

REVIEW ARTICLE

History of Rhinoplasty

¹Danish Arora, ²Chander Mohan, ³Prashant Bhardwaj, ⁴Sadhna, ⁵Abhinav Srivastava

ABSTRACT

Rhinoplasty, is derived from the Greek word rhinos (nose) and plassein (to shape), and is a surgery performed to achieve two results: To improve breathing function of nose and to improve cosmetic look of the nose. Rhinoplasty is a plastic surgery for correcting and reconstructing the form, restoring the functions, and esthetically enhancing the nose, by resolving nasal trauma (blunt, penetrating, blast), congenital defect, respiratory impediment, and a failed primary rhinoplasty. An otolaryngologist or a plastic and reconstructive surgeon creates a functional, esthetic, and facially proportionate nose by separating the nasal skin and the soft tissues from the osseocartilaginous nasal framework, correcting them as required for form and function, suturing the incisions, and applying either a pack or a stent, or both, to immobilize the corrected nose to ensure the proper healing of the surgical incision. The nonsurgical rhinoplasty procedure corrects and modifies slight defects of the nose by means of subcutaneous injections of biologically inert fillers; the results tend to be relatively transitory, in comparison with the results of nose surgery. The forehead rhinoplastic reconstruction of nose practiced by Indians centuries ago is known universally as Indian forehead flap for nasal reconstruction.

Keywords: Flap, Hump nose, Reconstruction, Saddle nose.

How to cite this article: Arora D, Mohan C, Bhardwaj P, Sadhna, Srivastava A. History of Rhinoplasty. Int J Adv Integ Med Sci 2017;2(1):40-43.

Source of support: Nil

Conflict of interest: None

INTRODUCTION

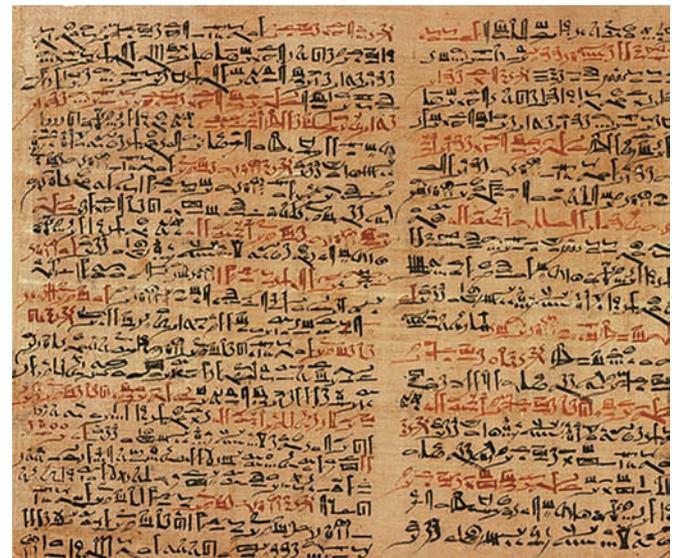
According to the Code of Manu, amputation of nose was punishment laid down for adultery. The deliberate amputation of the nose of Supanakha by Lakshmana, the younger brother of Lord Rama, in 1500 BC is perhaps the earliest example of nasal amputation known to mankind.¹

The presence of paranasal sinuses is documented in ancient Egypt where instruments were used to remove brain through the ethmoid sinuses in the process of mummification. In prehistoric times, babies born with nose

defects were considered as evil omen and were killed at birth. Loss of nose reduced acceptability in the society. Social crimes, such as adultery and sex offenders were punished by amputation of the nose.²

HISTORY

Edwin Smith Papyrus (3000–2500 BC)³: An ancient Egyptian medical text⁴ describes rhinoplasty as the plastic surgical operation for reconstructing a nose destroyed by rhinectomy; such a mutilation was inflicted as a criminal, religious, political, and military punishment in that time and culture. It was first to mention treatments for plastic repair of broken nose. Thus, rhinoplasty has its roots in ancient Egypt.^{3,5} It was transcribed as Ebers papyrus in 1550 BC.⁶



