

# Sushruta: Rhinoplasty in 600 B.C

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## Abstract

The roots of ancient Indian surgery go back to more than 4000 years ago. Sushruta, one of the earliest surgeons of recorded history (600 B.C.) is believed to be the first individual to describe Rhinoplasty. The detailed description of the Rhinoplasty operation by Sushruta is amazingly meticulous, comprehensive and relevant today.

Dear Sir,

The historical evidences suggest that plastic surgery originated in India more than two millennia ago and the oldest plastic surgery operation probably relate to nasal reconstruction. Sushruta, an ancient Indian surgeon in 600 BC. is believed to be the first individual to describe Rhinoplasty.

Sushruta (also known as the ‘Father of Indian surgery’ and ‘Father of Indian plastic surgery’) authored famous ancient encyclopaedic treatise 'Sushruta Samhita' (Sushruta's compendium) and vividly described the technique of Rhinoplasty. 'Sushruta Samhita' is considered to be the most advanced compilation of surgical practices prevalent in India around two thousand millennia ago. In 'Sushruta Samhita', Sushruta emphasized all the basic principles of plastic surgery and vividly described numerous operations in various fields of surgery with significant contributions to Plastic Surgery<sup>1,2</sup> (Figure-1). The notable contributions in Plastic Surgery are technique of pedicle flap, repair of ear lobe defects, repair of traumatic and congenital clefts of the lip, classification of burns, description of sharp (20 types) and blunt (101 types) instruments, practice of mock operations, cadveric dissection, use of wine to dull the pain of surgical incisions, code of ethics; however the Rhinoplasty remains the greatest highlight of Sushruta's surgery. The nose in Indian society has remained a symbol of dignity and respect throughout antiquity. In ancient times, amputation of nose was frequently done as a punishment for criminals, war prisoners or people indulged in adultery. The practice of Rhinoplasty slowly started as a result of the need to reconstruct the external nose and later developed to the full fledged science.

## Figure 1

Figure 1: Sushruta (600 B.C.)



Sushruta is considered as the innovator of the Rhinoplasty technique practised since 600 B.C. The detailed description of the Rhinoplasty operation in the Sushruta Samhita is amazingly precise and comprehensive. The English translation of Sushruta's original Sanskrit description of the method is as follows<sup>3</sup>:

“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 gets 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 constantly 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 endeavor made to enlarge or shorten it.”

The Sanskrit text of 'Sushruta Samhita' was later translated in Arabic by Ibn Abi Usaybia (1203-1269 AD).<sup>4</sup> As the historical pages started opening up, the knowledge of Rhinoplasty spread from India to Arabia and Persia and from there to Egypt. However, it took centuries for the principles and the technique of Rhinoplasty to travel to Europe and other parts of the world. In the 15th century, Gaspare Tagliacozzi from Italy documented similar technique of nasal reconstruction. He successfully reconstructed the nose by using the skin of the upper arm. The principle of Italian procedure was precisely the same as of the pedicle flap which was described two millennia ahead by Sushruta. Ackernecht aptly observed “There is little doubt that plastic surgery in Europe which flourished in medieval Italy is a direct descendant of classical Indian surgery”.<sup>5</sup>

The classical cheek flap Rhinoplasty of Sushruta was later modified by using a rotation flap from the adjacent forehead, The Traditional Indian Method of Rhinoplasty. This technique was kept a secret for centuries in India, and practiced by Marathas of Kumar near Poona, certain Nepali families and Kanghairas of Kangra (Himachal Pradesh) <sup>4</sup>.

The resurgence of Indian method began in the 1700s when British surgeons working for the East India Company saw the work done by Indian surgeons. During Mysore War of 1792 between Tipu Sultan and the British. Cowasjee, a cart-driver with the British and four other native sepoys were captured by the Sultan's soldiers. Their noses and a hand each were cut off by the Mysore army. After a year without a nose, he and four of his colleagues submitted themselves to treatment by a man who had a reputation for nose repairs. The operations were witnessed by Thomas Cruso and James Findlay ,surgeons at the British Residency in Poona. They appear to have prepared a description of what they saw and diagrams of the procedure. The technique used for Rhinoplasty was a modification of the ancient Rhinoplasty

described by Sushruta. Sushruta's version has the skin flap being taken from the cheek; Cowasjee's was taken from the forehead. A photo feature on the sensational surgery was published in the Madras Gazette. Subsequently, the details and an engraving from the painting were reproduced in the October 1794 issue of the Gentleman's Magazine of London <sup>6</sup>, (Figure-2, 3)

