

History of Medicine in Iran

A Brief History of Plastic Surgery in Iran

Abdoljalil Kalantar-Hormozi MD^{•1}**Abstract**

Although the exact time of performing plastic surgery is not addressed in the medical and historical literature, it can be supposed that these surgical procedures have a long and fascinating history.

Recent excavations provided many documents regarding the application of medical instruments, surgical and even reconstructive procedures during the pre-historic and ancient periods. Actually, there is no historical definite time-zone separating general and cosmetic operations in the pre-modern time; however, historically there have been many surgeons who tried to perform reconstructive procedures during their usual medical practice. This article presents a brief look at the history of plastic surgery from the ancient to the contemporary era, with a special focus on Iran.

Keywords: History of medicine, Iran, Persian medicine, plastic surgery

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Introduction

History of medicine is one of the interesting fields of medical research. Knowing the path which led us to the current developments can help us find more effective ways to hasten our development from now onwards. Although the archaeological discoveries have proven that plastic surgery in its primitive forms dates back to sometime between 3000 BC and 2500 BC in Iran, the modern plastic surgery was founded just about 60 years ago.^{1,2}

The rapid development of plastic surgery in Iran has made it one of the most significant branches of surgery. Due to its association with aesthetics and sense of beauty, plastic surgery has attracted many physicians in Iran. Although plastic surgery covers a wide range of issues, most people only consider it as an aesthetic or burns surgery. Plastic surgery has undergone many ups and downs during the last six decades in Iran, and in spite of all difficulties it has become one of the prominent fields of research in this country. During the eight-year Iraq- imposed war, plastic surgeons demonstrated their capabilities in treatment of many wounded soldiers, especially with craniofacial and extremity trauma, and hence were able to enhance their skills and knowledge in this respect. This study explores the history of plastic surgery and its significant developments in Iran.

A Brief History of Plastic Surgery around the World

As far as the archaeological evidence shows, the actual history of plastic surgery dates back to the ancient times. Back in the ancient world, one of the first plastic surgeries was done by Sushruta Samhita. He is believed to be part of one of the four Vedas (part

of Atharva-veda) and was written by Sushruta in approximately 600 BC compiling what he had learnt from his Guru Dhanwantri and his predecessors. Sushruta has been called the “Father of Plastic Surgery” by some scholars and “Hippocrates” of the sixth or seventh century BC. He has described rhinoplasty for an amputated nose in a method which is still called the “Indian Method”.³ Later in the first century CE, Celsus was probably the first who described the advancement and island pedicle flaps.⁴ After that, a seventh century Byzantine physician by the name of Paulus Aegineta, found a relation between the western and eastern methods of surgery in his medical encyclopedia entitled: Medical Compendium. About a millennium later, Gaspare Tagliacozzi, presented the cross-arm flap for the nasal reconstruction.⁵

During the course of the First World War, many maxillofacial and extremity wounds were treated which lead to the new experiences and improvements for reconstructive surgery. However, after the first World War, the attention was shifted from reconstructive surgery for trauma to aesthetic ones. Probably the most famous physician in this regard was Jacques Joseph, who established many techniques and modern devices for reconstructive rhinoplasty. His invaluable works on facial aesthetics made him the father of modern facial plastic surgery.⁶

The 1930s was the decade in which the first societies of plastic surgery were established. In 1931 Jacques Maliniac founded the American Society of Plastic and Reconstructive Surgery and afterwards in 1937 the American Board of Plastic Surgery was founded. Also, in Europe the “European Society of Reconstructive Surgery” was founded in 1936.⁷

The pioneers of the rapid development of plastic surgery in Europe were the French surgeons and the most distinguished of them was Leon Dufourmentel. In addition, other surgeons such as Harold Gillies (England), Erich Lexer (Germany), Allan Ragnell (Sweden), and Sanvenero Rosselli (Italy) contributed to this development.⁷

The Second World War was totally different for the plastic surgeons. In this period, the need for plastic surgery was much more felt than before. In other words, plastic surgery aside from treating and saving soldiers was considered as a field for treating and man-

