LILAVATI HOSPITAL
MEDICAL TIMES
SPECIAL EDITION - JULY 2021

RECONSTRUCTIVE AND COSMETIC SURGERY

UPDATES ON

PLASTIC SURGERY

Lilavati Hospital and Research Centre
More than Healthcare, Human Care
NABH Accredited Healthcare Provider

Index

From COO's Desk

At the outset, it's heartening to see that National Plastic Surgery Day celebrated on July 15th every year is now recognised as World Plastic Surgery Day and will be celebrated worldwide to earmark the commendable work that this problem solving speciality does for almost all the other Medical and Surgical specialities.

We have an army of 10 Plastic Surgeons subspecialised in reconstructive microsurgery, hand and nerve surgery, diabetic foot surgery, aesthetic surgery and hair transplantation.

I can proudly say that they are available round the clock treating life threatening emergencies, doing complex oncoreconstruction, salvaging diabetic feet as well as providing a wide range of aesthetic surgeries.

Our team of doctors are quite academically active and are regularly invited as faculty to national and international conferences.

We also have MUHS recognised Post-Superspeciality Fellowship Program in Microsurgery.

Through this special Plastic Surgery edition of Lilavati Hospital Medical Times, we would like to increase the awareness about the vast range of services offered at Lilavati.

On this day, we also announce the launch of Lymphedema surgery service at Lilavati Hospital.

Lt. Gen. (Dr.) V. Ravishankar, VSM
Chief Operating Officer
Consultant – CVTS
MS (General Surgery), DNB (General Surgery), MCh.(Cardiothoracic Surgery)

Editorial

Indeed it's a pleasure to write an editorial dedicated to Plastic Surgery, a branch that has made tremendous inroads into the well-being of a patient's life through the maze of reconstruction surgery either post traumatic or oncological, cosmetic breast surgeries or facial palsy correction amongst various other challenging surgeries like liposuction / lipoplasties, blepharoplasty, burns and brachial plexus surgeries.

This branch of surgery has undergone a tremendous change in its technology, innovative approach and instrumentation resulting in becoming a major game changer in a patient's life. The end results of plastic surgical events in this hospital have been astounding and Kudos to our plastic surgical team for the tremendous amount of work that they do and have presented in this special edition.

They have the unique gift of correcting severe birth defects, such as cleft palates and also reconstruct the faces or limbs of patients disfigured in accidents. This must give them a tremendous job satisfaction that compensates the years of study and dedication that they have put in the subject.

So it's delightful to dedicate this Special edition of the Lilavati Hospital Medical Times to the plastic surgeons who have the blessed combination of art and science on the World Plastic Surgery day celebrated on 15 th July.

We are proud to have an excellent mix of experience, youth and dynamism in our institution. I hope that the branch breaks more barriers and carves a bigger niche for itself.

Dr. Abhay A Bhave
MD, FRCPA, Haematologist
Chief Editor - Lilavati Hospital Medical Times

Foreword

15th July is celebrated as National Plastic Day all over India. This issue of Lilavati Hospital Medical Times is therefore dedicated to the art, craft and science of Plastic Surgery. The idea behind dedicating a day to Plastic Surgery is to improve general awareness of the specialty amongst our medical colleagues from other specialties as well as amongst the general public.

Plastic Surgery is a glorious specialty, with wide ranging applications covering all areas of the body, from the hair on the head to the nails on the feet and everything in between as well.

Whether applied to restore the normal as after trauma, cancer, burns and for congenital malformations or to enhance the normal as in Aesthetic Surgery there is no single area of the body that has not been benefitted by a Plastic Surgeons touch.

We are a collaborative specialty joining hands with orthopaedic surgeons to treat compound fractures, with Neurosurgeons to treat craniomaxillofacial injuries, with oncosurgeons to reconstruct post ablation defects, and with every other medical and surgical specialty.

Plastic Surgery is also one of the fastest growing specialty, constantly exploring and refining new techniques to treat difficult problems. Aesthetic surgery too has grown in leaps and bounds; the various applications of fat reduction and fat grafting, such as liposculpture, lipofilling and micro-fat grafting to reverse the effects of aging, to improve appearance, to reconstruct breasts after mastectomy etc being a prime example.

The team of Plastic Surgeons at the Lilavati Hospital and Research Centre as amongst the best in the country and well equipped to cover all aspects of Plastic Surgery.

The articles in this special issue of Lilavati Times Medical Times will give readers a preview of what is new and exciting in the field. So please join us in celebrating the National Plastic Surgery Day and help spread awareness of our specialty amongst your colleagues, friends, patients, and the general public.

Dr. Samir Kumta
Consultant - Plastic Surgery

Overview - Lilavati Hospital and Research Centre

Late Shri Kirtilal Mehta

Late Smt. Lilavati K. Mehta

Lilavati Kirtilal Mehta Medical Trust

Lilavati Hospital and Research Centre is run and managed by Public Charitable Trust - Lilavati Kirtilal Mehta Medical Trust which was formed in 1978. The Trust was started by late Shri Kirtilal Manilal Mehta. The Trust has engaged in innumerable charitable endeavors across India.

The Lilavati Kirtilal Mehta Medical Trust is being managed and administered by Board of Trustees:	
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Lilavati Hospital And Research Centre

Late Shri Vijay Mehta wished to fulfill his parents desire to build a world-class hospital where everyone in need for relief from disease and suffering come in with a certainty to receive the best possible medical care. His passion, attention to details and perseverance resulted in iconic healthcare landmark called **Lilavati Hospital**.

Lilavati Hospital & Research Centre is a premier multispecialty tertiary care hospital located in the heart of Mumbai, close to the domestic and the international airport. It encompasses modern healthcare facilities and state of art technology dedicatedly supported by committed staff.

Lilavati Hospital has focused its operation on providing quality care with a human touch; which truly reflects the essence of its motto, “More than Healthcare, Human Care”. Being a centre of medical excellence where technology meets international norms and standard, the hospital has got what it takes to be a pioneering quality healthcare institute that is also one of the most sought after and patient friendly hospital.

Mission: *To provide affordable healthcare of international standard with human care*
Motto: *More than Healthcare, Human Care*

Plastic Surgeons associated with Lilavati Hospital

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MS (General Surgery),
MCh (Plastic Surgery)

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Dr. Devayani Barve
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MS (General Surgery)

Dr. Varun Dixit
MCh (Plastic Surgery),
DNB (Plastic Surgery),
MS (General Surgery)

Dr. Sushil Nehete
DNB (General Surgery),
DNB (Plastic Surgery)

Services Offered Under Plastic Surgery

1. BURNS' DEFORMITY SURGERIES

Contractures	Neck, axilla, elbow, hand and fingers
Scar Management	Hypertrophic and Keloid scars
Pigmentation	Post burns' vitiligo

2. FACIOMAXILLARY TRAUMA

3. CLEFT LIP AND PALATE SURGERY

4. MICROSURGERY

Cancer Reconstruction	Head and Neck Cancer
	Breast reconstruction and oncoplastic surgery
	Perineal and vulvo-vaginal cancers
	Extremity tumor resections
Hand Surgery	Replantations and Revascularizations
Nerve Surgery	Nerve repairs/grafting,transfers
	Brachial Plexus Surgery
Lymphedema Surgery	Lymphedema debulking
	Bypass Surgeries
Vascular Malformations	Excision with reconstructioNn
Post- traumatic Contour Deformities	Free flaps as fillers
Diabetic Foot Reconstruction	For foot salvage

5. COSMETIC SURGERY

Male Breast	Gynaecomastia-male breast surgery Nipple reduction surgery
Female Breast	Breast Reduction Breast augmentation Breast Lift/ mastopexy Nipple reconstruction Nipple reduction Axillary fat removal Liposuction
Abdomen	Tummy Tuck/Abdominoplasty, umbilical recreation
Arm lift	Brachioplasty
Thighs	Liposuction, thigh lift
Scars	Revision, Fat grafting, Keloid Treatment
Face	Face- lift, fat grafting, Dimple Creation
Fat transfer	
Facial surgeries	Rhinoplasty, Face-lift, facial feminizing surgeries Chin augmentation Orthognathic surgeries
Female	Vaginal rejuvenation procedures

6. DIABETIC FOOT

Ulcer management
Diabetic Foot Reconstruction
Nerve decompression surgery
Diabetic Hand Reconstruction

7. HAND SURGERY

Finger tip injuries
Tendon injuries
Nerve injuries
Vessel injuries
Replantations
Revascularizations
Degloving injuries
Scaphoid non–union
Hand fractures
Hand tumors
Hand infections
Congenital hand anomalies & deformities

8. GENERAL SURGICAL PROCEDURES

Pilonidal Sinus
Incisional Hernia
Pressure Sore Management
Diabetic Foot reconstruction
Hidradenitis suppurativa
Pressure Sore reconstruction

9. ASSOCIATION WITH ORTHOPAEDICS

Region	Injuries	Description
Upper limb	Finger tip injuries Tendon injuries Nerve injuries Vessel injuries	Flexor and extensor Radial nerve palsy with humerus fracture
	Replantations Revascularizations	Any level from arm to finger tip
	Degloving injuries	
Lower limb	Tendon injuries Nerve injuries Vessel injuries	Dorsum of foot extensors injuries Tendoachilles injury/soft tissue loss Sciatic nerve injury with femur fracture
	Degloving injuries	
	Replantations Revascularizations	Any level from thigh to toes
	Soft tissue flaps for compound fractures Bone flaps for fracture with bone loss	
Non-unions	Vascularised bone grafts for small bone non-unions Vascularised bone grafts for long bone non-unions	Scaphoid/ metacarpal non-unions Humerus or radio-ulnar or tibial non-unions
Brachial plexus injuries Tumor	Adults and paediatric Glomus tumor	
	Long bone tumor reconstrcution	

10. ASSOCIATION WITH GYNAECOLOGISTS

Surgical Procedures	Description
Congenital- underdeveloped vagina	Vaginoplasty
Vaginal rejuvenation	Labiaplasty
Hymen recreation	Hymenoplasty
Vulvo-vaginal and Perineal tumors	Reconstruction
Tubal ligation reversal	Tuboplasty
Abdominal surgeries with tummy tuck	Laprotomy for ovarian or uterine surgeries combined with Abdominoplasty
Breast	Breast Augmentation Breast reduction Breast Lift
Paediatric Congenital anomalies	Cleft lip and palate Syndactyly, polydactyly
	Microtia
Obstetric brachial plexus injuries	Erbs palsy, etc
	Vaginal and penile reconstruction

11. ASSOCIATION WITH NEUROLOGIST AND NEUROSURGEONS

Surgical Procedures	Description
Facial Palsy	Nerve transfers and corrective surgeries
Brachial plexus injuries	Nerve transfers
Facial fractures	Fixation
Acontractile bladder	Bladder reconstruction
Peripheral nerve injuries	Repair /reconstruction/ tendon transfer
Pressure sores	Reconstruction
Migraine	Surgery for temporal and frontal migraine

12. ASSOCIATION WITH DERMATOLOGISTS

Region	Description
Swellings	Cysts excision Moles removal Tattoo removal
Scars	Scar revisions Keloid management
Skin cancer	Excision and reconstruction
Malformations	Vascular tumors Lymphedema Lymphangioma circumscriptum excision
Ear	Ear lobe reconstructions Auroplasty
Eyelid and eyebrow	Blepharoplasty Ptosis surgery Eyebrow reconstruction
Cosmetic surgeries	Liposuction Rhinoplasty Facelift Dimple creation Fat grafting
Hair transplantation	
Non-surgical procedures	Fillers Botox Peels

13. ASSOCIATION WITH UROSURGEONS AND NEPHROLOGISTS

Surgical Procedures	Description
Acontractile bladder	Acontractile bladder Bladder reconstruction
Dialysis patients	Dialysis patientsAV fistula creation
Fourniers gangrene	Fourniers gangrene Reconstruction
Penile surgeries	Penile surgeries Phalloplasty

ARTICLE 1

Functional outcomes following replantations/revascularization of upper limb- is primary amputation worthwhile at any level?

