

UDPS

UPDATE IN PLASTIC SURGERY

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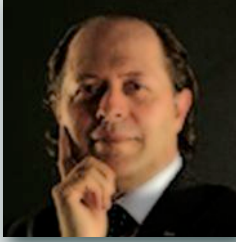


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ASSECE EUROPEAN ASSOCIATION OF AESTHETIC SURGERY





Editorial

Cari Amici,

il 17-18 gennaio 2014 ASSECE organizza un incontro sulla chirurgia plastica estetica che avrà per argomento la riduzione dei tessuti, dalla semplice riduzione estetica alla chirurgia post-bariatrica.

L'evento avrà luogo a Ponte di Legno, una delle più belle località sciistiche poco distanti da Milano e accomunerà l'alto livello scientifico a una vacanza che consentirà di condividere momenti di studio e di divertimento insieme agli sponsor che in tutti questi anni ci hanno aiutato a organizzare Convegni e Congressi.

Sarà anche un modo diverso di comunicazione fra il chirurgo e l'informatore, convinto come sono che alla base di un rapporto di fiducia debba esistere la conoscenza della persona e il riconoscimento delle reciproche professionalità.

Grazie infine allo spirito di indipendenza della nostra società scientifica che non persegue alcun scopo di lucro, siamo anche riusciti ad ottenere particolari convenzioni alberghiere che hanno consentito la realizzazione dell'evento al puro costo di gestione. Invito tutti Voi sin d'ora a partecipare numerosi.

Agli sponsor il nostro più sentito ringraziamento.

Buona lettura.

Ruben Oddenino

Dear Friends,

ASSECE organizes a meeting on aesthetic plastic surgery that will be held on 2014 January 17-18. Topic will be tissues reduction, arguing from simple aesthetic reduction till post bariatric surgery.

The event will take place in Ponte di Legno, one of the most beautiful skiing resorts not far from Milan.

Our goal will be to combine an high scientific level of lectures to leisure time, sharing science and fun along with sponsors that over the years have always helped us to organize conferences and congresses .

It will be a different way to communicate between surgeon and medical whistleblower that allows an enhanced relationship among people who value each other on the basis of their professionalism.

Finally, due to the spirit of independence of our scientific society, that does not pursue any profit, we succeeded in obtaining a special price for conference room and the hotel.

As a matter of fact we have enabled the realization of the event to pure management cost. I invite all of you right now to join the conference!

Have a good time

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ASSECE EUROPEAN ASSOCIATION OF AESTHETIC SURGERY



The historical evolution of facial reconstruction



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Summary

The historical evolution of facial reconstruction

In this article, Authors outline stages in the evolution of facial reconstruction techniques from ancient time to the present.

For this purpose, Authors use several resources: in addition to well known search engines (PubMed, Ovid), they examine rare books and non indexed internet sites.

In the article is clearly noticeable that the dilemma of using of flaps or grafts is present from early reconstruction attempts. This paper will not unveil innovative techniques, but rather illustrate a review of acknowledged surgical techniques.

Key words: Face reconstruction, Nose reconstruction, History of Plastic Surgery.

INTRODUCTION

The necessity of facial reconstruction roots in the earliest times of history, especially because of traumatic wounds.

The blessed Neolithic man behaves similarly to other animals, licking the wound and later on affixing rudimentary dressings on it (moss, leaves...). It became clear that approaching the edges of a wound can promote more uncomplicated healing process, hence emerging rudimentary methods of sutures using animal bones, fish bones or plant fibers.

FACIAL RECONSTRUCTION

The first historical references of face reconstruction belong to the Egyptians. This population had a long history (3000 years) characterized by a consistent medical science. Medicine, sorcery and religious beliefs are strongly interconnected each other. References of the medical science of this population hail from medical papyrus (*Ebers Papyrus* and *Smith Papyrus*), either through Greek travelers' tales and literary reports.

According to *Homer*, Egypt is the land inhabited by skilled doctors, while *Herodotus* explains that there was already a subdivision into medical specialty, although there isn't a real specialist in the field of face reconstruction¹. A major problem in Egypt is represented by eye diseases, given the enormous spread of trachoma. The ophthalmologist is a high considered specialist, with dedicated surgical instrumental sets (Figure 1). However, the importance of face constituents emerges from the representation in the iconography, i.e. a typical representations of ears in some votive inscriptions, preserved as wood made relics placed next to the corpse (Figure 2).

Also dates to the first century A.D. a mummy with a nasal epithesis, stored at the *Hungarian National Museum*. Nose and ears are often amputated as punishment in adulterers or thieves. Traumatic amputations are also frequent, given the recurrent wars. Several remedies are proposed.

Along with spells and dressings made of animal dung or blood, we can find, written on medical papyri, less empirical methods based on the use of pack with honey, raw meat and linen swab replaced daily¹. In particular on *Smith papyrus*, for the cure of an ear wound emerges a certain aesthetic concerns, witnessed in a section which explains the method of suturing and the most suitable dressing (cit. "If the wound is limited to the meat of the inferior ear, place the sutures behind the ear... and also put stiff linen rolls behind the ear. Change the dressing every day with grease, honey and a linen swab"). In ancient India ears and nose amputation was common as a punishment following minor crimes². At this time and in this continent, we find the first mention of surgical reconstruction of the nose.

In 600 B.C. the *Koomas monks family* had been practicing skin grafts for nasal reconstruction, while a member of this family, *Sushruta*, was the first to use flaps harvested from the forehead and from the cheek region, setting the foundations of the "Indian method" of nose reconstruction and describing both rotation and transposition regional flaps. The "Sushruta" name seems to mean "individual who is heard" or "the only one who has learned by listening carefully".

Also at this time in India, we find specific tools for face reconstruction such as those depicted in the images shown by *Sir Bhagvat Singh Jee*^{2,3} (Figure 3).



Figure 1
Ophthalmologic surgical instrumental set.
Ange-Pierre Leca. *La medicina egizia*. Ciba-Geigy Edizioni, 1986.

Figure 2
Egyptian representations of ears in some votive inscriptions.
Ange-Pierre Leca. *La medicina egizia*. Ciba-Geigy Edizioni, 1986.