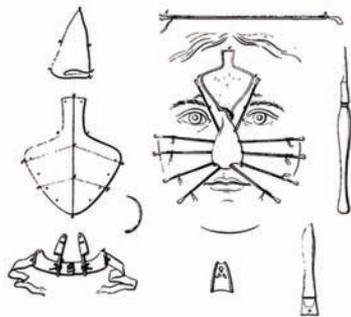
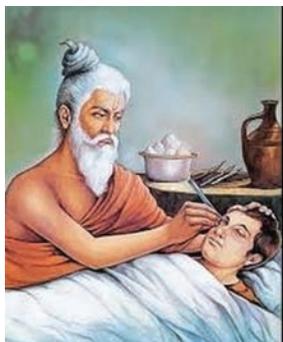
Sushruta (600 BC, India): Ayurvedic physician who wrote Sushruta Samhita (his medicosurgical compendium) in Sanskrit. He described technique of total reconstruction (referred to as Indian rhinoplasty). He designed tubular nasal speculum (Netiyantra), used leaf patterns of nose to measure various dimensions prior to nasal reconstruction, developed forehead flap rhinoplasty procedure that remains contemporary plastic surgical practice, and described the modern free graft Indian rhinoplasty as Nasikasandhanai. The original text is lost but revision of Sushruta's text by Buddhist monk Vasubandhu is believed to be the only authentic record.

Aulus Cornelius Celsus (27 BC to 476 AD, Roman Empire): Published 8-tome medical notes De Medicina

¹Junior Resident, ²Professor and Head, ^{3,4}Senior Resident
⁵Assistant Professor

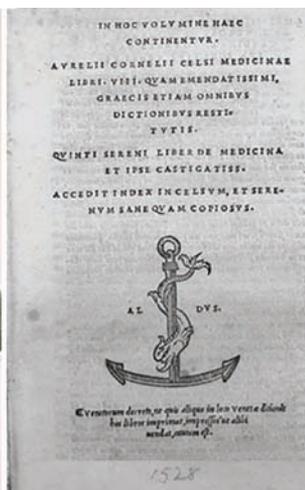
¹⁻⁵Department of ENT, Rohilkhand Medical College and Hospital Bareilly, Uttar Pradesh, India

Corresponding Author: Abhinav Srivastava, Assistant Professor
Department of ENT, Rohilkhand Medical College and Hospital Bareilly, Uttar Pradesh, India, email: drabhinavsrivastava7@gmail.com



(On Medicine, c. AD 14), which described his plastic surgery techniques and procedures for the correction and the reconstruction of lips, ears, nose, and so on, and for the amputation of diseased and damaged parts of the human body.⁷

Oribasius (300 AD): Royal Physician of Byzantine Roman court of Emperor Julian the Apostate. Published 70-volume *Synagoge Medicae* (Medical Compilations, AD fourth century), which described congenital facial defect reconstructions that featured loose sutures that permitted a surgical wound to heal without distorting the facial flesh and how to use autologous skin flaps to repair damaged cheeks, eyebrows, lips, and nose.



Celsus and Galen (first and second century): Practiced tissue transplantation. Celsus in *De re Medica* gave an account of repairing of lips and noses with skin flaps from adjacent area.

Anglo Saxon physician (920 AD): Published Bald's Leechbook manual (in old English), describing plastic repair of cleft lip.

Ibn Abi Usaiba (eleventh century): Arab physician at Damascus translated Sushruta Samhita from Sanskrit to Arabic at Damascus leading to its spread from Arabia to Persia to Egypt.

Branka (1442, wound doctor): From Catania in Sicily, Branka reintroduced the ancient method of Sushruta

using flaps from cheek and forehead for repair of nasal defects. His son Antonio developed the arm pedicle flap for mutilated nose. During this time various wars were fought in Europe and syphilis was rampant, leading to saddle nose deformity.

Gasparo Tagliacozzi (1597, Italy): Professor of anatomy and surgery at the University of Bologna, Gasparo Tagliacozzi published *Curtorum Chirurgia Per Insitionem* (The Surgery of Defects by Implantations), a technoprocudural manual for the surgical repair and reconstruction of facial wounds in soldiers. It is a series of 40 patients of rhinoplasty and is the first to record using a pedicle flap in reconstruction. This guide was the first of its kind and included groundbreaking diagrams and illustrations of postoperative patients.⁸



Mannucci Niccalao (1652–1708): Viennese physician who lived in India and gave an account of reconstruction of nose by Indian physicians in his work *Storia de Mogor*.