Dr. Leena Jain, Dr. Sushil Nehete, Dr. Samir Kumta

Introduction

Sterling Bunnell said, ***"A bad hand is functionally better than a good amputation"***. Three qualities of human arm- degrees of freedom, dexterity and sensory feedback cannot be replicated by the best of current available prostheses. Thus replantation/ revascularization is the best treatment that can be offered to a patient with traumatic upper limb amputation at any level. Success must be measured in terms of the contribution of the replanted/revascularized limb/digit to subsequent overall performance of the patient while salvage is a mere survival of the hand.

Materials and Methods

This is a retrospective study from January 2018 to August 2020 including 17 patients who were offered replantations / revascularization for total/ sub-total amputations of the upper extremity: 6 were macro-amputations (above the level of wrist) and 11 were microamputations (distal to wrist).

Following assessment in the emergency room; a thorough counselling was done about the details of surgery, chances of success, need for re-exploration, duration of hospitalization, rehabilitation, secondary procedures if required and expected functional results. A detailed informed consent was taken and patients were shifted to the operation theatre.

Surgery:

All cases were carried out under general Anaesthesia. Thorough debridement followed identification of arteries, nerves, veins and tendons in the stump and the amputated part. Bone was shortened in cases of complete amputations. Bone was fixed first with a K wire (axial or intraosseous wiring) for microreplantations and plate or nail was used for macroreplantations. Arterial anastomosis followed, to reduce ischemia time in macro cases and to help identify the veins in the micro cases. Vein grafts were used in cases of crush-avulsion type of injuries. Re-exploration was required in 4 patients and of them one could not be salvaged due to persistent hypovolemic shock with element of reperfusion injury. One patient underwent a local finger flap 15 days post revascularization for pulp resurfacing.

Rehabilitation: Customised splints, physiotherapy and TENS were started sequentially.

Functional outcome assessment:

Chen's criteria were used for evaluating long term results (Table 8). Their subjective satisfaction was assessed using DASH score.

Table 8: Chen's Criteria for long term outcome

Grade	Function			
	Return to work	Range of Motion	Sensory Recovery	Motor Recovery
I	Resume original job	>60% of normal	Normal/ near normal	Grade 4/5
II	Resume suitable work	>40% of normal	Near normal	Grade ¾
III	Activities of daily life	>30% of normal	Partial recovery	Grade 3
IV	Almost no function of survived limb			

Results

Of the 17 extremities, 15 were salvaged, Chen's criteria were used to assess function. Re-exploration was done in 4 cases, of these 3 were salvaged.

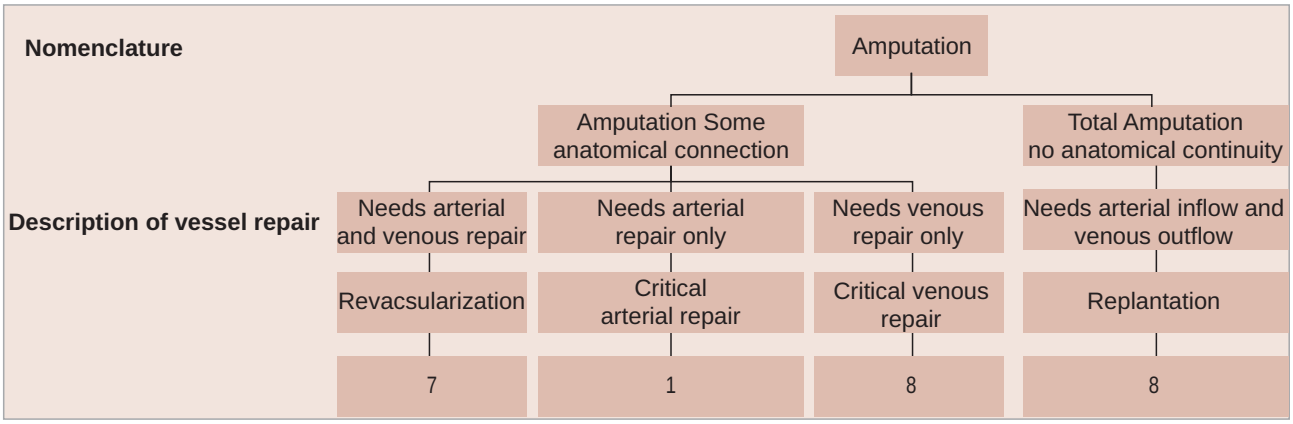


Table 9: Long term Functional Outcome

Sr. No	Macro / micro Replant	2 PD	Chen's Criteria	Dash score	Complications (Sebastin 2013)
1	Macro-Proximal third arm with elbow total amputation	-Failed	Prosthesis		
2	Macro-Middle third arm, near total	Progressing Tinel's'	III	50	Paresthesias
3	Macro-Lower third arm, near total	NA	I	5	Nil
4	Macro-Elbow joint, near total	5 mm	I	7	Nil
5	Macro-Proximal forearm, near total	5-6mm	I	4	Nil
6	Micro-Wrist, total	Planned for nerve surgery	Not applicable	45	Cold intolerance
7	Micro -Thumb Proximal phalanx proximal shaft and base- near total	4mm	I	8	Nil
8	Micro -Index finger Mid-shaft proximal phalanx, near total	5mm	I	10	Nil
9	Micro -Thumb Distal shaft proximal phalanx- total	4mm	I	4	Nil
10	Micro -Little finger Distal Middle phalanx, near total	Cannot be assessed as age of patient is 4 years	I	5	Nil
11	Micro -Index finger Distal shaft of Middle phalanx (only venous repair)	Cannot be assessed as age of patient is 2 years	I	5	Ni I
12	Micro- DIPJ index finger, total	5mm	I	6	
13	Micro-DIPJ middle finger, total	5mm	I	6	
14	Micro- Proximal phalanx thumb-total amputation	12	I	6	Ni I
15	Micro- DIPJ index and middle fingers, near total	22	I	7	Nil
16	Micro- MCPJ level index and middle fingers- near total	55	I	6	Nil
17.	Micro- index finger proximal phalanx, total	35	Failed Replant		

Case Examples:

Case 1: Mid-arm near total amputation following machine injury

1.1

1.2

1.3 Video showing result at the end of 2 years
Click to watch video

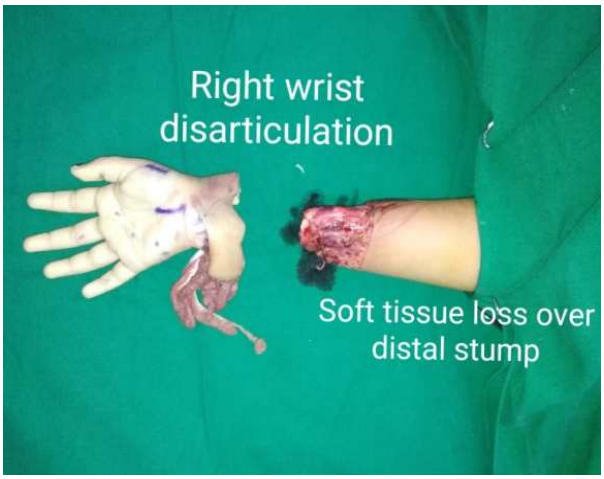
Case 2: dominant elbow near total amputation resulting from a self-inflicted glass injury in a 20 year old male.
There were no fractures and extensors were spared. He underwent revascularization with vein grafts for brachial artery and cephalic vein. Primary neurorrhaphy was done for all three nerves. He was started on TENS about 15 days after salvage. One year later he resumed his college and was able to carry out most of his activities of daily living. Presently, two years after revascularization, his nerves show remarkable recovery comparable to opposite side and return of 2PD of 4-5mm in all fingertips.

2.1

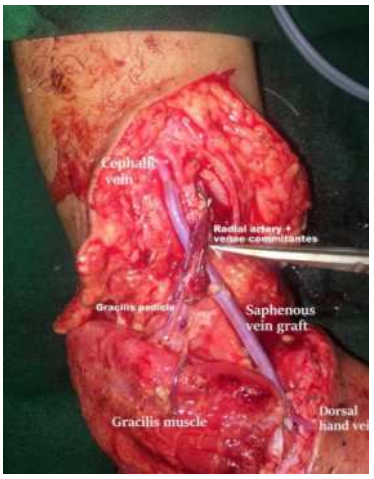
2.2

2.3

Case 3: Dominant wrist disarticulation in a four years old female child resulting from avulsion between opposing lift doors.



3.1



3.2

3.3

Case 4:

2.4 Recovery at the end of 2 years
Click to watch video

Case 5:


Case 6:



Discussion

For a patient presenting with upper limb total/ subtotal amputation, two contrasting procedures can be offered: salvage or amputation with contrasting long term consequences. Three important outcome measures are: prosthesis acceptance, return to work and chronic pain in the stump.

Prosthesis:

Upper-extremity prostheses rejection rates are 21% to 38%; More proximal the level of amputation, lesser is the prosthesis acceptance. About one-half to two-thirds patients after amputation have to change their occupations subsequent to the loss of the limb and pain in the residual limb can be as high as 7% to 49%.

Replantation/ Revascularization:

Two exclusive functions of the human hand that cannot be replicated by any modern prostheses are prehensile function and the sensation of touch. A co-ordinated arc of full range of movements of all joints with sensory feedbacks help in executing a well orchestrated distal movement and this makes salvage quintessential.