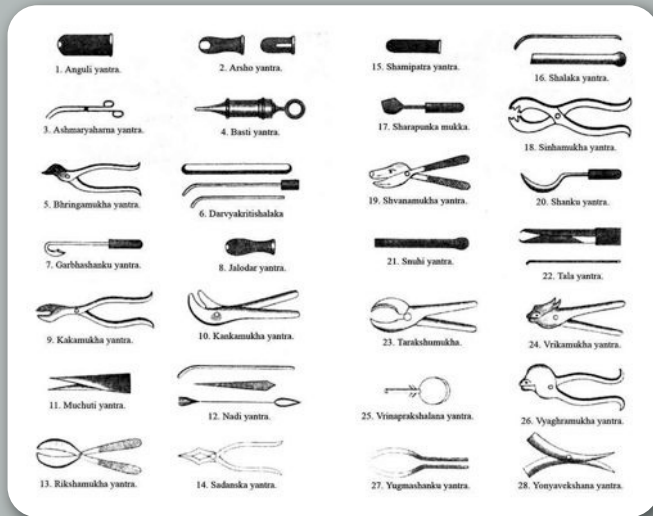
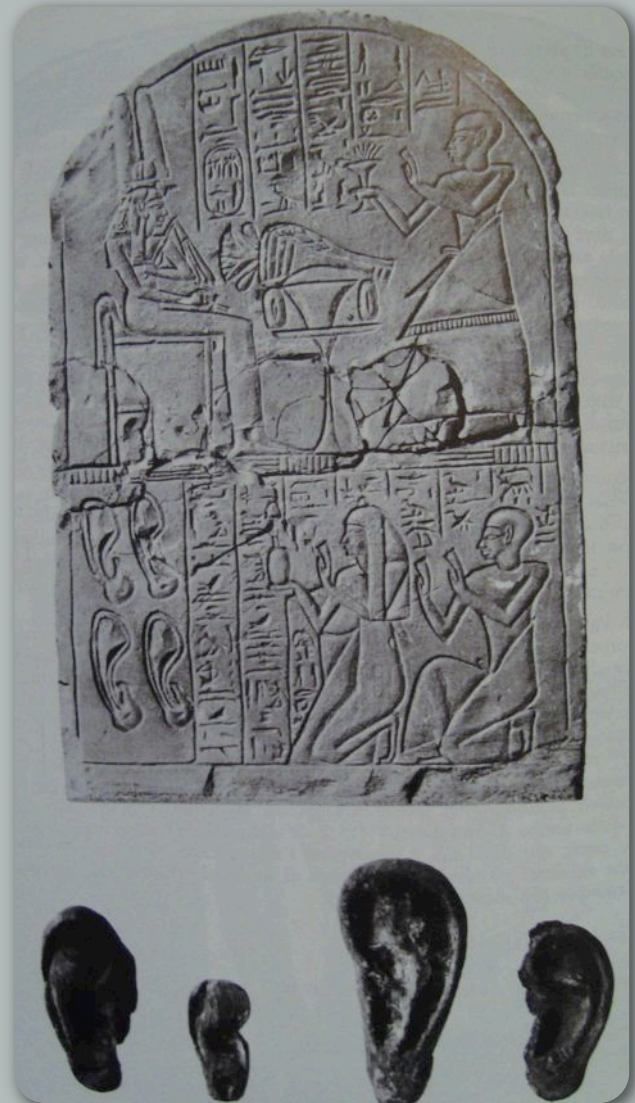


Figure 3
A selection of surgical instruments described by Sushruta.
A Short History of Aryan Medical Science by Sir Bhagvat Sinh Jee. London: Macmillan, 1896. National Library of Medicine.
Treated from Whitaker IS, Karoo RO, Spyrou G, Fenton OM. The birth of plastic surgery: the story of nasal reconstruction from the Edwin Smith Papyrus to the twenty-first century. Plast Reconstr Surg 2007; 120(1):327-36.



Figure 4
The Carmagnola's statue, representing emperor Justinian II, nicknamed *Rhinometus* or "the one with the amputated nose". The statue is preserved in the portico of the San Marco's Basilica in Venice.



Figure 5
 Guido da Vigevano
 dissecting a cadaver.
 Liber Notabilium Philippi
 Septimi.
 Musée Condé, Chatilly.
 Foto Lauros, Giraudon, Alinari.
 Treated from:
 Giuseppe Penso.
 La medicina medioevale.
 Ciba-Geigy Edizioni, 1991.
 Page 93, fig. 22.



Figure 6
 Guy de Chauliac. Bandages.
 Treated from:
 Giuseppe Penso.
 La medicina medioevale.
 Ciba-Geigy Edizioni, 1991.

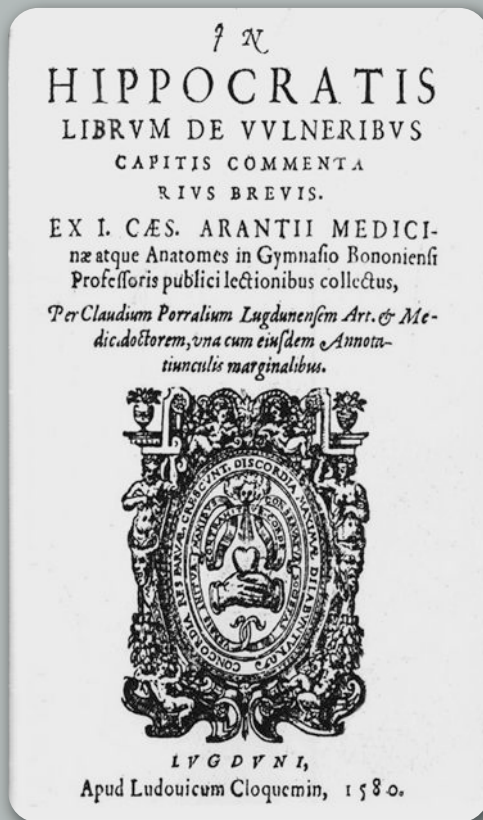


Figure 7
 The title page of
 Arantius's book In
 Hippocratis Librum de
 Vvulneribus Capitis
 Commentarius Brevis.
 Taken from the microform
 available at University of
 Rochester library,
 Rochester, New York.
 From Gurunluoglu, Raffi,
 Gurunluoglu Aslin.
 Giulio Cesare Arantius
 (1530-1589):
 A Surgeon and Anatomist:
 His Role in Nasal
 Reconstruction
 and Influence on
 Gaspare Tagliacozzi.
 Annals of Plastic Surgery.
 60(6):717-722, June 2008.



Figure 8
 Title page of the book "Il tesoro della vita humana",
 where the surgical method of reconstruction of the
 nose used by the Vianeo brothers is described.
 From Santoni-Rugiu P, Mazzola R. Leonardo Fioravanti
 (1517-1588): A Barber-Surgeon Who Influenced the
 Development of Reconstructive Surgery. Plastic &
 Reconstructive Surgery. 99(2):570-575, February 1997.

Hippocrates describes and classifies in the *Mochlicon* book (500 BC) different types of nasal trauma and explains the preparation of poultices made with olives, lentils and figs macerated in wine or vinegar to apply in the traumatized area⁴.

Also he recommends to put inside the nostrils a couple of hollow sticks to maintain the shape of the nose during the healing process, demonstrating a thorough knowledge of the distortions caused by scarring process. Also *Anthyllus*, in 200 BC, recommend nasal

packing made of silk and cotton. In Roman times, medicine is influenced by the Greek world, while Indian knowledges seem more distant. Commercial trades help the spread of these notions. An example is represented by *Aulus Cornelius Celsus* (in *De Medicina Octo*

Libri), which describes a similar method to the Indian flap for nose reconstruction. He also describes flaps for repairing the lower lip, ears and earlobes damaged by heavy earrings². Even in Roman times, the nose had a high social value. It seems that *Emperor Justinian II*, following the traumatic amputation of his nose during a battle (from that episode he was nicknamed *Rhynometus*), had to resign the throne for several years, and he came back to the throne only after the reconstruction of the amputated organ. This belief seems confirmed by the presence of a *Carmagnola's* statue, preserved in the portico of the San Marco's Basilica in Venice, which represent the emperor with obvious signs of a nasal reconstruction with a Indian flap (Figure 4).

Paulua Aegineta (625-696 AD) has highlighted the importance of reshaping the traumatized nose already in emergency setting, to prevent nasal bones healing in an incorrect positions⁵.

As the Roman Empire fall (5th century AD), European medicine decline in a dark era.

