

NASA-SANDHANA IN AYURVEDA DEVELOPED INTO RHINOPLASTY IN MODERN

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ABSTRACT

Ayurveda, the ancient Indian medicine system is better recognised now by the West. Rhinoplasty, inoculation against small pox etc were practiced in India even as late as the 18th Century AD, as shown by Dharampal. Indian surgery has great potentialities for research. The Indian technique of rhinoplasty has earned many laurels outside the country. Similarly, plastic surgery as a whole, management of injuries, and some simple measures as substitutes of surgical manipulations have of late been brought to light. *Sushruta*, a great ancient surgeon and philosopher, and above all a great teacher is considered as the father of surgery and the father of plastic surgery even today. Surgical science was called *Shalya-tantra* (*Shalya* – broken parts of an arrow and such other sharp weapons; *tantra* – manoeuvre). The broken parts of the arrows or similar pointed weapons of the enemy were regarded as the commonest and most dangerous of foreign objects causing wounds and requiring surgical treatment. Thus a primitive sort of surgery was as old as warfare itself. The Gentleman's magazine of London provides us an evidence of an article published in 1794 regarding the procedure of Nasa-sandhana of Indian origin and its gradual development into rhinoplasty.

Keywords: *Sushruta*, *Shalya Tantra*, Nasa-sandhana, Rhinoplasty.

INTRODUCTION

Sushruta is well recognised for his innovative method of rhinoplasty, extracapsular lens extraction in cataract, anal and dental surgeries. *Sushruta* was the famous surgeon of Kashi, popularly known as Banaras and used to teach and practice medicine around 600 B.C. A bust of his imaginary picture has been installed in the University Teaching Hospital of Banaras Hindu University, located in the same city to commemorate his contribution to medicine as a whole. He was a disciple of Dhanwantari, who is recognized as the Lord deity of *Ayurveda* (science of life) the Indian system of medicine. The main vehicle of the transmis-

sion of knowledge during that period was by oral method. The language used was Sanskrit-the vedic language of that period (2000-500 B.C). The most authentic compilation of his teachings and work is presently available in a treatise called "*Sushruta Samhita*". This contains 184 chapters and description of 1120 illnesses, 700 medicinal plants, 64 preparations from mineral sources and 57 preparations based on animal sources. *Sushruta*, one of the earliest surgeons of the recorded history (600 B.C.) is believed to be the first individual to describe plastic surgery. *Sushruta* who lived nearly 150 years before Hippocrates vividly de-

scribed the basic principles of plastic surgery in his famous ancient treatise '*Sushruta Samhita*' in 600 B.C. *Sushruta Samhita* (*Sushruta's* compendium) which is one of the oldest treatises dealing with surgery in the world indicates that he was probably the first surgeon to perform operations related to plastic surgery. Although many people consider Plastic Surgery as a relatively new specialty, the origin of the plastic surgery had his roots more than 4000 years old in India, back to the Indus River Civilization. The mythico-religious Shlokas (hymns) associated with this civilization were compiled in Sanskrit language between 3000 and 1000 B.C. in the form of Vedas, the oldest sacred books of the Hindu religion. '*Sushruta Samhita*' (*Sushruta's* compendium), which describes the ancient tradition of surgery in Indian medicine is considered as one of the most brilliant gems in Indian medical literature. This treatise contains detailed descriptions of teachings and practice of the great ancient surgeon *Sushruta* which has considerable surgical knowledge of relevance even today.

FATHER OF PLASTIC SURGERY

Sushruta is the 'Father of Plastic Surgery'. The fact that such a man in flesh and blood performed these surgeries a millennium before Hippocrates and two millenniums before European stalwarts like Celsius and Galen ever appeared on the scene is hard for most to realize and appreciate. *Sushruta* took surgery in medieval India to admirable heights and that era was later regarded The Golden Age of Surgery in ancient India. Because of his numerous seminal contributions to the science and art of surgery in India, he is regarded as the 'Father of Surgery' and the 'Father of Plastic Surgery'. In "The source Book of Plastic Surgery," Frank

McDowell aptly described *Sushruta* as, "Through all of *Sushruta's* flowery language, incantations and irrelevancies, there shines the unmistakable picture of a great surgeon. Undaunted by his failures, unimpressed by his successes, he sought the truth unceasingly and passed it on to those who followed. He attacked disease and deformity definitively, with reasoned and logical methods. When the path did not exist, he made one."