Thomas Cruso and James Findlay (1794, East India Company surgeons): Observed forehead flap reconstruction of nose on a prisoner of war named Cowesjee captured in the Third Anglo-Mysore War of colonial annexation, by British against Tipu Sultan. They witnessed Indian rhinoplasty procedures at the British Residency in Poona. They described the operation in detail and reported as



a curious operation of a new nose in London. It marked the beginning of interest in rhinoplasty in Europe. In the English language Madras Gazette, the surgeons published photographs of the rhinoplasty procedure and its nasal reconstruction outcomes.⁹

Joseph Constantine Carpue (1815): First surgeon to perform Indian rhinoplasty in London. Published the account of two successful operations for restoring a lost nose in Great Britain (battle-wounded nose and arsenic-damaged nose) outlining medical techniques for restoring noses (Carpue's operation).¹⁰

Karl Ferdinand Von Graefe (1816, Germany): Founder of German rhinoplasty (introduced Indian rhinoplasty). Published *Rhinoplastik (Rebuilding the Nose)* wherein he described 55 historical plastic surgery procedures (Indian rhinoplasty, Italian rhinoplasty, etc.), and his technically innovative free graft nasal reconstruction (with a tissue flap harvested from the patient's arm).⁶

Lisfranc (1827, France) and Warren (1837, North America): Made Indian rhinoplasty popular.

Johann Friedrich Dieffenbachia (1829, Germany): Was among the first surgeons to anaesthetize the patient before performing nose surgery. Published *Die Operative Chirurgie (Operative Surgery, 1845)*, which became a foundational medical and plastic surgical text.

GT Vigne (1833–1839): French traveler visited Kangra district in Himachal Pradesh, India, and had described Kangra nasal plastic surgery in his travelogue.



John Orlando Roe (1887, USA): Performed the first modern endonasal rhinoplasty (closed rhinoplasty). First surgeon to perform cosmetic rhinoplasty. Reported in his article the deformity termed pug nose and its correction by a simple operation and management of saddle nose deformity. Popularized intracartilaginous approach to the bulbous tip.^{9,11}

Robert Weir (1892): Corrected nasal deformities by endonasal approach and described a series of operations. He excised a wedge from alae to reduce nasal base.

Jacque Joseph (1898, father of corrective rhinoplasty): Orthopedic surgeon from Berlin described in detail reduction rhinoplasty for hump and other specific deformities. He founded and headed the first hospital for facial plastic and reconstructive surgery and was the first to draw attention to the social and psychological factors to be taken into consideration prior to rhinoplasty. He established intranasal rhinoplasty in Europe on a scientific basis at the turn of the twentieth century. He also published *Nasenplastik und sonstige Gesichtsplastik (1928; Rhinoplasty and other Facial Plastic Surgeries)*, which described refined surgical techniques for performing nose reduction rhinoplasty via internal incisions,⁶ and designed many instruments.



Keegan (1900): Written a monograph on his experience of rhinoplastic operations during his posting in a Charitable Hospital at Indore and he quoted that during a single year there were 152 reconstructive rhinoplasties performed in various parts of India.

Aufricht and Safian (1920): Worked with Joseph and introduced his techniques in the USA.

Jack Anderson (1982): Reported his refinements of nose surgery technique in the article "Open Rhinoplasty: An Assessment."

Freer and Killian (1902–1904): Pioneered submucous resection and septoplasty procedure for correcting a deviated septum, which is the standard we follow today.

Miller (1907): Experimented with paraffin and vaseline injections in cases of saddle nose deformity. He also treated hump noses.

A Rethi (1921): Introduced the open rhinoplasty approach featuring an incision to the columella to facilitate modifying the tip of the nose.¹²

Peer and Metzenbaum (1929): Performed the first manipulation of the caudal septum, where it originates and projects from the forehead.

Maurice H Cottle (1947): Endonasally resolved a septal deviation with a minimalist hemitransfixion incision, which conserved the septum; thus, he advocated for the practical primacy of the closed rhinoplasty approach.



A Sercer (1957): Advocated the “Decortication of the Nose” (Dekortication des Nase) technique, which featured a columellar incision open rhinoplasty that allowed greater access to the nasal cavity and to the nasal septum.

Padovan (1970): Presented his technical refinements, advocating open rhinoplasty approach.

Wilfred S. Goodman (1970): Reported his technical refinements in the article “External Approach to Rhinoplasty” (1973) and popularized the open rhinoplasty approach.¹³

Jack P Gunter (1987): Reported technical effectiveness of the open rhinoplasty approach for performing a secondary rhinoplasty in the article “External Approach for Secondary Rhinoplasty.”¹⁴ His improved techniques advanced the management of a failed nose surgery.^{15,16}

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