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aging all kinds of congenital and non-congenital abnormalities and diseases of the face, breasts, extremities, trunk, and genitalia. In addition, aesthetic surgery was considered a sub-branch of this field of surgery and thus many specific clinics were established for treating burns, cleft lip and palate, and anomalies of the hand.⁷

During the war many plastic surgeons joined the United States Army at the head of its instructional programs. Recruiting residents began and clinical research became one of the main focuses of the research in this field, especially transplantation. In this respect, Joseph Murray (American plastic surgeon) developed a surgical technique for kidney transplantation in the first successful kidney transplant between identical twins in December 1954 for which he received the Nobel Prize in Medicine.⁸

In 1960s and 1970s, the number of plastic surgeons tripled due to three main reasons: 1) rapid increase of the number of experienced plastic surgeons after the Second World War; 2) having more educational references based on more experiences derived from the World Wars; and 3) more people who desired to undergo aesthetic surgery.⁷

In 1962, Malt and McKhann performed the first transplantation of a hand. In the early 1970s, after the success of French plastic surgeon Paul Tessier in surgical correction of congenital craniofacial deformities previously deemed untreatable, plastic surgeons from the United States and other countries rushed to Paris to study this new discipline. In returning to their native countries, many of them attempted to establish multidisciplinary craniofacial centers to care for those children suffering from previously untreated anomalies.⁷ Afterwards, the International Society of Craniomaxillofacial Surgery was founded in June 1983 in Montreal as the Craniofacial Chapter of the International Confederation for Plastic, Reconstructive, and Aesthetic Surgery.⁹

Rhinoplasty, changed a lot by Sheen and Joseph. Sheen demonstrated that the choice of surgical technique, regarding the nasal tip and dorsum, plays an important role in achieving better aesthetic results.⁷

Research in biomaterials has also provided us many alloplastic implants. From the mid-1960s, the use of silicone became widespread and breast augmentation with implant became the most common aesthetic surgery in the United States, with over two million breast augmentations.¹⁰ In addition, breast implant became a relief for the survivors of breast cancer who had undergone mastectomy.⁷

In 1980, Illouz invented liposuction to modify body contours through minimal incisions. Liposuction has become a very common aesthetic surgery from then on.⁷

Plastic Surgery in the Ancient Persia

As far as the historical evidence shows, reconstruction of body defects in its primitive forms was performed more than 5000 years ago in Iran. Based on the excavations done in the historical sites such as the Zabol- Burned City (in south-east of modern Iran), the settlers of the Persian Plateau were able to insert artificial eye prosthesis with fixation to the face which proves that they were able to reconstruct tissue deformities² (Figure 1). Throughout the ancient Persia, medicine was always an important field of research. For instance, Darius the Great employed many physicians from foreign lands (such as Greece and Egypt) to hold debates among foreign and Persian physicians so as to improve Persian Medicine.¹¹

After invasion of Alexander to Iran (Great Persia), almost all of Persian books were destroyed, transferred, or translated to Greek.¹²



Figure 1. Left eye prosthesis (artificial lye) was found in Zabol-Burned City excavation (available from: URL: <http://www.abovetopsecret.com/forum/thread566127/pgl>).

Plastic Surgery in Iran after Islam

Although there are a lot of dispute for and against the happening of Persian ancient book-burning after Arab's invasion (633 CE), absence of written documents around the Persian emperor era is questionable.¹³⁻¹⁶ After that event, most of Iranian people still spoke and used Middle Farsi, but Arabic became one of the main languages of government and correspondence for the next 600 years. Hence, most of the Persian physicians and scientists were obliged to write their works in Arabic, if they wanted those to be read throughout the Islamic World.¹⁷

This age saw the emergence of many great Persian (or as to say Iranian) physicians such as Muhammad Ibn Zakariyā Rāzī known as Rhazes and Abū Alī Sīnā, who is commonly known in English by his Latinized name Avenicna. Avenicna wrote almost 450 treatises on a wide range of subjects, of which around 240 have survived. In particular, 150 of his surviving treatises concentrate on philosophy and 40 of them concentrate on medicine. His most famous works are the "Book of Healing", a vast philosophical

and medical encyclopedia and the “Cannon of Medicine” which was a standard medical text at many medieval universities. These books were used as a textbook in the universities of Montpellier and Louvain as late as 1650.¹⁸ Aviceana was the first physician to define tendon repair for the arm.¹⁹