Meanwhile, India is poured with several Islamic ethnic group and knowledge spread in the Arabic world, while in Europe the knowledge accumulated over the past years are gradually lost. Witches, wizards and therapists spread all over Europe. Medical science are now in the hands of selected families and of the clergy. Anatomical knowledge are progressively lost. Anatomical dissections are prohibited and a papal bull of *Pope Innocent III*, in the XIII century AD prohibits any kind of surgery. In 1248, the *Le Mans's Council* prohibits monks to practice surgery and *Pope Boniface VII* prohibits crusaders to bring home the bones of the dead in a foreign land. Barber, pharmacists, midwives becomes the holders of the surgery, without any anatomy or physiology knowledge. In Italy, however, different families of empirical surgeons (such as *Norcini*, the *Precini* and the *Branca's family*) perpetuate knowledge within the family. Moreover with the establishment of universities, some Italian university stand out for scientific and innovative proficiency: the *University of Salerno* and the *University of Bologna*⁴. In the latter, *Mondino de Luzzi (1300)* becomes teacher in public anatomy lectures and begins first anatomical dissections. In the same university *Guido da Vigevano* experiences autopsy techniques for extracting a brain from the skull (Figure 5).

The trauma burden is a major activity in the Middle Ages (Figure 6), with iconographies came to present like those of *Guy de Chauliac*. Bandages are used to reduce dislocations and to protect wounds. A large pro-

duction of surgical instruments took place during Middle Ages and every surgeon was forging instruments according to his need⁴ such as scalpels, pincers to extract arrows, saws and cauterization tools.

Surgeons speaks of medieval suture material calling them "saeta" or "seton". The term saeta means hair or horsehair. On the other hand, in Sicily during the middle of 1100, starts the production of silk after the introduction of the silkworm by *King Roger II*.

The needles used are taper cut, as reported by *Guy de Chauliac*, and types of suture techniques described vary from the "incarnativa" used for the skin, the "restrictiva" used to suture leaking blood vessels.

The invention of the surgical knot is attributed to *Lanfranco from Milan (? -1315)*.

During the late Middle Ages and the Renaissance, a gradual revival of European medicine and surgery take place, especially in Italy. *Branca's family* of Sicily, principally in the figure of *Antonio*, is the trustee of the Italian technique of nose reconstruction, lips and ears through a brachial flap, while his father *Gustavo* is one of the foremost experts in rhinoplasty. The method is jealously guarded by the family and transmitted only to a few selected students, including *Vianeo Tropea*.

In the course of late 1500 in Germany another surgeon engages himself in the art of nasal reconstruction. *Pfalzpaint*, a Bavarian surgeon, describes a technique in two stages for the reconstruction of the mutilated nose based on a brachial flap transferred on the defect (*Wund-Arznei*). His book is transcribed in 1868 from the drawings and notes, few copies are left and it is almost never mentioned in literature². *Arantius Julius Caesar (1530-1589)* was the first to describe the levator palpebrae muscle, and he became one of the *Tagliacozzi's* masters (Figure 7)⁶.

Leonardo Fioravanti (1517-1588) from Bologna too, is the first to succeed in penetrating into the *Branca's family* and learn their secrets, acting as an ignorant tourist.

Then he will describe the technique of nasal reconstruction in his book "*Il Tesoro della vita Humana*" (*The Treasure of Human Life*) (Figure 8).

His genius is expressed in various surgery fields, being the first surgeon to perform a splenectomy. He was worried about the hygiene in the operating room too, prompting his colleagues to urinate in the abdomen of the patient or on the amputated parts, because at that time the urine was more clean than the water⁷.

The most famous pupil of *Fioravanti* is unquestionably *Gaspere Tagliacozzi (De cur-*

torum chirurgia per institionem), seen by many as the father of facial surgery. His method of nasal reconstruction by transposition of a brachial tubular flaps is well known and its depiction is also the *Italian Society of Plastic Surgery* symbol (Figure 9).

We shall also consider that during 1500 there were no antibiotics and hygiene was often uncertain: patients undergoing surgery for complex reconstructions, often died after developing incurable infections.

When *Tagliacozzi* died, the clergy puts in place an ostracism attempt against him, excommunicated the doctor and buried his body in unconsecrated ground. After him there was an arrest of nearly two centuries in the field of facial reconstruction and generally in all surgical field. The culture in Europe couldn't spread easily, because of lack of communication, the lack of textbooks and the opposition of the clergy. For this reason many surgeons engaged in a field without knowing the reconstructive efforts of their predecessors.

During the Renaissance, face reconstruction attempt begin again. In this century, the dispute on using grafts or flaps to fill the loss of substance still exist. In 1816 *Joseph Carpue* publishes two cases report of nasal reconstruction with a frontal flap (an account of two successful operation for restoring a lost nose from the integuments of the forehead)^{2,9}.

In 1818 *Carl von Grefe*, a German surgeon, describes in his book (*Rhinoplastik*) the use of skin grafts for nasal reconstruction.

In America, the first nasal reconstruction is carried out by *Warren* in 1830⁹. In this century the frontal flap is used widely both in Italy and in Germany. Among others authors, *Dieffenbach* introduces the concept of refinement surgery in nose reconstruction to improve the aesthetic results (*1845, Operative Surgery*)¹⁰.

In addition, during Renaissance it is finally given importance to the lip reconstruction, which has received less attention over the centuries than the nose reconstruction.

It is still an Italian, *Piero Sabattini (1810-1964)* to suggest the first myocutaneous flap for lip reconstruction. At the same time, a Danish, *Sophus August Vilhelm Stein (1797-1868)*, uses two full-thickness triangular flap from the upper lip to reconstruct a defect of the lower lip (Figure 10)⁵.

The best known *Eastlander (1831-1881)* and *Abbé (1852-1928)* advocate solutions for the reconstruction of full thickness defect. None of these Authors is aware of the reconstructive efforts of its predecessors, because of poor scientific communications.

Even during Renaissance the works of two

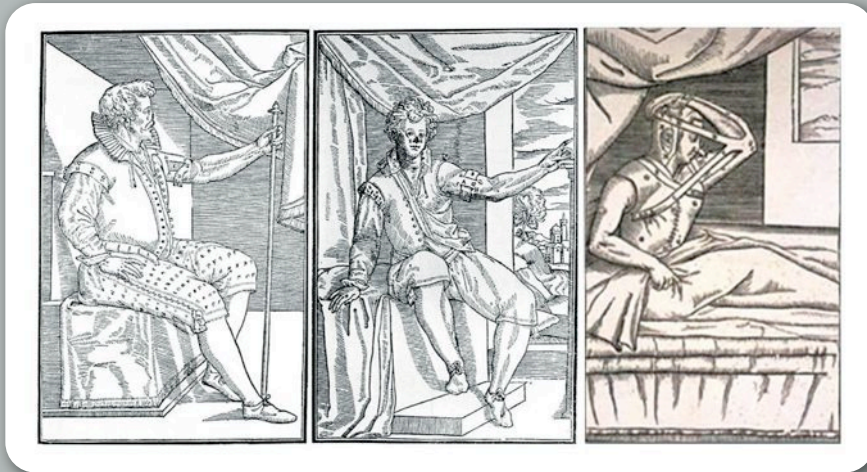


Figure 9
Gaspere
Tagliacozzi:
representation
of nasal
reconstruction.

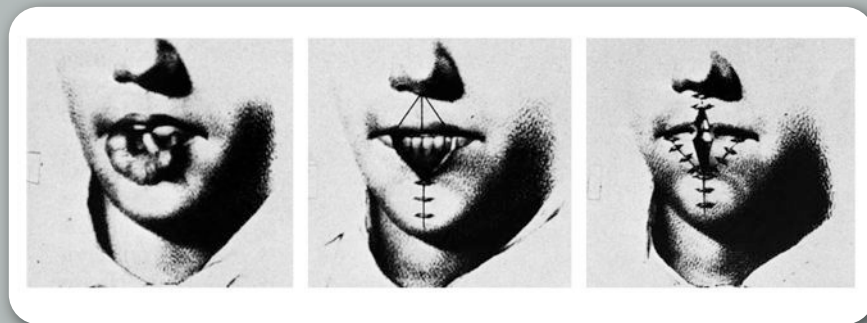


Figure 10
Stein's work for lip reconstruction.