The decision to replant a digit or hand needs to be made by the patient after the surgeon thoroughly explains the course, results, merits and demerits of the procedure. The entire exercise is done for restoration of a functional hand, hence, it is important to make the patient understand thoroughly all aspects of the primary surgery and the prolonged course of physiotherapy and retraining involved, and guide the patient to an informed decision

Before writing off any limb as un-replantable, all involved must understand that for every additional function that a replanted limb can perform, the overall utility of the limb rises exponentially.

Conclusion

The functional improvement of most cases can be good to very good provided a meticulous repair has been executed. Nerves take longer to recover and continue to do so for over two years in cases of proximal injuries. In this varied collection of cases there was no significant influence on the functional results regarding (i) level of amputation,(ii)mechanism of injury and (iii) use of vein and nerve grafts.

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ARTICLE 2

Breast Augmentation

20 Things to Know Before Getting your Boob-job

Dr. Varun Dixit

According to annual international surveys conducted by International Society of Aesthetic Plastic Surgery (ISAPS), breast augmentation has consistently been the most commonly performed aesthetic surgery procedure worldwide and the most frequently performed aesthetic surgery procedure in women. As per the survey, in India, approximately 36,000 cases of breast augmentation using silicone implants were performed in 2019 alone and as compared to earlier years these numbers have been steadily increasing. This increased demand has been due to standardization of the surgical procedure leading to consistently good results and an increase in the awareness about the procedure in the general population.

If you are seeking breast augmentation, then I am certain that you would have searched the internet or social media for preliminary information. However, there is a tsunami of information out there and you will end up being more confused than when you started. Further, all the information on the internet or social media may not be factually correct or relevant for you. A good plastic surgeon will listen to your aesthetic goals and correlate them with your body characteristics and then come up with plan options that would be ideal for you.

The most important step will be to ask yourself – "Why do I want this procedure?" If you want to get a boob-job done for yourself to look good, feel comfortable and confident in your own body then you are a suitable candidate and can embark on your journey for breast augmentation.

The following pointers will give you some basic information about breast augmentation –

1. **What are the types of breast augmentation procedures?**
   Presently, there are two reliable options available (in India) for breast enhancement – silicone implants and fat transfer. Non-surgical options such as fillers or massages are not recommended and are in fact condemned by plastic surgeons.

2. **What are the types of silicone implants?**
   Silicones implants may vary depending on their shape (round or tear-drop shape) and surface features (smooth or textured surface). In India, most plastic surgeons use round silicone implants that are filled with highly cohesive silicone gel (gummy-bear implants). The choice of smooth or textured implant depends on your surgeon's preference.

3. **How do I decide the implant size?**
   Your plastic surgeon will recommend the implant size options based on your aspirations and your anatomy, eg. mildly sagging breasts may require slightly larger implants to improve the droopiness in your breasts. In this context, "larger is better" may not always be the correct dictum. Implants that are too big for your body may cause the breast and muscle to become thinner and may lead to premature sagging of breasts.
   Your plastic surgeon may recommend different sized sizers to get a better idea about how large your breasts will appear after a certain sized implant is used for breast augmentation.
   "I am unhappy with the size", "It is too big" or "It is not as big as I expected" are the most common complaints after surgery. So, please spend sufficient time with your plastic surgeon to discuss and then decide on this issue.

4. **Choosing the right doctor?**
   Qualified plastic surgeons, who have passed their M.Ch. or DNB – Plastic Surgery exams are permitted to perform this surgery. Please check the credentials of your plastic surgeon – you may visit his/ her website, social media pages or blogs to get an idea about a specific plastic surgeon's experience and results. Some points that should raise a red flag are - if the doctor has dubious qualifications, recommending very large sized implants or is prepared to compromise on the implant quality.

5. **Are there any specific tests required before the procedure?**
   Your plastic surgeon will advise you routine investigations to assess your fitness for surgery and anaesthesia. An ultrasound or mammography examination of both breasts will be advised pre-operatively to rule out any lumps or lesions in your breasts.

6. **Does the procedure require overnight hospitalization?**
   Breast augmentation is commonly performed under general anaesthesia. Although, it may be performed under local anaesthesia and sedation in selected cases. Most plastic surgeons perform this procedure as a day care procedure.

7. **How are the implants inserted?**
   Silicone implants are commonly inserted via an incision in the crease under the breast (infra-mammary incision). Other incisions that may be used are – trans-axillary (incision in your armpits) or areolar (incision within the areola) or umbilical (incision in the navel, only saline implants can be inserted).

8. **Are the implants inserted into the breasts?**
Even though the procedure is called breast augmentation, the silicone implants are not inserted directly into the breast tissue. Instead they may be positioned behind the breast tissue (sub-glandular), behind the fascia (sub-fascial) or behind the muscle (sub-muscular or dual-plane). The choice for implant location depends on surgeon preference or your anatomy.

9. **Will I be bed-ridden after surgery?**
You will be advised to rest and take things easy for the first 5-7 days after surgery. However, this does not mean that you have to be bed-ridden, in fact you will be encouraged to walk around in your home and move your shoulders gently. You may resume non-strenuous work after 5-7 days. Dressings will continue for 10-14 days. You may resume exercises after 4 to 6 weeks.

10. **Can I see the result immediately after surgery?**
Immediately after surgery, your breasts will be swollen and may be bruised. Your breast and implants will take atleast 4-6 weeks to settle into a more natural position.

11. **Will my breasts feel normal after breast augmentation?**
It is a myth that “implanted breasts always feel un-natural”. The breasts feel firmer for 2-3 months after surgery. With well selected implants, well performed surgery and well settled breasts, they will look and feel like natural breasts.

12. **Will I be able to breast feed after my breast augmentation?**
Breast implants are not placed into the breast tissue, instead they are placed behind the breast tissue and therefore in most cases breast feeding is not at all affected or disturbed after breast augmentation. However, in some cases such as, if areolar incision is used or very large implants are inserted breast feeding may be disturbed.

13. **Do the implants cause breast cancer?**
Breast implants of standard quality do not cause or increase the risk for breast cancer. More recently, there has been some concern about the development of a certain type of cancer called Anaplastic Large Cell Lymphoma (ALCL) in the capsule surrounding the implant. This occurs very rarely but you must discuss this with your plastic surgeon.
After your surgery, you must inform the radiologist about the surgery so that necessary modifications can be made for adequate breast mammography for breast screening for cancer.

14. **I am concerned about my nipple sensations after surgery?**
The nerves to the nipples may get stretched in some cases and may remain stunned for a few weeks after surgery. However, this effect is temporary and the stretched nerves adapt and recover with time.

15. **Will the new look of my breasts be permanent?**
The implants will by and large remain intact and constant. But the overlying skin, breast tissue and muscles may undergo changes with age and due to weight changes. This may lead to some changes in the overall appearance of your breasts.

16. **Are the silicone implants permanent?**
Most standard silicone implants are very sturdy. However, with time they may develop folds or leaks or may rarely rupture. Therefore, it is recommended that you undergo an MRI or Ultrasound examination of your breasts 3 years after surgery and thereafter every 2 years. Most implant manufacturers recommend that the implants be replaced after 10-15 years. However, this may not be mandatory in all cases.

17. **What is Breast Implant Illness?**
There is a lot of buzz about breast implant illness on the internet and social media circles. The exact cause for this is not clear but some may suffer symptoms such a fatigue or hair loss after breast augmentation. Generally, these symptoms are temporary.

18. **What is Fibrous Capsular Contracture?**
Normally, the body produces a capsule around your implant as a part of recovery process. In some cases, the capsule thickens and hardens leading to the breast feeling hard and in some cases deforming the breast. This is called as fibrous capsular contracture. Regular post-operative massages will help prevent this complication. In advanced cases, the implant along with the capsule may need removal.

19. **How complicated is it to remove or change the implants?**
If you are tired of your implants, then they can be removed by a very straightforward surgery. However, this may lead to deflated and sagging breasts, which may require breast-lift surgery. Similarly, exchange of implants to smaller or larger size is also possible.

20. **What other procedures can be done with breast augmentation?**
Other breast related procedures such as – removal of benign lump from breasts, liposuction for axillary bulges, fat transfer to enhance the inner pole of breasts or reduction of areolar size may be done at the same time as breast augmentation surgery. In selected cases, breast lift surgery can also be done along with breast augmentation (Aug-pexy).

ARTICLE 3

Distal Nerve Transfer and its indications

Dr. Sushil Nehete

Introduction:
Successful nerve regeneration with meaningful functional outcome following a nerve repair is absolutely a time dependent phenomenon. It is affected by few uncontrolled factors like duration between injury and patient presentation, long distance between repair site and target nerve-muscle junction, limited rate of nerve regeneration, misdirected regeneration between sensory and motor components and gradual unfavourable changes in the target muscle.[1]
Nerve repairs yielded normal or near normal results under ideal conditions, but fail to replicate the results otherwise.[1] Poor clinical outcome following nerve repair surgery emphasises the need of searching options to the traditional primary nerve repair or nerve repair with nerve graft. Distal nerve transfer provides solution to most of these issues.[2] Last few decades many distal nerve transfers have been described for restoration of function.

Case 1:
A 26 years old man working as a delivery person in an E-commerce company met with a road traffic accident. He presented to our department 8 months after the injury with inability to move left shoulder and elbow. At the time of presentation on examination he had complete loss of shoulder abduction, external rotation and elbow flexion. His elbow extension was M5 as per British Medical Research Council scale. Wrist movements and hand function was also strong.
After basic investigation and fitness, distal nerve transfer surgery was planned in order to restore shoulder abduction and elbow flexion. For shoulder abduction and external rotation spinal accessory nerve was transferred to suprascapular nerve and nerve to long head of triceps was transferred to reinnervate axillary nerve. For restoration of elbow flexion median nerve fascicle was given to nerve to biceps and ulnar nerve fascicle was given to rest of the musculocutaneous nerve. He was regularly followed up after surgery. After 9 months of surgery, he gained overhead shoulder abduction in standing position and can left 2kgs of weight again gravity without any difficulty.