On the other hand, Rhazes was perhaps one of the greatest clinicians of all time. Numerous “firsts” in medical research, clinical care, and chemistry are attributed to him, including being the first to differentiate smallpox from measles, and the discovery of numerous compounds and chemicals including alcohol and kerosene, among others. According to Edward Granville Browne, one of the famous western orientalist, Rhazes was “probably the greatest and most original of all the physicians and one of the most prolific as an author”.²⁰ As a physician, he was an early proponent of experimental medicine and has been described as the father of pediatrics.²¹ He was also a pioneer of neurosurgery and ophthalmology.²²

The most sought after of all his compositions was the “Comprehensive Book on Medicine” (Kitab al-Hawi fi al-tibb), a large private notebook or commonplace book into which he placed extracts from earlier authors regarding diseases and therapy and also recorded clinical cases of his own experience.²³ This 26-volume book is considered as one of the most valuable medical possessions of history. One of the interesting things of this encyclopedia for the present article is the way Rhazes describes the techniques of incision in the head, around the eyes, nose, palms, and extremities in the 12th volume (of the Arabic version). His descriptions on these issues are very much similar to the contemporary descriptions of the plastic surgery literature. For instance, in this volume he states that for reducing scar in head incision, the incision should be done in the direction of the line of hair growth. Also, he mentions that each incision should be done based on the structure of each extremity and incisions made parallel to his mentioned lines may heal better and produce less scarring than those that cut across.²⁴ Rhazes has stated these about a millennium before Karl Langer proposed his Langer’s lines! In another instance, Rhazes describes the methods of reduction of mandible fractures and states that the teeth are the appropriate criterion for reducing mandible in the 13th volume. There, he also explains how to use a gold wire as an inter-dental wire for jaw fracture and how to achieve dental occlusion.²⁵

Perhaps the third Persian physician who did something related to the plastic surgery was Ali ibn Abbas al-Majusi also known as Masoudi, or Latinized as Haly Abbas (921 – 994 CE). Al-Majusi is best known for his Kitab Kamil as-Sina’at-Tibbiyya (“Complete Book of the Medical Art”), later called The Complete Art of Medicine. This book is a more systematic and concise encyclopedia than Rhazes’ al-Hawi, and more practical than Aviceana’s The Cannon of Medicine, by which it was superseded.²⁶ In this book al-Majusi has many descriptions about craniofacial and hand anomalies and also this book is probably one of the first documents to describe such patients.²⁷

Contemporary Plastic Surgery in Iran

Just like in many other countries, plastic surgery has existed as part of general surgery and other branches of medicine before it became a distinct field for itself. In the same way, the dominant approach of plastic surgery in each period has been based on the priorities of the time and people working within this field. From 1951 up to now, this field has existed under many different names

in Iran among which are “Plastic Surgery”, “Plastic and Maxillofacial Surgery” in 1954, “Reconstructive Surgery”, “Plastic and Craniofacial Surgery” in 1985, “Plastic, Reconstructive, and Burns Surgery” in 1987, “Plastic, Reconstructive, and Aesthetic Surgery” in 2005, and “Plastic and Aesthetic Surgery in 2007”. In this section we detail the reader on the foundation and development of plastic surgery in the contemporary Iran.

Dr Siroos Osanlou was probably the first Iranian plastic surgeon (Figure 2). After achieving diploma in general surgery in 1937, he became an academic member of Tehran University Medical College. Two years later he went to the United Kingdom to work with Sir Harold Gillies who is considered as the father of modern plastic surgery. Then, after some years, he traveled to the United States where he met and worked with Howard Webster.



Figure 2. Siroos Osanlou MD (1910–2005). Founder of Iranian plastic surgery.