From "Santoni-Rugiu P, Sykes PJ. Who was the first? Misconceptions and precedents in lip reconstruction. *Ann Plast Surg* 2009; 63(3):236-9".



Figure 11
Baronio's sheep.
The Author used this animal to perform
experiments on graft's survival.

Figure 12
An open approach is used to recruit skin to cover a defect of the tip.
The hump removal allows a longer and more mobile flap.

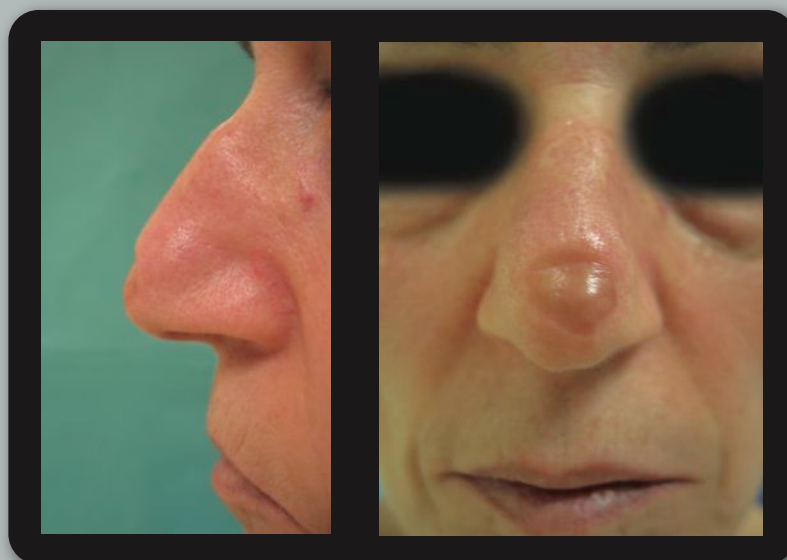


Figure 12.
Pre-operative view.

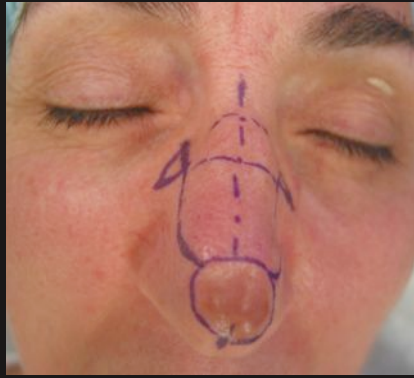


Figure 12.
Particular of the technique.
A,B,C: Intraoperative view.

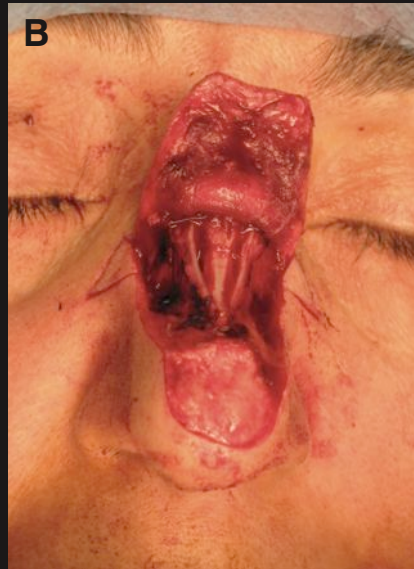
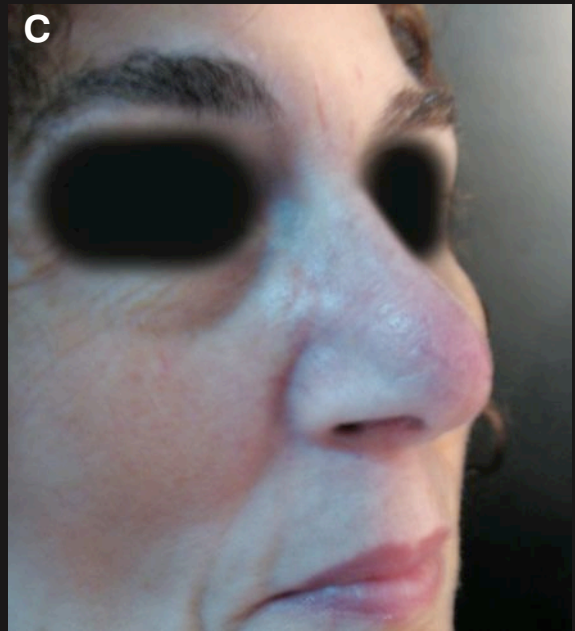


Figure 13.
B, C: post-operative view.



great Authors deserve a mention: an Italian, *Giuseppe Baronius (1759-1811)*, who performed studies about the pathophysiology of skin grafts on the sheep (Figure 11), and *Karl Langer (1819 -1887)*, an Austrian anatomist, who found the existence of relaxed skin tension lines and their importance in the evolution of scars. The image of *Baronio's* sheep is the symbol of the *Plastic Surgery Society* in Lombardia (Italy).

In 1800's all the medicine makes great steps. In this century, *Pasteur (1822-1895)* introduces the concept of infection as a unique entity, *Ignaz Philipp Semmelweiss (1818-1865)* understood the importance of hands washing in obstetrics, drastically reducing the number of peripartum sepsis in his department, and finally *Joseph Lister (1827-1912)* proposes carbolic acid, which quickly became the most widely used disinfectant. The cell is identified as a structural fundamental unit of living beings (1838: *Matthias Jakob Schleiden* and *Theodor Schwann: cell theory*). Tumors are beginning to be understood as *Percival Pott* establishes a link between work and disease related to it (cancer of the chimney sweep).

During 1900's two main concepts revolution-

ized the face reconstruction field: the aesthetic unity concept and the advent of microsurgery. Many Authors have found some problems in previous reconstructions, mainly due to distortion of the wound edges and bad choices in positioning skin incision and hence scarring. Some surgeons, alongside their normal work, begin to focus specifically on aesthetic surgery.

Jon Roe in 1891 published his treatise on rhinoplasty¹¹, while in 1892 *Robert Weir* proposes his method for correction of saddle nose¹².

Elaborate reconstructions begin to be considered, with composite grafts, such as *Joseph's* bone grafts of^{13, 14}, *Gillies's* condro-cutaneous grafts¹⁵ and *Converse's* septal-mucopericondral grafts (1956). Although *Joseph*, thanks to the wide descriptions of each nasal deformities, is widely regarded as the father of modern rhinoplasty¹⁶, the work of *Millard* and *Burgett* lead nasal reconstruction to the state of the art^{17, 18}, introducing the concept of aesthetic nasal reconstruction and the principle of aesthetic subunits.

A further curiosity that can be introduced in this area, which currently isn't cited in the literature, is the technique used in our service

to recruit skin exploiting the presence of a dorsal hump. An open rhinoplasty can be combined with the excision of the tumor in order to reconstruct the defect (Figure 12-13 A, B, C).

A big leap in face reconstruction field is given by the advent of microsurgery. With this technique, it is possible to perform wide post-traumatic reconstruction or complex dynamics reanimation in facial palsy.

Several reviews are available on the subject: worth mentioning the first re-implantation of the nose from *Hammond*¹⁹.

With the advent of this technique and super specialized team, efforts were channeled in the first total face transplant made at Amiens, France and coordinated by *Devauchelle-Dubernard*²⁰.

