not require any hospital stay or any nursing care post procedure. The donor area is kept covered with a tight dressing. Patient is advised to handle the recipient area with care while washing. Hyaluronic acid filler tends to cause lot of swelling after injection as it absorbs water. This downtime does not occur with fat grafting as there is hardly any swelling post procedure and that too settles within 3- 5 days. Both the donor and grafted areas heal within a week. Hence it is fair to say that the effect after a fat transfer is better than hyaluronic acid fillers. Other minor complications can occur like bruising, loosening of skin and/ or irregular bumpy feel at sites of fat deposition, irregularities at donor site. Long term effects can be development of oil cysts, calcifications and rarely hamartomatous growths at recipient areas. It is advisable to rule out any signs of breast abnormalities before taking up patients for fat transfer to breast for reconstruction or augmentation. A breast mammogram with sonography can help with this.

Around 50% of fat cells are known to be resorbed after grafting. It is hence advisable to repeat this procedure to get a better outcome. The fat cells that survive tend to last forever. A repeat procedure should be considered only after 3 months as this is the time required for all the resorption of fat cells to occur. HA fillers do not last more than 18 months after which they need to be repeated. In addition, due to the abundant fat available, a fat transfer is much easier on the pocket in the long run.

Fat is the future of Aesthetic Medicine in the world. It has radically modified how diseased and ageing skin can be repaired. No other substance can replace fat when it comes to body augmentation. It has huge implications in reconstructive and regenerative medicine, ie. cardiovascular medicine, orthopedic, hepatic and renal medicine and even in oncology.

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