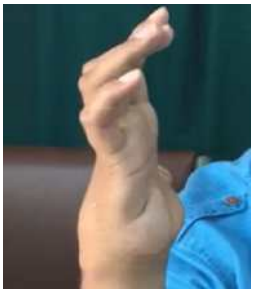

Preop

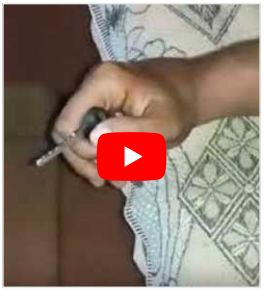

Postop


Postop video
Click to watch video

Case 2:
A 32 years old taxi driver suffered with a glass cut injury to his right palm. He sustained laceration of ulnar nerve and zone III flexor tendons injury of ulnar two fingers which was repaired elsewhere. He presented to our department 1 year after the initial injury with claw, intrinsic palsy and weak key pinch.
He was planned for nerve exploration and claw correction. On exploration the proximal stump of the ulnar nerve in the palm was found be severely scarred and distal cut end of the nerve was not found for repair. In order to improve his key pinch, Opponens pollicis branch of recurrent branch of median nerve was transferred to terminal branch of deep branch of ulnar nerve. Claw correction was done with tendon transfer using FDS tendon of middle finger split into two slips. At the 6 months follow up demonstrated improvement in claw deformity and also improved key pinch where he was able to hold key tightly without using FPL.


Preop


Postop


Postop video
Click to watch video

Discussion:
The first nerve transfer was mentioned way back in 1903 in the case of brachial plexus injury but because of poor results it did not get popularity.[3] Subsequently due to advances in nerve grafting techniques stressed upon by Millesi[4] distal nerve transfers were again neglected. But article published by Oberlin et al[5] in mid 90s, because of their reproducible results attracted many surgeons to search for options for nerve transfers. There after lot of work was done in this field by likes of Mackinnon and Bertelli.

Principles of nerve transfer:
An expendable nerve or a nerve fascicle in the vicinity of the denervated muscle or the nerve is the basic requirement of the distal nerve transfer. This nerve or nerve fascicle of appropriate size is transferred to reinnervate the intended nerve or muscle without tension or interposition graft.[6] Nerve transfers do not depend on amplitude, excursion or pull of the donor. Multiple muscles also can be restored by nerve transfers.
Intraneural dissection allows use of single nerve fascicle for transfer to the recipient nerve. Nerves supplying a nonsynergistic or even antagonistic muscle can also be used for transfer. Increased understanding of cortical plasticity, motor re-education and perioperative rehabilitation has helped immensely in delivering good results after nerve transfers. Usually pure motor nerve of appropriate size is preferred as donors. Nerve stimulation can be used to identify best donor.

Indications of distal nerve transfers:
1. Brachial plexus root avulsion
2. High proximal injuries
3. Severe scarring
4. Long segment loss of nerve
5. Delayed presentation
6. Uncertain or double level of injury
7. Radiation injury

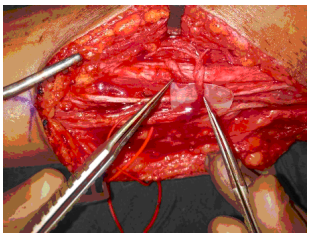
Motor nerve transfers: Few examples are as follows.

Injured nerve	Missing function	Donor nerve options	Recipient nerve
Suprascapular nerve	Shoulder adduction and external rotation	Distal spinal accessory nerve	Suprascapular nerve
Axillary Nerve	Shoulder adduction and external rotation	Triceps branch of radial nerve	Axillary nerve
Musculocutaneous nerve	Elbow flexion	1.Ulnar nerve fascicle; Median nerve fascicle 2.Intercostal nerve 3.Thoracodorsal nerve 4.Phrenic nerve	Biceps and brachialis branches individually or total Musculocutaneous nerve
Spinal accessory nerve	Shoulder elevation and abduction	1.Medial pectoral nerve 2. Opp C7 fascicle	Spinal accessory nerve
Radial nerve	Wrist extension	Median nerve branches to Pronator teres[7], FDS, FCR, PL	Nerve to ECRB
Radial nerve	Finger extension	Anterior interosseous nerve[8] (AIN)	Posterior interosseous nerve (PIN)
Radial nerve	Thumb extension	AIN	Deep branch of PIN
Ulnar nerve	Key pinch	Opponens branch of median nerve	Terminal branch of deep branch of ulnar nerve
Median nerve	Thumb opposition	Abdoctor digiti minimi branch of ulnar nerve	Recurrent branch of median nerve
Median nerve	Finger flexion	1.Ulnar nerve fascicle to FCU 2.Radial nerve branch to ECRB	AIN

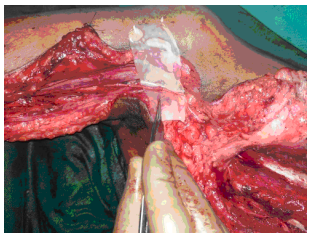
Sensory nerve transfers: Few examples are as follows.

Injured nerve	Lost sensation	Donor nerve options	Recipient nerve
Median nerve	Thumb and index finger pinch area	Ulnar common sensory branch to fourth web space	Median common sensory branch to first web space
Median nerve	Thumb and index finger pinch area	Dorsal sensory branch of ulnar nerve	Median common sensory branch to first web space
Median nerve	Thumb and index finger pinch area	Sensory branch of radial nerve	Median common sensory branch to first web space
Ulnar nerve	Ring and little finger	Median common sensory branch to third web space	Ulnar common sensory branch to fourth web space and little finger
Ulnar nerve	Ulnar border of hand	Lateral antebrachial nerve	Dorsal sensory branch of ulnar nerve

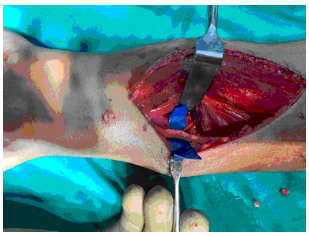
Few clinical examples of nerve transfer are shown below.



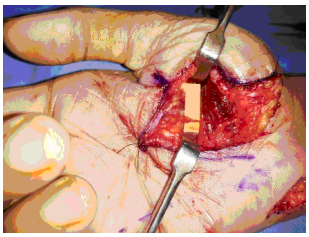
1.Ulnar nerve fascicle to nerve to biceps and median nerve fascicle to rest of MCN for elbow flexion



2.Intercostal 4, 5th to MCN for elbow flexion



3.AIN to deep branch of ulnar nerve for intrinsic function



4.Opponens branch of median nerve to Terminal branch of deep branch of ulnar nerve for key pinch

5.Nerve to long head of triceps to axillary nerve

Cervical spinal cord injury (SCI):
The priority of functional rehabilitation is different in tetraplegia in SCI. Reconstruction of elbow extension takes first place to all followed by grip, hand opening function and then intrinsic function. Few examples of common nerve transfers in SCI are as follows.[9]

Donor nerve	Recipient nerve
Posterior division of axillary nerve	Triceps branch of radial nerve
Nerve to Supinator	PIN
Nerve to ECRB	FPL portion of AIN
Nerve to Brachialis	AIN
Nerve to Brachialis	ECRL
Musculocutaneous nerve	Median Nerve
Nerve to teres minor	Triceps branch of radial nerve
Nerve to Brachialis	Triceps branch of radial nerve

Targeted muscle reinnervation:
Major upper limb amputation like mid arm or hind quarter amputation has typical issue where they have intact radial, ulnar and median nerves with no target muscles. So the available muscles are reinnervated with nerves with intended function in order to fit appropriate myoelectric prosthesis. These procedures hep attain stronger, more natural and better degree of movement of the prosthesis.

Nerve transfers in transhumoral amputation: The musculocutaneous motor branches to long head of biceps and to long head of triceps are preserved in order to maintain prosthetic elbow flexion and extension respectively. The nerve transfers done are as following.[10]

Donor Nerve	Target Muscle	Intended movement
Median nerve	Musculocutaneous branch to Biceps short head	Wrist flexion
Ulnar nerve	Musculocutaneous branch to brachialis	Intrinsic hand movement
Radial nerve distal to triceps branches	Radial nerve branch to lateral head of triceps	Wrist and finger extension

Similarly nerve transfers done in shoulder disarticulation are as following.[10]

Donor Nerve	Target Muscle	Intended movement
Musculocutaneous nerve	Clavicular head of pectoralis major	Elbow flexion
Median nerve, Ulnar nerve	Segments of sternal head of pectoralis major	Wrist and hand flexion
Radial nerve	Thoracodorsal nerve	Elbow extension

Conclusion:

Vanderhooft and Allan has said, “Surgeons must strive to recognize and modify factors that affect patient outcomes”. In conditions unfavourable for primary nerve repair, appropriate utilization of distal nerve transfers help we achieve this aim while restoring lost nerve function. Complex patients with brachial plexus injury and SCI can also be rehabilitated with wisely chosen nerve transfers. Also nerve transfers can improve utilization of myoelectric prosthesis in case of major amputations.

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ARTICLE 4

Breast Reduction

TAKE THE LOAD OFF!

Dr. Devayani Barve

Benign (not cancer) breast surgery is often wrongly judged to be an optional and unnecessary procedure. But most often it is not the patient passing that judgement. As a female plastic and cosmetic surgeon, I see a lot of women who suffer breast ailments on a daily basis and yet have shied away from seeking appropriate care due to the thought 'what will everyone think'? I also see self-assured women with supportive partners who don't feel anyone but they themselves needs to know but these are the rare few!

It is essential to talk about these issues openly and break the secrecy surrounding their remedial. Whether a woman undergoes breast surgery or not and whether she chooses to tell anyone or not, it MUST be her choice!

Reduction Mammoplasty or breast reduction involves removing excess breast tissue, fat and skin and reshaping the breast mound. Contrary to popular presumption, breast reduction is not only a cosmetic procedure. Most women who undergo this surgery have been suffering from problems due to disproportionately large breasts or Gigantomastia.

Symptoms which prompt surgical attention include

- Neck, shoulder and back pain due to heavy breasts
- Indentations on the shoulder due to brassiere straps
- Rash or ulceration under or between the breasts
- Social embarrassment and poor body image

Breast reduction is performed for relief of these symptoms by reducing the size and enhancing the shape of the breasts.

What to expect from first consultation?

When first assessing a patient, it is important to document the symptoms and physical signs such as rash or ulceration. With proper consent, it is important to take standardized photos, which serve as an intra and post-operative guiding tool. Any asymmetries need to be shown to and discussed with the patient. It is best to do this in front of a mirror or on a computer.

It is essential to stop any anti platelet medications 7-10 days prior to the procedure. Smokers are advised to quit or stop atleast 4 weeks before the surgery. Breast imaging is mandatory before any breast surgery to diagnose other issues, if any. Ultrasonography or Mammography is recommended based on the age of the patient.

What are the surgical options?

Techniques (lollipop or anchor shaped) vary according to the breast size. The tissue in the lower part of the breast is removed, the nipple is shifted up with its blood supply and the remaining breast and the skin is coned around the newly positioned nipple and closure is done. In very large breasts, the nipple is detached from the breast, the breast is reduced and the nipple is reattached like a skin graft. The incision lines that remain are visible and permanent scars, although usually well concealed beneath a swimsuit or bra. Scar treatment is started soon after surgery to improve their appearance.