Finally in the modern face reconstruction field, attention must be addressed in ancillary techniques, such as fat transplantation which can correct minor imperfections after surgery, and treatment of complex facial syndromes (i.e. facial asymmetry in *Romberg's* syndrome).

(Refs or photos). Near to fat transplantation, we can't forget the use of hyaluronic acid, which does not require surgical maneuver and therefore patient hospitalization.

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Incisionless approach for correction of protruded antihelix; a simple novel applicable technique



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Incisionless approach for correction of protruded antihelix; a simple novel applicable technique

OBJECTIVE: The authors present their experience about correction of protruded antihelix with incisionless otoplasty.

PATIENTS AND METHODS: Seventeen patients were presented, which had their protruded antihelix. They were corrected with incisionless otoplasty from July 2010 to December 2011. There were 12 males and 5 females with an average age of 15 years. Thirteen patients had bilateral and 4 had unilateral.

RESULTS: All patients were satisfied regarding their final esthetic appearance. Surgical redo was done in 2 patients on one side.

CONCLUSION: our experience of incisionless otoplasty for correction of protruded antihelix is a simple applicable technique with minimal complications.

Key words: Otoplasty, Incisionless otoplasty.

INTRODUCTION

Prominent ear is the most common congenital deformity of external ear¹. It has a normal chondro-cutaneous component with an abnormal architecture that can mold digitally to a normal shape. Otoplasty is the correction of aesthetic features of the external ear. Its goal is to create bilaterally symmetric ears that protrude 17-21 mm from the temporal scalp and that have a normal appearance of intrinsic anatomy. Principally, the surgical procedures should be uncomplicated, reliable and adjustable².

Dieffenbach was the first to describe an operation for correction of the prominent ears³. Otoplasty has been divided in the past into cartilage cutting, scoring techniques or into molding techniques⁴⁻⁸. These different techniques involve wide incisions and undermining of the skin and subcutaneous tissues that create a dead space with possible complications such as hematoma, abscess formation, perichondritis and scar formation⁹.

The molding techniques involves the placement of permanent stitches to mold the cartilage of the ear into the desired shape and set back the ear against the skull. The incisionless otoplasty uses this principle but instead of making an incision and may be excising skin behind the ear, the stitches are placed through the skin and buried along the way¹⁰. In this series, we focus on our novel experience of incisionless otoplasty for correction of protruded antihelix as a simple technique with minimal complications.

PATIENTS AND METHODS

From July 2010 to December 2011, the incisionless otoplasty was used in 17 patients for correction of protruded antihelix. All patients included 12 males and 5

females with an average age of 15 years (range 8-32 years) at the time of surgery. Thirteen patients had bilateral and 4 had unilateral deformity.

All patients were underwent routine pre-operative assessment including history, examination and investigation. Photos were taken in antero-posterior and postero-anterior views.

Surgical Procedure

1. The procedure was done completely under local anesthesia augmented by vasoconstrictive agent (adrenaline, 1:200,000) except in 3 children cases was done under general anesthesia.
2. Marking the desired anterior auricular anti-helical fold to guide us during intra-operative suturing point (Figure 1).
3. Percutaneous scoring of the anterior cartilage surface and creation of full-thickness tunnels through the cartilage using a 20-gauge needle (Figure 2).
4. A percutaneous retention suture (3/0 prolene with cutting needle) was used to enter and exit the skin for a short distance; from the posterior surface close to the posterior sulcus; also to penetrate the whole cartilage under intact anterior skin surface (Figure 3).
5. The same suture loop needle was used to travel through the original 2nd short limb exit point percutaneously and over the posterior surface of cartilage for long distance (Figure 4).
6. The suture loop was brought through the same needle via the original exit point of the previous long posterior suture, pene-



Figure 1
Marking the desired anterior auricular anti-helical fold.



Figure 2
Percutaneous scoring of the cartilage and creation of full-thickness tunnels.



Figure 3
First short limb, the needle completely penetrates the cartilage.



Figure 3



Figure 4
First long limb, the needle not penetrates the cartilage.



Figure 4



Figure 5
Second short limb, the needle completely penetrates the cartilage.



Figure 5



Figure 6
Second long limb, the needle not penetrates the cartilage and exits via original entry.



Figure 6



Case 4
Anterior and posterior pre and post-operative views (Adult patient).



Case 7
Anterior and posterior pre and post-operative views (Child patient).

Case 3
Final configuration of antihelix.



trated the cartilage and burrowed subcutaneously under the skin of the anterior surface (Figure 5).

7. The suture loop was brought with the same needle again via the original exit point of the previous short anterior suture, transferred subcutaneously on the posterior surface of cartilage for long distance and lately brought it via the original entry point of the suture loop (Figure 6).
8. A completed suture loop contains 2 short limbs on the anterior cartilage surface and 2 long limbs on the posterior cartilage surface.
9. The two limbs of the suture loop were under traction (inlet and exit) before tying them together to allow its slipping down to the cartilage without skin tethering or dimpling.
10. Lastly, we have used fluffy gauze and crepe bandage as post-operative dressing.

RESULTS

This study involved 17 patients underwent incisionless otoplasty for protruded antihelical correction. All patients were satisfied regarding their final appearance during the follow-up period (mean 3.9 months; range 3 to 6 months). No asymmetry was reported. The procedure took 20 to 30 minutes on both sides. None of the patients reported hematoma, development of infection or tissue necrosis. Most of patients developed mild swelling and 4 patients showed ecchymosis. Surgical redo was done in 2 patients on one side.

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DISCUSSION

Protruding ears can cause practical problems as well as aesthetic ones. For example, the shape or position of the ears can make wearing eyeglasses difficult. Unattractive ears are often a bigger problem for men than for women because women can style their hair to make their ears less visible¹¹. Although many open surgical otoplasty techniques are prevalent in the literature, it is rarely focusing on the incisionless otoplasty technique for correction of the prominent ears. The incisionless otoplasty techniques evolved as a desire to achieve excellent cosmetic effects with a limitation of complications. It completely removed the need for incisions and wide tissue undermining⁹. The first description of incisionless otoplasty to repair the prominent ears is credited to *Fritsch* in 1995¹². Marking the skin to demarcate the short limbs is very important to allow easily define of the suture sites and to precise the place of the needle from the posterior surface. Furthermore, it is useful for symmetrical planning the suture loops.

Philip Young, 2012 reported that incisionless otoplasty technique is attractive but offers less reliable long term results because it is totally dependent on the sutures. On the other hand, the open technique allows the skin to take on the new form and scar tissue helps to make the changes more prominent¹³.

We adopted the percutaneous scoring of the anterior cartilage surface and the creation of full-thickness tunnels through the cartilage that described by *Fritsch*⁹. As it leads to releasing the cartilage spring and becoming flaccid and resulting in the neo-antihelical fold can be retained in the desired aesthetic position with-

out tension on the sutures. In addition, both cartilage scoring and tunneling will heal with scar tissue that strengthening the repair.

The use of suturing in two ears placed in very similar positions to achieve the best result while the asymmetric application of was needed rarely. The ideal auricular measurement for the upper rim is 10-12 mm and for the mid-auricular rim at the top of the ear canal is usually 16-18 mm¹⁴.

Exit and entry of the needle should be into the same hole to prevent epithelial inclusion cyst¹⁰. Also, it should be at a right angle to the skin surface to prevent skin dimpling and allow the final suture knot to settle on the cartilage⁹.

After tightening the sutures, a single hook was used into the skin adjacent to the knot to pull the skin that leads to the inelastic suture with knot submerge below the skin⁹.