Sushruta lays down the basic principles of plastic surgery by advocating a proper physiotherapy before the operation and describes various methods or different types of defects, viz., (1) release of the skin for covering small defects, (2) rotation of the flaps to make up for the partial loss and (3) pedicle flaps for covering complete loss of skin from an area. He has mentioned various methods including sliding graft, rotation graft and pedicle graft. Nasal repair or rhinoplasty has been described in greater detail, which to this day has stood the test of time and is mentioned as the Indian method of rhinoplasty in the books of plastic surgery. Lastly, labioplasty too has received his attention. In short, all the principles of plastic surgery, viz., accuracy, precision, economy, haemostasis and perfection find an important place in *Sushruta's* writings on this subject.

Surgical science – *Shalya tantra* – embraces all processes aiming at the removal of factors responsible for producing pain or misery to the body or mind. Health is, according to *Sushruta*, a state of physical and mental well-being brought about and preserved by the maintenance of humours, good nutrition, proper elimination of waste products and a pleasant harmony of the body and the mind.

Sushruta warns that improper intervention with surgical manoeuvre due either to ignorance of the progress of the disease-process, greed for money or lack of judgement, lead only to complications. A conscientious surgeon, on the other hand, considers his patient as a whole. For diseases divorced from patients are abstractions from reality. Any surgical manoeuvre is a phased programme planned well and then executed. The *paschatkarman* included the rehabilitation and removal of complications.

NASA-SANDHANA (RHINOPLASTY)

Article published in *The Gentleman's Magazine* gives us the complete description of how the procedure of *Nasa-sandhana* was developed into the present day's Rhinoplasty. "This untitled article was the first report published in Europe of the Indian forehead-flap method of Rhinoplasty. "B. L.'s" report in *The Gentleman's Magazine* of the curious operation of making a nose from a forehead flap, accompanied by an engraving of the patient Cowasjee with restored nose and showing the stages of the operation, sparked Western interest in plastic operations. This interest culminated in Carpue's successes with the Indian method in 1814-1816 (Garrison-Morton 5737) which were the turning point in the development of modern plastic surgery. Gnudi & Webster 309-16 & fig. 47 reproducing the famous Cowasjeeplate. McDowell 74-88, reproducing plate. Zeis / Patterson 438, also notes a later article on p. 1093 calling attention to European rhinoplasty and Tagliacozzi." Same in detail can be found in one of the most eminent book pertaining to Ayurvedic history that gives a detailed description and unfolds the story as, from 1769 AD to 1799 AD, in a period of 30yrs, four Mysore wars were fought between Hyder Ali and his son Tippu

Sultan on one side and the British on the other side. As a result of these wars, the British learnt two very important Indian techniques - Rocketry and Plastic Surgery. Both these Indian techniques were improved and became globally accepted first in England and then in other European countries. How the British learnt the art of Indian Plastic Surgery is a fascinating story. A Maratha cart driver, Kawasaji, who had served the British and four Tilanges (Indian soldiers of the British Army), had been captured by Tippu Sultan of Srirangapatna. After their noses were cut off as a punishment for serving the enemy, they were sent back to the English Command. After some days, when dealing with an Indian Merchant, the English Commanding Officer noticed that he had a peculiar nose and a triangular scar on his forehead. On inquiry, he learnt that the merchant's nose had been cut off as a punishment for adultery and that he had a substitute nose made by a Maratha Vaidya of a Potter caste. The Commanding Officer sent for the Vaidya and asked him to reconstruct the noses of Kawasaji and the Four Tilanges. The Operation was performed near Pune in the presence of two English Doctors. An illustrated account of this operation was reproduced in *The Gentleman's Magazine* of London in OCTOBER 1794. This description fired the imagination of young English Surgeon J.C.Carpue, who, after researching the 'Indian Nose' performed two similar operations in 1814 AD successfully. Concurrent translations of *Sushruta Samhita* by Sanskrits of Germany popularized Plastic Surgery throughout Europe. All replacement operations, which use flaps of skin in the immediate vicinity of the loss, are known as 'Indian Plastic Surgery'.