Possible risks

The breast reduction procedure can be performed at any age, but is best done when breasts are fully developed. As with any surgery, there are associated risks (Infection, Hematoma, Asymmetry, Changes in nipple and areola sensation and pigmentation, Unfavorable scarring, Potential difficulty in breast feeding). We prefer to wait until childbearing is complete to reduce the breasts. However, when the symptoms are severe, especially neck and back pain, the procedure can be safely performed with special techniques to preserve maximum breastfeeding potential. It is very important to have an open and honest conversation with your plastic surgeon before surgery and have your questions answered.

Types of Incisions-

Lollipop

Anchor

What to expect post surgery?

Typically the wound heals in 10-14 days. It is advisable to avoid lifting heavy things and moving the arms around till the incision heals. A support brassiere and scar treatment will be advised. Most patients return to completely normal lifestyles in 6 weeks.

Before

Before After

After

Before After

PICTURE COLLAGE

Unusual And Smallest Composite Free Flap: Root of helix of ear free flap

Dr. Leena Jain

ARTICLE 5

Smile Restoration Surgery: Facial Palsy

Dr.Samir Kumta, Dr.Leena Jain

Facial Palsy is Complex clinical condition with significant Functional and aesthetic implications. Apart from loss of resting facial tone, facial denervation from a functional standpoint, results in brow ptosis, lagophthalmos, ectropion and exposure keratopathy, nasal airflow disturbances, loss of oral competence with pooling of food and drooling of saliva. Additionally, loss of mimetic activity, non-verbal communication and spontaneous dynamic smile results in an expressionless “mask” face Leading to social discrimination And social withdrawal. The psychological stress is often more distressing than the functional disabilities.

Thus, smile restoration surgeries hold tremendous value in these subset of patients. A comprehensive approach to management of Facial Palsy requires Understanding of the aetiology and more importantly, the duration of palsy as facial musculature is viable for up to 18 to 24 months as compared to other voluntary muscles of the body where the neurotisation window period is shorter.

1. Patient presents at an early stage: the facial musculature is expected to be viable and neurotisation of the muscle can be done depending upon the availability of the ipsilateral facial nerve. In case a healthy nerve stump is present then the proximal and distal ends can be co-apted with or without using a cable graft. If absent other cranial nerves can be used for neurotisation of facial musculature such as the masseteric or the hypoglossal nerves Or else a branch of the opposite side facial nerve can be used if available. The latter, also known as the cross face nerve graft, has demonstrated a superior spontaneity and dynamicity of smile. This is associated with minimal donor function loss as the procedure takes advantage of the arborisation and cross linkage between the upper and lower buccal branches of the contra lateral facial nerve.
2. Patients who present at later stages: where the facial musculature is unviable, management involves restoration of neural control to imported /transplanted muscle to create a symmetric resting tone and a spontaneous dynamic smile. This facial reanimation is now the standard of care. Again, re-animation can be based on existing facial nerve, or other cranial nerves such as hypoglossal or Masseteric or the opposite side facial nerve. Since there is no viable musculature, a muscle has to be imported in the form of a free muscle transfer. Most commonly, a gracilis flap is used for transfer because of its consistent anatomy and possibility of segmental dissection of the flap which allows a small bulk of muscle transfer and minimal donor site deficit.

The use of other cranial nerve is to power the transplanted muscle, for eg the masseteric nerve, require activation of the nerve by biting and precludes a spontaneous bilateral conjugate motion. Although with cortical plasticity and biofeedback exercises, some degree of spontaneity is observed in numerous cases. Often a dual innervation is performed to increase the power of the transplanted muscle as a cross face nerve graft alone may not be sufficient to restore symmetry of smile.

To summarise, management of long standing cases of facial palsy requires understanding of all the components of deficit, which can be addressed to depending on the need of the patients. Restoration of smile has often been ignored in patients with facial nerve palsy due to lack of awareness in the patients as well as the caregivers.

Facial reanimation surgery using free muscle transfer and dual innervation (contralateral facial nerve + masseteric/ hypoglossal nerve transfer) is the standard of care in obtaining a symmetric, spontaneous dynamic smile.

Case 1: Cross face nerve graft done with masseteric nerve transfer done for her right sided facial palsy, as she presented with 6-8 months of parotid gland surgery

Video 1: Presurgery video of patient with left sided facial nerve palsy.
Click to watch video

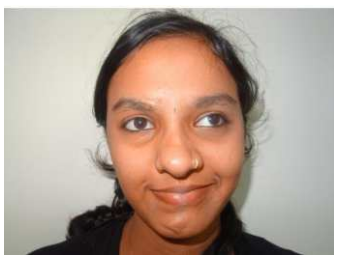
Video 2: Post-surgery video of restored smile.
Click to watch video

Case 2: Free functioning gracilis muscle transfer following cross face nerve graft for this young girl who suffered from facial palsy since childhood.

Video 1: Presurgery video
Click to watch video

Video 2: Post-surgery
Click to watch video

Case 3: Young girl presented within 2-3 months of injury, underwent masseteric nerve transfer with good results.



ARTICLE 6

Liposuction and Fat transfer

Dr. Siddharth Prakash

LIPOSUCTION

We all know that it is important to maintain a healthy body weight. But in spite of your best efforts at diet and exercise, it is difficult to have a body shape that you desire. Excess fat accumulates in certain body areas that are resistant to diet and exercise. You may not be able to get rid of this extra fat and the struggle leads many to adopt unhealthy habits like fat burners and crash diets. Liposuction is a safer way to remove this fat and get a body shape that you have always wished for.

What is Liposuction?

Liposuction is a procedure to remove unwanted fat from certain parts of your body. These are the especially difficult to maintain areas that tend to store excess fat. Liposuction will make you slimmer and improve the visible shape of your body.
Liposuction is done through tiny cuts without the need for large incisions or stiches. So your recovery is quick and there are no obvious scars. You can have a more toned and shapely body and the results that you obtain from this procedure tend to be permanent. With all these benefits, it's no wonder that liposuction is one of the most commonly performed cosmetic surgeries worldwide.

The Target areas

Liposuction can be used to remove stubborn fat from any part. It is commonly done to improve the following areas of the body:

- Upper and lower portion of the front of your tummy
- Both sides of your tummy or 'love handles'
- Thighs and calves
- Buttocks and hips or 'saddlebags'
- Upper and lower back
- Male Chest and breast
- Arms
- Neck and chin

The Benefits

Liposuction is a 'body shaping' procedure and not a 'weight-loss' procedure, though you do lose weight also. It will help you get rid of extra fat and make your shape more attractive. You will appear toned and slim. Your muscle definition will be more visible and your abs may begin to show. Do not worry about ending up with loose skin. In fact, there will also be some skin tightening.

The Surgeon

Liposuction can give you dramatic results in a safe way when it is performed by a qualified and experienced plastic surgeon. In the right hands, the risk of any adverse effects is minimum. So be sure to choose a fully qualified plastic surgeon who has additional training and experience in performing cosmetic surgeries. You need not hesitate to ask for his credentials or before-after pictures. A good plastic surgeon will guide you through the entire procedure and ensure the best possible results.
The Hospital It is also important to choose the right hospital for the procedure. Do not settle for a bargain at a poorly equipped and ill maintained place. A good hospital takes efforts to match the highest standards of sterility, hygiene and patient care with qualified staff and quality equipment. These steps go a long way in ensuring a safe and risk free surgery.

The Preparation

The first step that you need to take is to meet your plastic surgeon for a consultation. This is when you discuss your problems and your desired expectations. The plastic surgeon will examine you and plan which procedure would be best suited for you. He will explain the procedure in detail and make you understand what is possible and what is not possible. He will take photographs for documentation and comparison.
You will need to get some basic blood tests and investigations before the procedure. A custom made compression garment may be needed. A relative or a companion will need to be with you before and after the surgery.

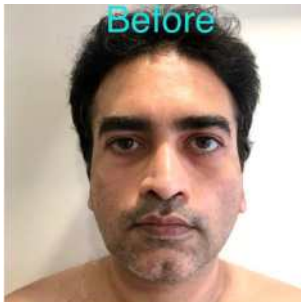
The Procedure

The plastic surgeon will begin by marking your problem areas and deciding how much fat to remove and from where. Liposuction can be done under local or general anesthesia depending upon your specific need.
The plastic surgeon begins by taking a few tiny 'keyhole' cuts in some hidden areas of your body. He injects medicine into the fat to make it soft and numb and to reduce bleeding. Through the same cuts, the excess fat is suction out using thin cannulas or tubes. An experienced cosmetic plastic surgeon will remove more fat from certain parts and less from another. He will treat the procedure just like carving a sculpture and try to give you the best possible shape.
At the end of the procedure, the operated areas are covered in tight, absorbent dressing. You will not be in any pain and will be free to move around.

The Recovery
Your recovery from a liposuction depends upon how many areas were treated and how much fat was removed. In case of a short procedure, you can go home the same day. You can move around freely and resume your normal daily activities as usual.
In case of a longer procedure involving multiple body areas, you may need to stay back at the hospital for a day or two. This is for your own safety and comfort. You are free to move around immediately after the procedure. You may begin daily activities as soon as you feel comfortable. You may need 3 to 5 days off work.
Pain is not a major concern with liposuction. There is some discomfort and soreness of the operated areas but this is well controlled with basic pain medication. Some people may have numbness for longer. Most people are able to resume work and make almost complete recovery within a week. You will need to wear the compression garments as they provide support and reduce swelling. This is recommeded for a month or so.
As the swelling subsides, The skin begins to feel more natural and the results improve. Skin tightening is a gradual process and takes some time. Though you will notice your slimmer shape immediately after the surgery, you will see that the results continue to improve over the next few months. Your skin gets tighter and your shape becomes more natural.

The Risks
Liposuction does not involve large cuts, stitches or scars. All in all, it's a safe surgery when done by the right plastic surgeon on the right patient at the right hospital. But like any other surgery, there is always a risk of adverse effects. These may be anesthesia related risks, bleeding, hematoma, seroma, infection, skin or organ damage, contour deformities like lumps and bumps, asymmetry and the need for a revision procedure.
These adverse effects are rare and happen more often when the surgery is attempted by an under qualified surgeon. An experienced plastic surgeon will be able to confidently manage any minor issues if they occur.

The End Result
Liposuction removes excess fat and improves your body shape dramatically. In most cases, your skin in the operated areas gets tighter and the part appears toned and slim. These results are long lasting and the fat reduction from a body area is permanent. All you need to do is maintain your current body weight and avoid drastic fluctuations.