Upon his return to Iran in 1949, Osanlou started working as an academic member. After two years, he and Sadat-Akhavi established a unit for reconstructive surgery in a hospital in Tehran for the first time. Also in the same year, Mahmoud Salehi who had been working under the supervision of Dr. Osanlou, after his return, became the plastic surgery resident in Iran (1951).

In 1955, the plastic surgery unit was transferred to another hospital, i.e. Amir Alam Hospital, in which it was shared with the ophthalmology unit. Also, in this year the “Society of Plastic and Maxillofacial Surgeons of Iran” was founded (Figure 3). Among the board of the founding members of this society were Siroos Osanlou, Mehdi Bahri, Ezatollah Hazrati, Mahmoud Salehi, Naser Salehi, Mahmoud Farahmand, Ahmad Navabbi, and Manouchehr Shahgholi.²⁸



Figure 3. Heading of the Iranian Society of Plastic and Maxillo-facial Surgery statue presented at 1955.

In 1956, Osanlou was promoted to professor of plastic surgery at Tehran University and became a member of the Managing Board of Tehran University (of Medical Sciences). Following his promotion, Kourosh (Cyrus) Clinic was bought by the Amir Alam Hospital and became the very first essential center for plastic and reconstructive surgery in Iran. Few years later, with the help of Hossein Mahdavi (a French-trained maxillofacial surgeon, who was trained under the supervision of Dufourmentel, the famous French plastic surgeon) a new department for craniofacial surgery was added to Kourosh Clinic which made it the “Clinic of Cranio-facial and Plastic Surgery”¹ (Figure 4). Afterwards, all the physicians, nurses, and employees of this clinic were united under the “Department of Plastic Surgery” with Siroos Osanlou as the head.



Figure 4. Hossein Mahdavi MD (1908–2003). Founder of maxillofacial surgery in Iran.

The Department of Plastic Surgery was divided into three units from the beginning in order to divide the task and increase efficiency. Mehdi Bahri, Mahmoud Salehi, and Mahmoud Farahmand were the heads of these units.

Unit 1: In this unit, Mehdi Bahri, Mohsen Taslimi (from Maxillofacial Service), Safavi (from Maxillofacial Service), and Mohammad Bagher Harandian were working. Taslimi was working

as the chief of the clinic (Figure 5). Mohammad Abedipour, Ahmad Hoomand, Ali Saba, Fereidoon Mehran, Amir Hossein Kalantari, and Hakimian were the fixed residents.

Unit 2: In this unit, Salehi, Hesam Ala-eddin Khatir, and Hasmic Tatavous Haratoonian were working.



Figure 5. Mohsen Taslimi MD. The person who joined maxillofacial surgery to plastic surgery in his training.

Unit 3: In this unit, Mahmoud Farahmand and Henry Jahan were working. Taleghani, Zargar, and Akbari were the fixed residents.

Each unit was responsible for enforcing one of these tasks, which were treatment, education, and research. After the first residents of plastic surgery finished their trainings in this Department, they began to work there. Perhaps one of the most distinguished of these first graduates was Amir Hossein Kalantari who joined the Air Force Hospital. Later, he joined Burn Center Hospital (named Savaneh, later called Motahhari Burn Center) and worked with Ahmad Hoomand. Kalantari stayed in this center up to his retirement as the main director for burn services.

In 1970, due to some problems which lead to a change in the head of Tehran University, Osanlou was retired and some changes were made in the Department. Consequently, many surgeons left the group to work with other centers in other cities. Not long after this, Mehdi Bahri and Mahmoud Farahmand were also retired and Mahmoud Salehi and Haratoonian quitted. Jahan joined Amir Alam Hospital. Abedipour and Harandian joined Hezar TakhteKhab (one thousand beds) Hospital. Taslimi and Saba joined Sina (Avecina) Hospital. Khatirjoined Hospital Number 3 (Tehran University). Safavi immigrated to USA.