Redo was done in 2 patients; one of them showed disrupted the upper suture on the left side after 3 weeks. While the other one showed mild protrusion of both ears due to pulling on the ear 1 month after correction. Both cases were re-sutured again under local anesthesia within 7 minutes in the 1st case and 30 minutes in the 2nd case.

The advantages of this procedure; reduce operative time, no need completely for incision or wide tissue undermining, no surgical wound without possibility of scar formation, applicable under local anesthesia, less need for follow up, feasible and easy learning.

In conclusion, incisionless otoplasty is recommended for correction of the protruded antihelices if the ear is sufficiently malleable. So, it is ideal for children or for adults that have soft cartilage and flat antihelix. It is a feasible way with an excellent satisfaction of patients and minimal complications.

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Breast asymmetry: Is it a difficult task?

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Summary

Breast asymmetry: Is it a difficult task?

BACKGROUND: Breasts are an integral part of feminine beauty and breast symmetry is a key to beautiful form. Severe breast asymmetry can be psychologically disturbing, especially for teenagers. Correction of breast asymmetry may present a challenge for plastic surgeons.

PATIENTS AND METHODS: 72 cases of breast asymmetry complaining of varying degree and etiology of breast asymmetry, treated between December 2009 and December 2012. Their age ranged from 18 to 65 years, with the mean age was 34 years. Every patient conducted doctor interview for good psychological analysis.

Preoperative clinical assessment of the specific anatomical deformity, a good surgical plan, subsequent surgical treatment modalities, esthetic outcome, and patient's satisfaction were evaluated. Surgical modalities used in this series included augmentation mammoplasty, reduction mammoplasty, mastopexy, T.R.A.M flap, multiple z plasties, Thoracodorsal flap, and nipple and areola reconstruction. All patients were done under general anesthesia.

RESULT: 25% patients (18/72) had breast asymmetry after mastectomy, 20.8 % patients (15/72) had virginal hypertrophy asymmetry, 16.7 % patients (12/72) presented by breast asymmetry after burn, 12.5% patients (9/72) presented by bilateral developmental hypoplasia with small-volume asymmetry, 12.5% patients (9/72) had Poland's syndrome, 8.3% patients (6/72) had a iatrogenic breast asymmetry following breast surgery and 4.2% patients (3/72) presented by breast asymmetry following hemitrunk atrophy. 9 of 72 patients were found to have a minor complication, whereas 2 of 72 were found to have a major complication.

CONCLUSION: The common cause of breast asymmetry that ultimately undergo surgery in Upper Egypt was post mastectomy and the least type was breast asymmetry following hemitrunk atrophy. Patients' satisfaction were 83.3%, while 73% was the physician' satisfaction. The keys to successful treatment are to define the nature of the asymmetry, respect the aesthetic goals of the patient, and perform a well thought out surgical plan.

Key words: Breast asymmetry, patients' and physicians' satisfaction, Poland's syndrome, augmentation mammoplasty.

INTRODUCTION

The female breast is an important symbol of femininity. Socio-cultural influences motivate individuals to seek surgical intervention for breast asymmetry^{1,2}. Breast asymmetry is defined as a difference in contour, position and/or volume of the breast³⁻⁵. It may be primary or secondary to thoracic deformity⁶⁻⁸. Breast asymmetry represents one of the most difficult challenges in the field of cosmetic breast surgery, and it is present in over two-thirds of females⁹⁻¹³. Minimal degree of breast asymmetry is very frequent, while marked degree of difference between the breasts that leads to surgical correction is rare^{14,15}. Most women 50-88%, depending on the studies, have some degree of unnoticeable asymmetry. The etiology of mild breast asymmetries is unknown, and they are called 'idiopathic breast asymmetry'^{9,16}. The left breast is usually wider and more ptotic than the right breast, although there is no difference in the areola or nipple¹¹. Several Authors have proposed various surgical procedures for the management of breast asymmetry, even by using a different technique on each breast^{9,17-21}.

There is no definitive solution has yet been found, particularly in cases in which there is an associated skeletal deformities in which it is difficult to achieve a satisfactory results, although a wide range of classifications and related surgical strategies are available^{10, 20-22}.

THE AIMS OF THIS STUDY ARE:

1. To analyze the clinical patterns of breast asymmetry,
2. To determine the common causes of breast asymmetry in Upper Egypt,
3. To compare degree of patients' and physicians' satisfaction after surgical correction.

PATIENTS AND METHODS

Inclusion criteria:

1. The age of patients was from 18 years to 65years old
2. Patients came from December 2009 to December 2012.

Exclusion criteria:

1. Patients under 18 years, or over 65 years old,
2. Cancer breast with visceral or skeletal metastasis,
3. Patients with any thrombo-embolic disorders,
4. Immune compromised patients as autoimmune disease,
5. Patients who were unable to complete the second stage due to a complication.

72 patients presented to the plastic surgery department, Assiut university hospital by breast asymmetry of different etiologies (Figure 1) in a period from December 2009 to December 2012.

Their age ranged from 18years to 65 years; with the mean age was 34 years.

All patients were properly assessed through a history taking, include history of trauma or change in bra size and also proper psychological assessment to exclude depression or aberrant behavior.

Physical examination include the following:

1. Examine the entire thorax for signs of chest hypoplasia, skeletal deformities or muscular abnormalities,
2. Measure and record the distance from sternal notch to nipple and the base width of each breast,
3. Determine if there is a discrepancy of inframammary fold levels.

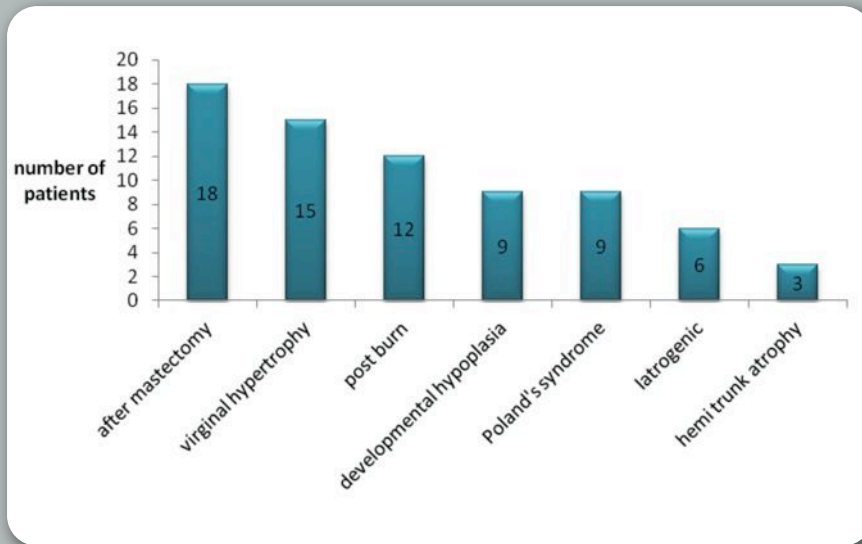


Figure 1
Different etiologies of breast asymmetry.

The postoperative parameters, size, shape, symmetry, nipple areola complex (NAC), and overall, were assessed.

A plastic surgeon evaluator assessed the patient's esthetic outcome. The operating surgeons were excluded from performing the postoperative evaluation.

Satisfaction questionnaires were completed by patients in the outpatient setting. Operative procedures were performed by the same surgeon.

Several types of surgical modalities were performed, augmentation with subglandular or sub-pectoral implants according to measurement, reconstruction by TRAM followed by augmentation with implants, reduction mammoplasty and mastopexy. In selected cases nipple areolar complex reconstruction was performed by quadrapod flap and skin graft. Glanduloplasty was performed by Wise pattern skin incision.