FAT TRANSFER
Till some years back, the fat that that was removed by Liposuction was mostly thrown away. But now we know better. With continuous advances in plastic surgery, we are now able to transfer this fat to other areas of your body and get benefits unlike any other procedure. This technique is called Fat Transfer or Autologous Fat Grafting.
The fat that is removed from your body can be very effectively used to increase the size and shape of other parts of your body such as the breast or buttocks. This fat is also a rich source of rejuvenative cells and can be used to improve facial skin quality and texture. The uses are actually endless.

The Procedure
Fat is taken out or harvested from body parts where it is in excess. The procedure of removal is the same as liposuction. The difference is that your plastic surgeon will be more gentle in taking out the fat so that the damage to the fat cells is minimum.

The fat is then purified and prepared. It is transferred to other parts of the body by injection. This is a specialised process and the plastic surgeon does it in a certain way so that the fat is evenly spread out. The grafted fat soon takes up blood supply in the new area and behaves just like your own normal body fat.

The Donor areas
Fat is removed by liposuction from areas such as the tummy, thighs, back, arms or neck. These areas have extra fat deposits and the process of removal gives you the added benefit of shaping these parts.

The Uses of Fat Transfer

- **Breast Augmentation**
  If you wish to increase the size of your breasts, fat transfer is now a popular alternative to breast implants. The end result is more subtle and natural. It avoids any long term concerns associated with silicone implants.
- **Buttock Augmention / Brazilian Butt Lift**
  Increasing the size and improving the shape of your buttocks by fat transfer has become hugely popular in the past few years. This popularity is justified, considering the ease and effectivity of the procedure. The tummy is reduced, the hips are enhanced and the shape is improved, all in one go. Buttock implants are now used less and less.
- **Facial rejuvenation and Anti ageing**
  Fat transfer is used as a permanent alternative to synthetic dermal fillers for face enhancement and anti ageing. The fat can replace lost volume of the cheeks, temples, forehead, chin and jawline. Nano fat transfer is used to improve skin quality and texture. It can take years off your face.
- **Scar reduction, deformity correction and wound healing**
  Plastic surgeons regularly use fat to improve scars after a revision surgery. Many childhood deformities can be reduced with this procedure. Post traumatic deformities like depressions can also be corrected without the need of a major surgery. Wound healing has been shown to speed up with fat grafting.

The Risks
The main concern with fat transfer has always been regarding the survival of the grafted fat. Plastic surgeons minimise fat cell damage and maximize fat survival by treating it gently. This is where skill and experience works and gives you the best possible result.

The End Result
Liposuction and Fat transfer are safe and effective tools in the hands of a qualified plastic surgeon. He will be able to give you the combined benefit of making one body part slimmer while enhancing the size and shape of another. The results are dramatic and long lasting while being safe and effective. Meet your plastic surgeon today and know the possible benefits of these procedures for a new you.

ARTICLE 7

Pedicled Perforator Flaps

Dr. Karthik Aithal, Dr. Samir Kumta, Dr. Leena Jain

Introduction

The first pedicled perforator flap for the lower limb was probably described by Yoshimura et al in 1985, though he did not name it as such. Wei el al defined perforating vessels as those of which the source artery is deep and the branch that carries blood directly to the fasciocutaneous tissues, in its course to reach the skin, passes through the overhanging muscular tissue without exclusively following the intermuscular septum. Hillock defines a perforator as any vessel that pierces through fenestration in the deep fascia regardless of origin.

Nomenclature of perforator flaps can be based on their anatomical location, arterial supply or the muscle of origin.

The various types of perforators include

Type 1- direct perforators perforate deep fascia only

Type 2- indirect muscle perforators predominantly supply the subcutaneous tissue

Type 3- indirect perforators predominantly supply the muscle but have secondary branches to subcutaneous tissue

Type 4- indirect perimysial perforators travel within the perimysium between muscle fibres before piercing the deep fascia

Type 5- indirect septal perforators travel through the intermuscular septum before piercing the deep fascia

Advantages of pedicled perforator flap

- Reduced donor site morbidity as functional muscle is spared.
- “Like-for-like” replacement of tissue as the donor site is in the vicinity of the defect
- Versatility in flap design to facilitate primary closure of donor site
- Lesser operative time
- Greater utility in patients with atherosclerotic vessels or irradiated wounds

Disadvantages of perforator flap

- Meticulous dissection needed to isolate the perforator
- Variability in the position and size of the perforator vessels
- Steep learning curve

Possible flap movements

- Advancement
- Transposition
- Propeller

Case 1:

A 75 yrs old male, diabetic, presented with 7*5 cms non-healing wound over the right heel, with non-palpable distal pulses. CT angiogram showed severe atherosclerosis of posterior and anterior tibial arteries, with a well defined 4 cms long perforator arising from the peroneal artery approximately 8cm above the lateral malleolus. A propeller flap was designed based on this perforator once exploration showed a good pulsatile perforator. Flap was propelled in anti-clockwise direction and turned to cover the defect. Donor area was covered with skin graft harvested from right thigh.




Video Link

Click to watch video

Case 2:
A young male presented with recurrent pilonidal sinus over the gluteal cleft; inferior gluteal artery perforator was dopplered adjacent to the sinus. Pilonidal sinus was excised in toto after injecting methylene blue into the sinus. Inferior gluteal artery perforator flap was elevated and transposed onto the defect.

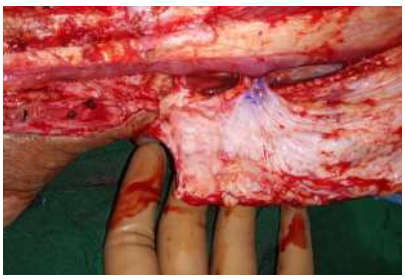



Case 3:
A 45 yrs old male had a skin lesion over the right knee; excision biopsy revealed a sarcoma. Wide local excision was planned and the defect was reconstructed using medial sural artery perforator flap. Donor area was grafted.

Case 4:
A 54 yrs old male presented with perineoscrotal wound following fourniers gangrene. Reconstruction was covered with pedicled anterolateral thigh flap. Donor area was primarily closed.


Case 5:
A 67 yrs old male presented with non healing ulcer over lateral malleolus. Peroneal artery perforator was marked. The flap was elevated and propelled into the defect.





CONCLUSION
Pedicled perforator flaps are alternative to free flaps. As they are in the vicinity of the defect, the donor site morbidity is less. Other advantage is that the end arteries are preserved. Perforator is less likely to be involved in atherosclerosis and less affected by radiation, thus, constitute an integral part of reconstructive surgery.

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ARTICLE 8

Facial Rejuvenation Surgeries

Pushing back the years and Turning back the Clock.

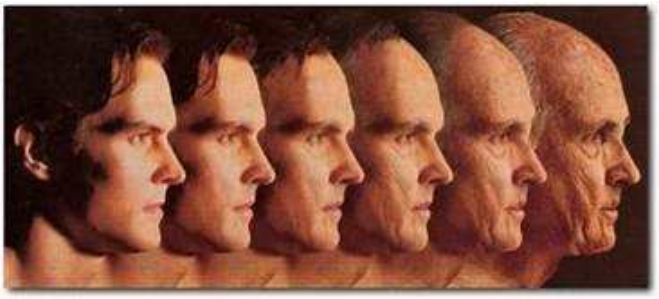
Dr. Milind Wagh

Human beings are social beings. We all live in constant interaction with each other, even in lockdown situations! When we cannot meet each other face to face, we attempt to do so virtually on online digital platforms, on phone, on computers, so that we can continue to visually interact and feel the "human touch". Whether real or virtual, contact with each other means that our appearance is looked at.

In fact, our first impressions of each other are often formed in that first visual contact by how we appear……how often have we heard from friends, acquaintances and even people we have just met- "you look tired, are you Ok?" or "you seem to have aged since I last saw you" or "you look older than your age", or luckily sometimes "wow, you are looking younger every time I see you" or " Oh my, you are really looking refreshed and glowing".

The importance of our facial appearance not only matters in our casual personal interactions with each other, but it has also been shown scientifically that it has a profound causal effect on the professional front as well. People are invariably attracted, impressed and comfortable with someone who looks refreshed, younger and energetic.

If there is any certainty about anything in our lives, it is the Ageing process. From soon after birth, the process of ageing begins and inexorably it moves forward, albeit slowly as we grow from infancy to childhood to teenage to adulthood. At that time in our lives, we look pleasing to the eye - youthful, attractive and raring to go. The skin tone is perfectly taut and elastic, the texture is smooth and glowing, the features are sharp.

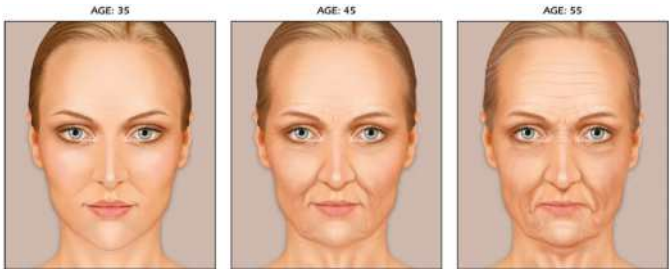


The Ageing process is natural and inevitable BUT it is also related to everything that happens in our lives, with our physical and mental health, the stresses and strains on the body as well as the tensions and anxieties on the mind. It is also related to our physical activities, our nutritional status and how we take care of ourselves. It is also often genetic, and some people appear prematurely older than they are and on the other hand others seem younger than their actual age.

Whatever is the cause, this process gains pace after the 30s while we are busy in our personal and professional lives with various external stresses and internal pressures that start to take their toll. The changes are gradually now visible in our face and bodies – the early forehead wrinkle and crease, the appearance of frown lines when animated, the plumping of the face and the loss of definition of the jawline as we put on weight.

As we arrive in our 40s, the ageing process now accelerates as the skin elasticity and tone slowly decreases and the underlying support structures start to lose their tightness. The forehead creases are deeper, the frown lines visible even at rest, the eyebrow arch is flatter than before, there may be loose skin in the upper eyelids and early fat bags may appear in the lower eyelid, smile lines have now become folds, the high cheeks seem to have descended, early jowls appear along the jawline and the previously taut and smooth neck shows horizontal lines.

As we voyage into the 50s and the hair greys and becomes thinner, so does the face continue to age. The facial and neck skin is now quite lax; the forehead advertises our experience and often the hidden stress in our lives. The brow is now nearly flat and descended, the eyelids themselves give a tired appearance to the face as upper eyelid folds are seen and there is laxity of the lower eyelids with either more prominent fat bulges or hollowing or dark circles and worry troughs on the inner side. The smile folds are now heavier, the cheek prominence looks flatter and descended, the jawline has now lost all sharpness and appears continuous with the neck, there are fine wrinkles around the lips, there is excess fat under the chin, loose neck skin and vertical "grandparent" bands in the front of the neck. As we reach retirement age, this process is getting faster and faster and we really do not like how we look – tired, stressed and AGED



It IS a natural process and one that is **unstoppable**. Or can something be done about it? Is it possible to reverse the process and remain perennially young, attractive and refreshed?