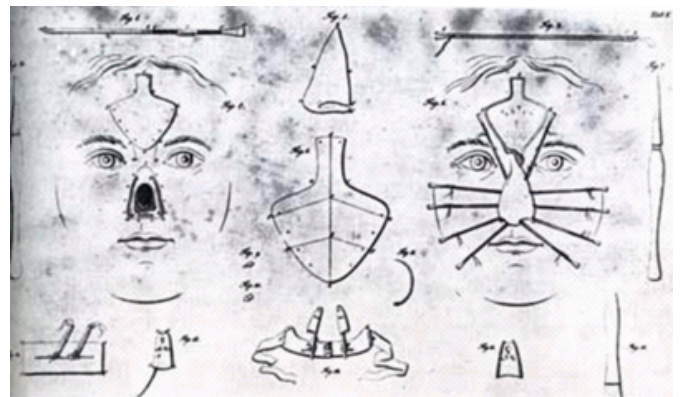
**Figure 2**

Figure 2: The famous Indian Rhinoplasty (reproduced in the October 1794 issue of the Gentleman's Magazine of London)



**Figure 3**

Figure 3: “Indian flap” for nasal reconstruction



The operation was described as follows:

“A thin plate of wax is fitted to the stump of the nose so as

to make a nose of good appearance; it is then flattened and laid on the forehead. A line is drawn around the wax, which is then of no further use, and the operator then dissects off as much skin as it had covered, living undivided a small slip between the eyes. This slip preserves the blood circulation till a union has taken place between the new and the old parts. The cicatrix of the stump of the nose is next paired off, and immediately behind the new part, an incision is made through the skin which passes around both alae, and goes along the upper lip. The skin, now brought down from the forehead and being twisted half around, is inserted into this incision, so that a nose is formed with a double hold above and with its alae and septum below fixed in the incision. A little Terra Japonica (pale-catechu) is softened with water and being spread on slips of cloth, five or six of these are placed over each other to secure the joining. No other dressing but this cement is used for four days. It is then removed, and cloths dipped in ghee are applied. The connecting slip of skin is divided about the twentieth day, when a little more dissection is necessary to improve the appearance of the new nose. For five or six days after the operation, the patient is made to lie on his back, and on the tenth day, bits of soft cloth are put into the nostrils to keep them sufficiently open. This operation is always successful. The artificial nose is secured and looks nearly as well as the natural nose, nor is the scar on the forehead very observable after a length of time."

This story encouraged Carpué, an English surgeon, to study the details and soon he recognized the immense potential of the operation. Carpué successfully performed the first Rhinoplasty operation (37 minutes) on October 23, 1814 followed by a second successful operation. Subsequently, through the publication of these successful operations by Carpué in 1816, the use of Indian technique gained popularity amongst British and European surgeons. By 1897, at least 152 rhinoplasties had been performed in Europe.

One of the earliest European descriptions of Indian rhinoplasty is as follows:

"The surgeons belonging to the country cut the skin of the forehead above the eyebrows, and made it fall down over the wounds on the nose. Then, giving a twist so that a live flesh might meet the other live surface, by healing applications, they fashioned for them other imperfect noses. There is left

above, between the eyebrows, a small hole, caused by the twist given to the skin to bring the two live surfaces together. In a short time the wounds heal up, some obstacle being placed beneath to allow of respiration. I saw many persons with such noses, and they were not so disfigured as they would have been without any nose at all." (Storia do Mogor 1653-1708 AD).

These Rhinoplasties were widely appreciated as the 'Indian Nose' and generated tremendous interest in the medical fraternity paving way for corrective Rhinoplasty in Europe, United states and other part of the world. Later, with the dissemination and refinement of the technique it became an established procedure worldwide.

Though today the technique has received few modifications but the basic principles laid down by Sushruta still remains true. Today, the world acknowledges India as the cradle of Rhinoplasty and the contemporary use of the "Indian flap" for nasal reconstruction testifies to its practicality and success for more than 2500 years.

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