All the patients were informed about the indications for surgical correction and possible complications. In augmentation mammoplasty, a textured, round, cohesive, and high profile silicone implant with different volume according to every case presentation were used, the size of breast implant ranged from 250cc. to 400cc.

All the surgical procedures were performed under general anesthesia.

Patients received broad spectrum bactericidal antibiotics for 7 days.

The results were evaluated by a physician based on a subjective impression by comparing preoperative and postoperative pictures and by patients' satisfaction. The follow up period was from 3 months to 24 months.

RESULTS

The results were evaluated according to these parameters:

1. Quality of coverage,
2. Aesthetic appearance (physicians' satisfaction),
3. Minor complications (seroma, hematoma, infection),
4. Major complications (implant extrusion, capsular contracture, or flap loss),
5. Patients satisfaction.

18 patients (25%) presented by breast asymmetry after mastectomy, pedicle Transverse rectus abdominis musculocutaneous flap (TRAM) was performed to cover the defect, 6 months later, quadrapod flap and skin graft were performed to reconstruct nipple and areola respectively. Virginal hypertrophy breast asymmetry was present in 15 patients (20.8%), hyperplastic breasts were corrected with Wise pattern inferior pedicle reduction mammoplasty.

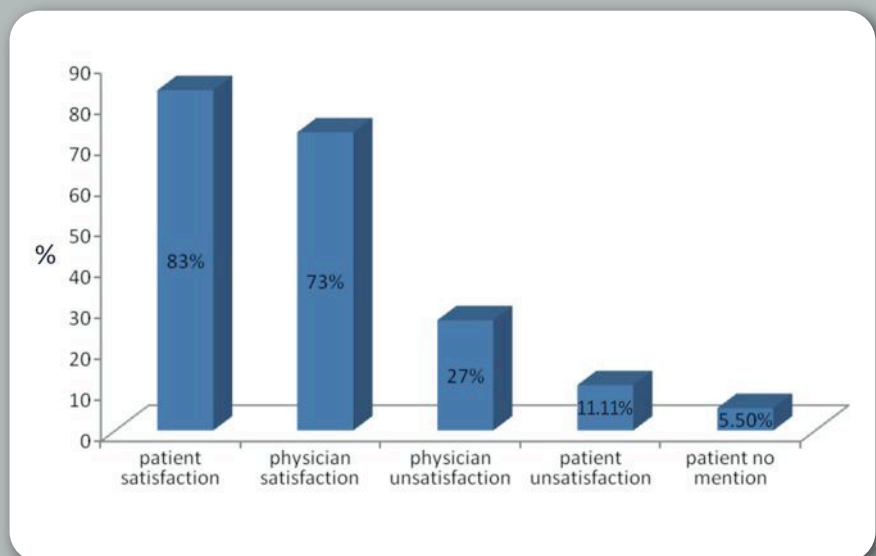
Thoracodorsal artery flap, multiple Z plasties, and inframmary fold release and skin graft were performed in 12 patients (16.7%) presented by post burn breast asymmetry.

9 patients (12.5%) of breast asymmetry were found in this series due to bilateral developmental hypoplasia, augmentation mammoplasty with subglandular or sub-pectoral implants according to measurement was performed.

9 patient (12.5%) complained from mild form of Poland's syndrome, augmentation with implant in the affected side and breast mastopexy in the other breast if needed were performed. Iatrogenic asymmetry as a result of previous surgical interventions, following drainage of prepubertal abscess or removal of large benign cyst, was present in 6 patients (8.3%), augmentation with a proper implant was performed. 3 patients (4.2%) presented by breast asymmetry following hemi-trunk atrophy, augmentation with different sizes of implants were performed.

9 of 72 patients were found to have a minor complication, whereas 2 of 72 were found to have a major complication.

Figure 2
Incidence of patients and physicians satisfaction.



The minor complications were 3 cases of necrosis in distal part of pedicle TRAM flap, debridement and secondary suture were performed with an acceptable result, 2 cases of cellulites that were treated with oral antibiotics and quickly resolved.

Venous congestion occurred in distal 2 cm in one of thoracodorsal flaps, debridement and secondary closure was performed with a good result. seroma occurred in two cases which responded to the anti-inflammatory drugs.

None of the above complications had a negative effect on the achievement of breast symmetry. One major complication resulted in removal of the tissue expander after 5 weeks due to an implant infection.

The second major complication involved a case of total TRAM loss, which necessitated another surgery to achieve symmetry.

There were no other major late complications during the follow-up period.

5 of 72 patients had no follow-up after completion of her surgery, 60 of 72 were subjectively documented as pleased with the result, 4 records made no mention of patient satisfaction, and 8 patients had concerns regarding her results, resulting in a patient satisfaction rate of 83.3% (60 of 72 patients), whereas objective physician satisfaction rate was 73% (53 of 72) (Figure 2).

DISCUSSION

This study examined 72 patients undergoing surgery for different pathologies of breast asymmetry, congenital, developmental or acquired, and dwelling into the outcomes of different options, augmentation, mastopexy, reconstruction, or reduction mammoplasty in the management of each type.

It also has been able to bring to lime light the most and the least common type breast asymmetry in Upper Egypt.

Breast asymmetry present in over 80% of the female population^{21, 23} but the number of cases that actually undergo surgery is relatively low, this is may be due to these minor forms of breast asymmetry are extremely difficult to correct and the final aesthetic outcome is not always satisfactory, another reason may be this problem is of minor psychological concern to the majority of women¹⁹. Some breast asymmetry is also associated with specific but rare pathologies such as Poland's syndrome or tuberous breast^{9,16}. Although some degree of breast asymmetry is almost universal, developmental breast asym-

metry has a significant psychosocial effect. Breast shape, volume, size, location and shape of the nipple areola complex affect overall breast esthetics.

Correction of breast asymmetries may present an esthetic challenge for the plastic surgeons. This is reflected in the techniques described in the literature for treatment of these deformities²⁴⁻²⁸.

Congenital anomalies of the breast vary from nipple abnormalities to polymastia, amastia or in association of chest wall deformities such as Poland's syndrome¹⁴.

Young women with severe breast asymmetry often suffer from social anxiety, depression, peer rejection, psychosexual dysfunction, and low self-esteem.

They are less likely to date or participate in school activities, and psychosocial development can be significantly retarded²⁹.

The variations in the clinical presentation of the breast asymmetry account for the different options in approach and technique, as reduction mammoplasty, mastopexy, augmentation, reconstruction, or in combination for management.

A good knowledge of breast development and anatomy is required for optimization of results and avoidance of complications during management of breast asymmetry.

Volume-asymmetry correction was achieved in some patients by means of implant in the affected side only and in other patients by implant in affected side and modification in other breast by reduction mammoplasty, mastopexy or augmentation.

In younger patients with breast asymmetry, treatment in the form of surgical correction has been deferred secondary to concerns regarding the disruption of breast development and the possibility of an unfavorable final cosmetic appearance, concerns regarding weight changes during adolescence³⁰.

Others would treat patients in their teens³¹.

In this study we deferred any surgical correction of breast asymmetry to 18 years.

The rate of partial loss in TRAM flap ranged from 5 % to 30%,³ in this study, 16.6% had a partial TRAM loss and 5.5% had total TRAM loss.

The complication rates in this study were noted to be 15%.

Differences of contour, shape, position or volume of the breast are the most important factors which influence cosmeses and patient satisfaction after breast surgery^{20, 22}.

So the different surgical modalities used to treat the various group of breast asymmetry were assessed by aesthetic outcome and patient satisfaction.

The patients' and physicians' judgments yielded most patients had satisfaction as regards the aesthetic outcomes.