Stop it? NO, we cannot, but slow it down and retard it? Yes, we can.
Medical science and surgical techniques are today at the point where there are many means of retarding the process of ageing to make a person look rejuvenated and younger than his/her age. Some are non-invasive or semi-invasive and some invasive. In general, the rule of thumb is that more invasive and direct the means, the more extensive the procedure, the longer lasting will be the results.
The non-invasive modalities include use of cosmeceuticals on the skin in the form of cream programs and peels of various types and combinations which either exfoliate the skin surface cells and allow for fresh new cells to form giving the skin a fresh glow or those that promote formation of new collagen (neocollagenesis) in the skin dermis to firm up and tighten the skin to improve inherent elasticity. It is important to understand that being non-invasive, these products are aimed more at the younger age group in their late 30s and early 40s with early ageing changes. Their effect is very temporary and does not last long, the timeline being in weeks to just a couple of months. Obviously, the benefit is on the skin surface in terms of improvement of texture and tone, rather than on the deeper structures that support the skin.
A plethora of such products are now available in the market, some effective, others not so much and yet others not at all. There is very aggressive and often in-your-face (no pun intended) marketing done by the cosmeceutical companies, with advertisements galore to sell these products because it is a billion-dollar industry.

The opinion and advice of a qualified Cosmetic Plastic surgeon is then the critical difference between spending your money, time and effort worthlessly or selecting products which will allow you to actually benefit from these treatments.

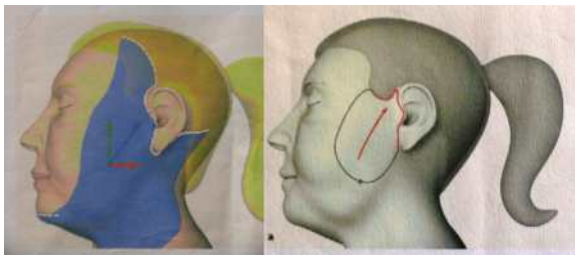
The semi-invasive modalities include energy-based devices such as Lasers, Radio frequency, Pulsed light or mechanical devices such as Microneedles and Dermabraders as well as Neurotoxin injections and Commercial Fillers. Also included in this group are procedures such as surgical barbed and cog threads. They are all office procedures that do not involve admission of the patient to hospital.
The energy-based devices work on the principle of using high focused light and heat energy, aimed with precision and at different depths of penetration on the skin surface, the collagen in the dermis and the tissue immediately under the skin. They work not only on skin resurfacing by clearing the senescent or old cells in the epidermis but also by encouraging precise micro-scarring within the skin to tighten the collagen scaffold framework as well as encourage neocollagen formation to rejuvenate the skin envelope. The dermabrading and microneedling procedures do the same but by mechanical means.
Neurotoxins, colloquially known to everyone as Botox (which is a popular brand name), work by paralysing selective muscle


groups in the face, particular in the forehead (frown and worry lines) and around the eyelids (crows' feet). When we express our emotions and our face animate constantly and throughout life, the muscle groups attached to the skin cause wrinkles and creases to appear on the overlying skin. Initially these lines are dynamic, meaning they appear only when we animate but with time, they become static and visible even at rest. Botox works on dynamic skin creases by relaxing and paralysing muscle fibres temporarily thereby causing the lines to disappear and the skin to appear smooth till the effect of the neurotoxin on the muscles slowly reverses over 4-6 months. The neurotoxin injection can then be repeated to achieve the same effect again.
Commercial fillers are basically products made of collagen or hyaluronic acid, both of which are natural components of our own


skin. Early ageing changes cause deflation of the soft tissues by reduction of the fat under the skin. This gives parts of the face a hollowed or gaunt appearance. Filler help by either rehydrating and rejuvenating the skin or volumizing the tissue under the skin restoring shape and contours and providing a subtle lift to structures which have descended. Different types of fillers are now available with different chemical structures and qualities to achieve this effect. The effect of fillers once again is for a

period of a few months to a couple of years so they are most effective for early changes of ageing in patients in their 40s. They are also done as an office procedure.
Going one step further are semi-invasive minor surgical methods such as the use of commercially available barbed and cog

threads. They are less invasive because they do not involve long incisions or complex dissections of the tissues and can be done as an office procedure. They are inserted under the skin from a higher level on the face (in a location behind the hairline) or side of the neck to a lower level towards the midline along the vector or direction in which the descent of tissues in facial ageing takes place. They have hook like barbs on them or cone like cogs which engage in the tissues under the skin getting a hold in them. They are then pulled along the vector to cause an effect of LIFT of the tissues and anchored at the higher point from where they were inserted. The presence of the threads also causes a foreign body reaction in the tissues and limited scarring under the skin to provide a subtle Lifting effect. Their mechanical strength is however obviously poor as they are simply threads and therefore the effect is only subtle to moderate and cannot last for more than a couple of years. They are also not very effective in older patients in their 50s and 60s with advanced signs of ageing.
The GOLD STANDARD in facial rejuvenation procedures is the formal surgical FACE-LIFT. Since it directly addresses the soft tissues which are involved in facial ageing and repositions and anchors them back into their youthful location as well as lifts and tightens the overlying skin, the longevity and durability of the procedure is assured for MANY YEARS, usually between 8-10 years for patients in their late 40s and 50s and at least 5-7 years for patients in their 60s and 70s. In the past, the drawbacks to surgical facelifts used to be the long incisions on the face and neck (though hidden in natural creases), the extensive meticulous dissection of the supporting structures which have descended, so as to reposition them, and the relatively long post-operative recovery period of a few weeks. However, as surgical techniques have continuously improved, the incisions necessary in most cases are limited, the dissection also quite precise and refined and the recovery period limited to only a couple of weeks. The improvement in appearance, possible with modern techniques is remarkable and very clearly visible with patients often looking a decade or more younger after surgery, their faces youthful, refreshed and rejuvenated, their features sharp and well defined once again.
Since ageing also often involves loss of facial fat and deflation, replacement of this lost volume also restores the youthful shape



Traditional Face lift dissection

and contours. What better tissue to use than one's own fat?. It is in abundance; it is safe and it is the ideal tissue with both volumizing as well as remarkable rejuvenative properties. The science of Autologous (your own) fat transfer has transformed Facial rejuvenation and represents not only a cutting edge technique of this era but also the exciting future. It is now routinely used in facial rejuvenation along with other techniques including facelifts.
In summary, with the entire spectrum of procedures and techniques available to us today, it is now possible to provide a plethora of safe as well as transformative options to our patients to benefit and turn back the clock, push back the years and give them a refreshed youthful and revitalized appearance to their faces.
The most reliable and valuable resource to get genuine, accurate and up-to-date information about Cosmetic Surgery procedures and treatments is a trained qualified Plastic Surgeon. It is always wise to ascertain the qualifications and experience of your Plastic surgeon before you undertake any cosmetic surgery procedure.
The Association of Plastic Surgeons of India (APSI), the official national society of qualified Plastic Surgeons celebrates 15th July every year as National Plastic Surgery Day across the country. We try to educate the general lay public and create awareness about the vast spectrum of Plastic Surgery which includes Cosmetic Surgery on this day and thank you all for giving us the opportunity and privilege of serving you. This article is a humble and small contribution towards that purpose.

ARTICLE 9

Hair Transplant

FUE hair transplant by dull needle implanters

Dr. Sumit Agarwal

Follicular Unit Excision (FUE) Hair grafting is the most common technique of Hair Transplant worldwide. As per the 2020 practice census by International society of hair restoration (ISHRS), 70% of the procedures done were by FUE technique & 30% by Strip (FUT). In FUE the grafts are extracted from the Donor area on back & side of scalp, by a motorized or manual punch. The extraction leaves a small circular incision, which heals with primary intention, leaving a tiny scar. These tiny scar are much less visible than the long linear scar of Strip (FUT) transplant.

Graft Implanting in FUE Transplant

In FUE grafts, there is limited tissue around the bulb of the follicle. Which makes them more vulnerable to dessication & damage during harvesting & implanting. In forceps Implantation, the graft is grasped by tissue adjacent to bulb during inserting of grafts. But because of less tissue around the follicle bulb, there is increased risk of trauma and consequent poor growth with forceps.

The use of Implanters have circumvented this problem by limiting graft handling to minimum. The grafts are grasped by the skin end and inserted without touching the follicle bulbs. It is also known as 'no root touch technique' of Implantation (Fig 1). This technique was first published by Choi in 1992 , when he demonstrated a sharp Implanter device. The sharp implanter simultaneously make recipient incisions and graft placement, without touching the hair follicle bulb. Since then sharp Implanters have been used by many surgeons, but they became popular only after advent of FUE technique in 2002.

But sharp Implanters have some limitations on thick or scarred skin, leading to graft popping, bleeding or skin trauma. Implanting has to be done all by Physician, which limits the number of grafts possible in single session. They are not cost effective, because of multiple needles required in a procedure.

Dull needle Implanters (DNI) technique for pre made slits, was first published in 2016 by Dr Mauro Speranzini . In Dull needle Implanter technique, the premade slits are made with needles or blades. This minimizes the force required to insert the graft & avoids popping of adjacent grafts . Premade slits allow physician to plan the hairline, density, direction and angulation of grafts at recipient site. The Implanting can be done by assistants, feasible to do larger sessions in a day. The incision size is smaller compared to Sharp implanter & forceps technique of implantation, allowing better blood supply.

We use KEEP (Koray Erdogan Embedding Placer) for Dull needle Implantation. KEEP is available in variable sizes 0.6-1.0mm for 1-4 hair grafts, with two adaptable types for both left and right hand use. A small indentation at the base allows user to hold the KEEP properly for easy placement.

KEEP Implanting Technique

The KEEP Implanter possesses a wide slot (Fig 2), through which technicians can load their own grafts before placing them. Most of the other devices need to be pre-loaded & need an extra staff. Grafts are lined up on the opposite index finger or thumb & are picked up just by rolling implanter over the grafts. The bulbar end of the graft lies all within groove at the tip of implanter, while the epidermal side is visible clearly.

The dull tip of the implanter is bevelled, to ensure it engages smoothly into the premade slit. The graft is then gently pushed in with a forceps, visualizing the skin cap. This mitigates the risk of 'distal hooking' and bulb decapitations' while implanting. The graft skin cap must be parallel to the skin & just above the surface. This allows the grafts to follow the natural curve of hair follicle.