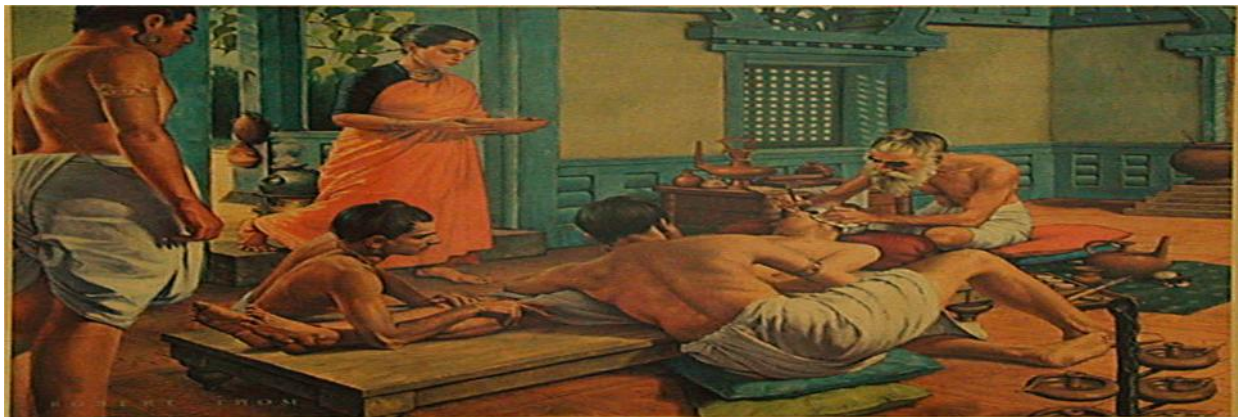
Treatments for the plastic repair of a broken nose are first mentioned in the Edwin Smith Papyrus, a transcription of an Ancient Egyptian medical text, the oldest known surgical treatise, dated to the Old Kingdom from 3000 to 2500 BC. Rhinoplasty techniques were carried out in ancient India by the ayurvedic physician *Sushruta* (c. 800 BC), who described reconstruction of the nose in the *Sushruta samhita* (c. 500 BC), his medico-surgical compendium. The physician *Sushruta* and his medical students developed and applied plastic surgical techniques for reconstructing noses, genitalia, earlobes, et cetera, that were amputated as religious, criminal, or military punishment. *Sushruta* also developed the otoplastic technique for reconstructing an earlobe with skin from the cheek, and the forehead flap rhinoplasty procedure that remains contemporary plastic surgical practice. In the *Sushruta samhita* compendium, the physician *Sushruta* describes the (modern) free-graft Indian rhinoplasty as the *Nasikasandhana*, wherein:

The portion of the nose to be covered should be first measured with a leaf. Then, a piece of skin of the required size should be dissected from the living skin of the cheek, and turned back to cover the nose, keeping a small pedicle attached to the cheek. The part

of the nose to which the skin is to be attached should be made raw, by cutting the nasal stump with a knife. The physician then should place the skin on the nose and stitch the two parts swiftly, keeping the skin properly elevated, by inserting two tubes of *eranda* (the castor-oil plant) in the position of the nostrils, so that the new nose has proper shape. The skin thus properly adjusted, it should then be sprinkled with a powder of liquorice, red sandal-wood, and barberry plant. Finally, it should be covered with cotton, and clean sesame oil should be continually applied. When the skin has united and granulated, if the nose is too short or too long, the middle of the flap should be divided, and an endeavour made to enlarge or shorten it.

CONCLUSION

Various texts provide us evidence that the *Nasasandhana* was of Indian origin and how it was developed into presently practicing Rhinoplasty. The article also gives a detailed description of the procedure that was carried out and the subsequent developments happened in the progress of the Plastic Surgery. Therefore *Sushruta* being the “Father of Indian Surgery” is also considered as the “Father of Modern Surgery” and also the “Father of Plastic Surgery”.



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