83.3% of patients were subjectively happy with their results, 4 patients' records made no mention of patient satisfaction, and 8 patients had concerns regarding her results, when satisfaction was assessed.

All mentions of patient satisfaction in the clinical record are subjective, as no objective measures were employed and 73% of patients had a good result, when satisfaction was assessed by the physicians. Independent of the type of breast asymmetry, the key to a successful outcome lies in;

1. A good preoperative assessment, involving a thorough history taking, and physical examination of the breast,
2. A good surgical plan, based on the preoperative assessment, as well as the aesthetic goals of the patients,
3. The meticulous implementation of the surgical plan.

CONCLUSION

Correction of breast asymmetry represents one of the most difficult challenges in the field of cosmetic breast surgery.

The best options for management of the cases were carefully chosen, based on the case presentation, and the surgeon's experience, thus optimizing the good outcome, and minimizing or avoiding the complications.

The common causes of breast asymmetry that ultimately undergo surgery in Upper Egypt were post mastectomy, representing 25%, followed by virginal hypertrophy asymmetry representing 20.8%, 16.7 % presented by breast asymmetry after burn and the least type was breast asymmetry following hemi-trunk atrophy representing 4.2%.

The incidence of patients' satisfaction after surgical correction of breast asymmetry was 83.3%, while 73% was the incidence of physician' satisfaction.



Figure 3

a - A preoperative frontal view of a 23 years old patient with Poland's syndrome of the left breast.

b - 6 months postoperative frontal view; 400cc implant in the left breast, and mastopexy for the right breast.

c - A preoperative oblique view of a 23 years old patient with Poland's syndrome of the left breast.

d - 6 months postoperative oblique view; 400cc implant in the left breast, and mastopexy for the right breast.

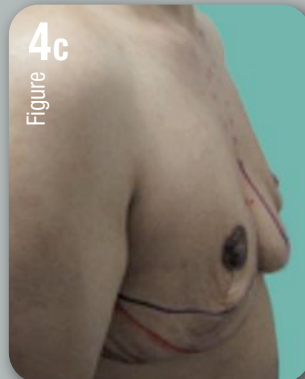
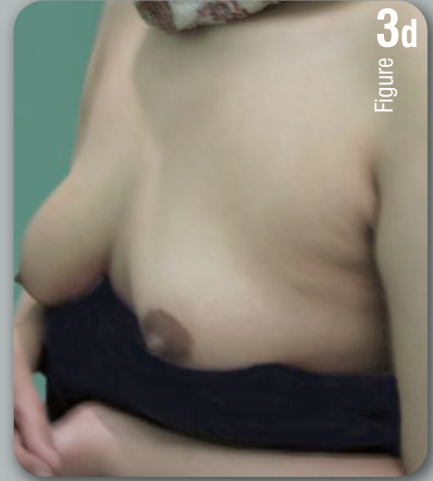
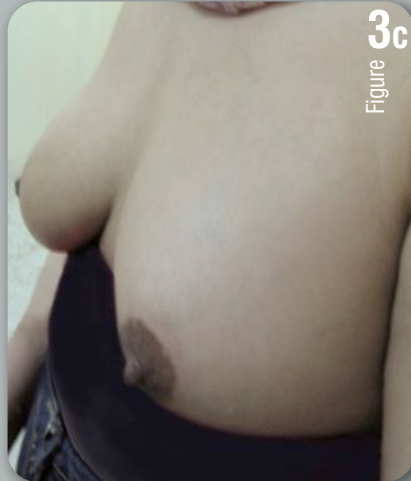


Figure 4

a - A preoperative frontal view of a 30 years old patient, with iatrogenic breast asymmetry,

b - 6 months postoperative frontal view; bilateral 350cc implant and mastopexy,

c - A preoperative right oblique view,

d - 6 months postoperative right oblique view,

e - A preoperative left oblique view,

f - 6 months postoperative left oblique view.





Figure 5a



Figure 5c

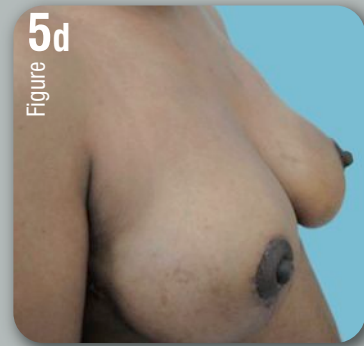


Figure 5d



Figure 5b



Figure 5e



Figure 5f

Figure 5

- a - A preoperative frontal view of a 35 years old patient with bilateral virginal hypertrophy and breast asymmetry.
- b - 6 months postoperative frontal view, of bilateral reduction mammoplasty, using inferior pedicle.

c - A preoperative right oblique view.

d - 6 months postoperative right oblique view.

e - A preoperative left lateral view.

f - 6 months postoperative left lateral view.



Figure 6a



Figure 6b

Figure 6

- a - A preoperative frontal view of an 18 years old patient with post burn right breast deformity and a severe breast asymmetry.
- b - Immediate postoperative frontal view, showing release of IMF, split thickness skin graft, NAC reconstruction, on the right breast, and mastopexy on the left breast.



Figure 7a



Figure 7b



Figure 7c

Figure 7

- a - A preoperative frontal view of a 55 years old patient, with right breast cancer
- b - Immediate post operative frontal view, with pedicled TRAM flap
- c - 6 months post operative frontal view, with nipple and areola reconstruction.

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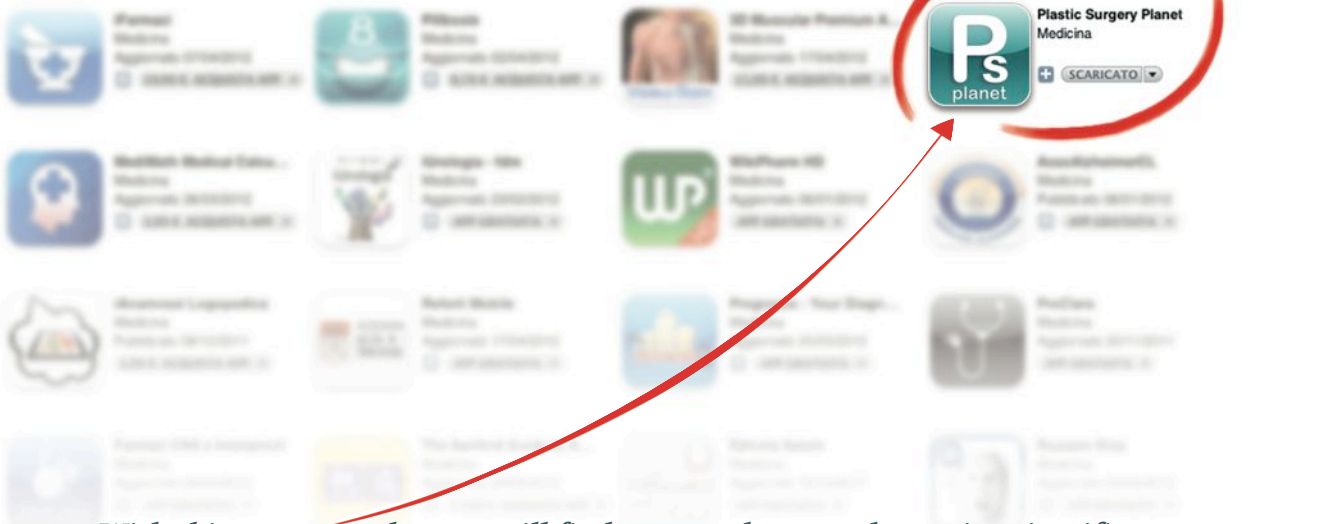
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