Advantages of KEEP

- Less damage to graft as no loading required by assistant
- Less popping in scarred skin or revision surgery
- Easy to place multiple hair grafts, splay grafts and long grafts
- Improved graft quality by preventing curling
- Can be delegated to assistants
- KEEP can be autoclaved. Cost effective

Dis advantages

- Time consuming as slits need to be premade
- Controlling the depth of placement of grafts (pitting in) in premade slits

My moderation for improving the speed of Implanting

I use KEEP Implanter for 3 & 4 hair grafts, which are most susceptible to injury during implanting. Assistant loads the implanter with two grafts at a time, by swiftly rolling motion (Fig. 3). Each of grafts is then implanted in sequence by forceps. The groove in KEEP Implanter is approximately 9mm in length, and can accommodate 2 grafts, until the grafts are too long.

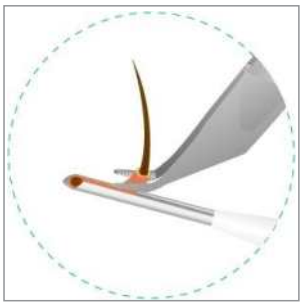
Summary

The KEEP is a dull implanter designed to reduce handling of the grafts during Implantation in premade slits. It increases the ease of implantation, without requiring any extra staff. Has a short learning curve & is a versatile tool to successfully perform an FUE procedure.









ARTICLE 10

Recent advances in head and neck reconstruction

Dr. Samir Kumta, Dr.Leena Jain

Newer Soft tissue Flaps:

Conventional soft tissue flaps are free radial artery forearm flap, pectoralis major myocutaneous flap and anterolateral thigh flap. These have a few demerits in the form of donor site morbidity, excessive bulk and inadequate tissue at times for a bi-paddled reconstruction. Newer flaps overcome these demerits in more than one way, hence make for a better choice. These are:

1. Thoracodorsal artery perforator flap: harvested from lateral chest wall, leaving the latissimus dorsi muscle intact, provides adequate tissue, can be thinned primarily and gives a good match for the head and neck. (Case 1)
2. Posteromedial Thigh Flap – harvested from the medial thigh provides good bulk of tissue as a filler while the donor site is completely concealed without any contour deformity. (Case 2)

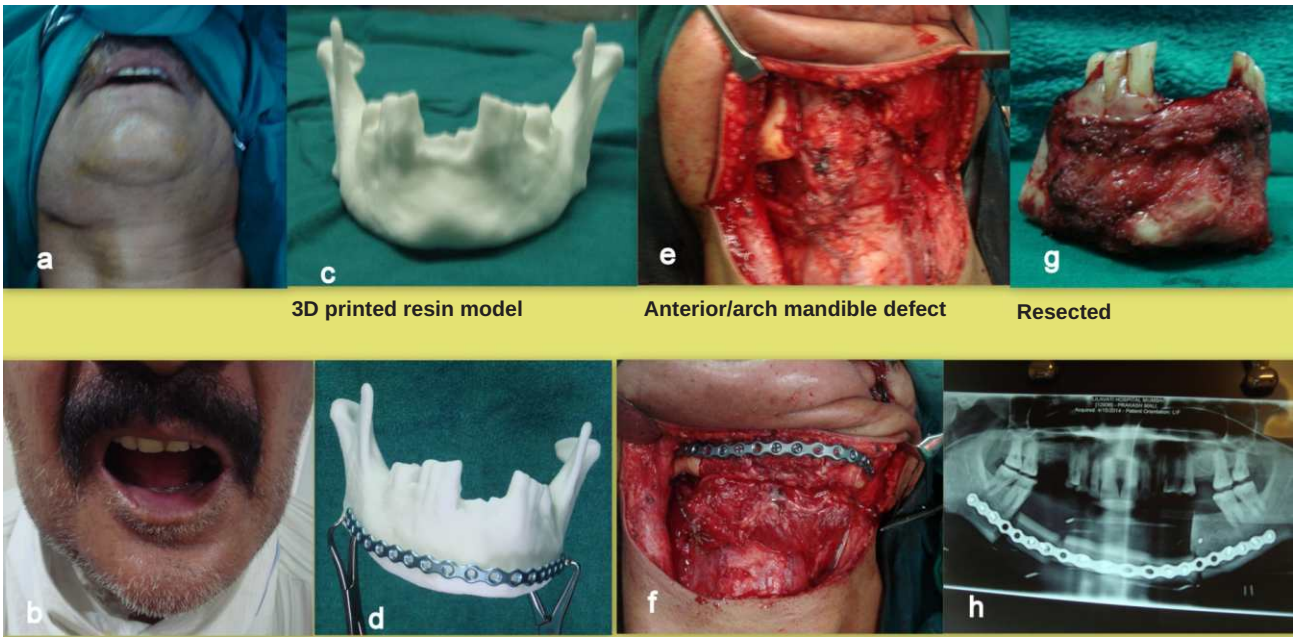
Case 1: Thin thoracodorsal artery perforator flap for ear vascular malformation stage 1.

Case 2: Flap used to reconstruct chin and total lower lip loss, thinned secondarily in a differential manner using liposuction, to recreate the chin and lip.

Newer Bone Flaps:

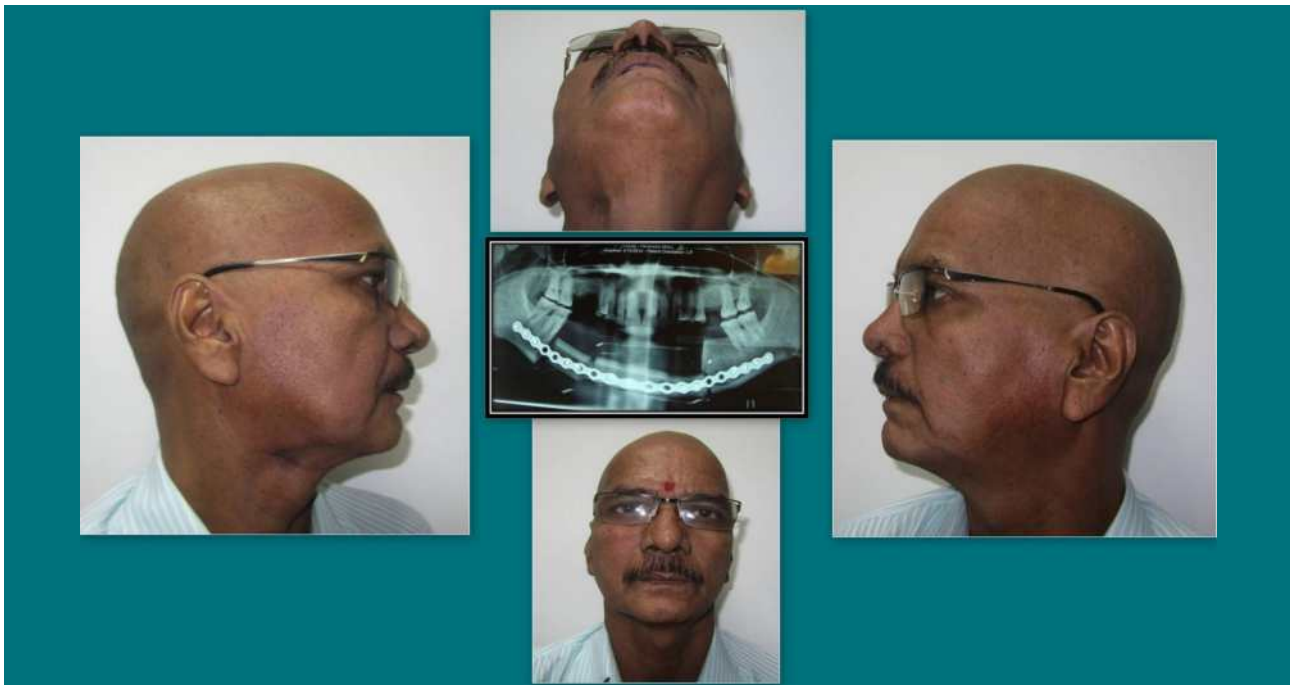
Scapula and Iliac bone flaps were used in the past. Free fibula flap is the workhorse flap for maxilla/mandible reconstruction with the advantages of long segment of bone available, multiple osteotomies, long pedicle length, and possibility of taking skin and muscle with it. We have further refined our techniques by using:

1. **3D printing/ Stereolithography:** 3D printing is used to exactly replicate the excised mandible segment as well as to decipher a distorted (ameloblastoma) or absent mandible segment (as in secondary reconstruction); based on this model the fibula bone can be osteotomised accurately to reconstruct the mandible. (Figure 1 and 2)



Case 3: **3D printed resin model** **Anterior/arch mandible defect** **Resected** **Plate bent along the model** **Mandible osteotomised along the**

3D model of the mandible constructed on which the plate is modelled, along the same model fibula is osteotomised to fit into the anterior mandible defect.



Post operative result showing good aesthetics of the reconstructed mandible

Two months follow up: well replicated shape of the fibula used to reconstruct the mandible, showing excellent restoration of facial aesthetics.

2. **Cutting Guides:** these help to precisely cut the fibula segments at predetermined angles so that the segments align to each other to exactly replicate the mandible shape (Case 4)

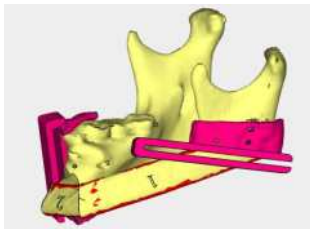
Case 4:

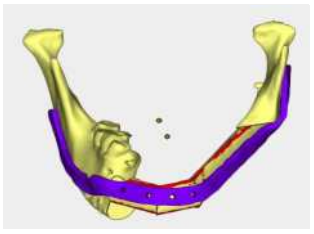
Mandible was reconstructed with non-vascularised bone grafts in the past for a benign pathology of mandible; however, there was implant exposure. Using 3D printing, models of mandible and fibula were created; cutting guides were then made to precisely cut the mandible and fibula segments and in this way the infected segments and hardware were removed and mandible was reconstructed with fibula restoring occlusion and aesthetics.

Sinus with intra-oral exposed

Cutting guides for the fibula for accurately cutting the fibula at the planned osteotomy sites

Fibula construct matches the resin model





3D printed cutting guides for the mandible, 3D printed titanium plate and screws

Post-operative result showing good aesthesis and restoration of occlusion

Conclusion:

The use of computerised planning and 3D printing technology, and a better understanding of perforator anatomy have enabled refinements in head and neck reconstruction today that have greatly improved the facial aesthetics following cancer reconstruction.

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2 General Practitioner, Clinical-Surgical Hospital Carlos J. Finay, Havana, Cuba
3 DOST Svidnik, Private Clinic of Dermatovenereology, Slovak Republic

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