Beside the existence of the Department, the “Society for the Support of the Burned Patients” was established. Then, after the inauguration of the first essential center for burns in 1975 (Savaneh, later called Motahhari) some other surgeons of the Department left it and joined this center including Amir Hossein Kalantari, Naser Salehi, and Mahmoud Salehi. Later on, Jamal Goushe, Ah-

mad Moghari, Mehdi Sherkat, Hadi Mohebi, Yadollah Tehrani, Ghasim Zadeh, and Auliaee Joined them.

Goushe (Figure 6) started his career as a pioneer of hand and microsurgery in Motahhari Hospital. All prominent plastic surgeons of the world including Paul Tessier, Joseph Murray (Figures 7 and 8), Fernando Ortiz-Monasterio, Yvon Raulo, Huub van Hedel, David Matthews, Yoshimura Ikuta, Rene Malek, Jaque Michon, Michael Merle, and Yves Allieu were invited to this center for sharing their knowledge with Iranian surgeons.

Paul Tessier himself took the responsibility of developing the craniofacial sub-branch in Iran. The responsibility of congenital abnormalities was given to Rene Malek. Jaque Michon, Michael Merle, and Yves Allieu were responsible for developing hand and microsurgery in Iran. In doing so, each of them gathered a group and started their work in the capital of Iran.

Motahhari Hospital was the most prominent center of plastic surgery training in this country till 1979 and then combined with newly formed St. Fatima Hospital as Plastic and Reconstructive Surgery Department of Iran University of Medical Sciences (now Tehran University of Medical Sciences). Goushe was the head of Motahhari Hospital from 1976 – 1978 and then went to Shohada to start his solo practice.



Figure 6. Seyyed Jamal Goushe MD. Founder of the Plastic Surgery Department of Shahid Beheshti University of Medical Sciences.



Figure 7. Paul Tessier MD (1917–2008). Founder of modern craniomaxillofacial surgery (his last visit to Iran, 1998).



Figure 8. Joseph Murray MD and Siroos Osanlou MD, 1975, Tehran, Iran.

After this time, two new centers for plastic surgery were founded in Tehran, i.e. Tohid Burn Center in 1976 and Lavizan Center in 1977. Consequently, due to all these efforts, the Iranian plastic surgery became highly improved and was capable of performing many complex and difficult craniofacial, reconstructive, microsurgical, and hand surgeries.

After the Islamic Revolution in 1979, the approach of many fields of research changed from globalization into localizing that field of knowledge. The trigger of war between Iran and Iraq in 1980 was another opportunity for the now capable plastic surgeons of Iran to demonstrate their capabilities in reconstructing many wounded soldiers' craniofacial, trunk, and extremity problems. Hence, these experiences lead to the enhancement of their skills and knowledge in this respect.

In 1981, Ahmad Moghari established Hazrat Fatemeh Hospital as the plastic surgery center (Notre de Fatima) for the ex-Iran University of Medical Sciences (Figure 9). Plastic surgery in Tehran University was still working in its continuing program with its graduated plastic surgeons, mainly by Mohammad Abedipour as the chief of the Department (Figure 10).

After Iraq-imposed war against Iran, Motahhari, St. Fatima (Hazrat Fatemeh), Imam Khomeini (plastic surgery units), and Shohada (Goushe unit) Hospitals, were in charge of all complex war injured patients. The beginning of academic plastic surgery department at Shahid Beheshti University of Medical Sciences started on 1992 at Masih Daneshvari Hospital and later transferred to 15 Khordad Hospital. This was the beginning of the plastic surgery department, as a training center in this university which organized by endeavor of Jamal Goushe. Later on, few other centers for plastic surgery were founded in different cities of Iran, including Shiraz, Isfahan, Mashhad, and Ahwaz.



Figure 9. Ahmad Moghari MD. Director of St. Fatima Hospital at 1981.



Figure 10. Mohammad Abedipour MD. Ex-Director of the Plastic Surgery Department of Tehran University.

All and all, the field of plastic surgery has undergone many ups and downs during the past six decades. However, for what is worth, this field of medicine is now one of the most dynamic fields of medical research in Iran and has a promising future. Finally, excluding those who have studied abroad, up to now 240 plastic surgeons have been trained inside Iran, mainly by the three capital academic centers, and are working throughout this country.

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