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Rhinoplasty - A History of Creativity

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Abstract

The study of nose is as old as the human civilization. Nose, a midline structure has acquired a unique status socially, sexually, aesthetically and important of its physiology not only as an organ but also as a special sense organ. Social crimes such as adultery and sex offenders were punished by amputation of nose. Reconstruction of the amputated nose by using cheek and forehead flaps to form new nose was the most significant contribution in ancient surgery in rhinology. The major contribution for the reconstruction originated in India by Sushruta in 600 B.C. He described the technique of total reconstruction, which is still being practiced today as Indian Rhinoplasty. The technique was further practiced and refined to modern plastic surgery in Europe and United States in 18th century. Other contribution was from

Greek physicians, Hippocrate, and Galan, and at the birth of the Christianity, Celsus wrote eight books of medical encyclopaedia, which described various conditions affecting nose.

Keywords : Rhinoplasty, History , Reconstruction, Sushruta

Introduction

Nose, a prominent structure in the middle of the face has acquired a unique status socially, sexually, aesthetically and important of its physiology not only as an organ but also as a special sense organ. The presence of para nasal 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 [1].

The deliberate amputation of the nose of the lady Supanakha by Lakshmana the younger brother of Lord Rama 1500 B.C is perhaps the earliest example of nasal amputation known to mankind [2] .

In Indian culture traditionally women beautified nose with various sizes of ornaments. Large noses were considered as a sexual symbol as ancient Roman Quinn Joanna only preferred men with large noses! In 15th century Leonardo De Vinci, a greatest figure of the Italian Renaissance, a painter, sculptor, architect, engineer and scientist set up principals of beauty. Physiologically the nose is at the entrance of the respiratory tract and olfaction and is vital for the function of respiration, humidification, filtration, heat exchange and radiation [1].

Rhinoplasty is a plastic surgery for correcting and reconstructing the form, restoring the functions, and aesthetically enhancing the nose, by resolving nasal trauma (blunt, penetrating, blast), congenital defect, respiratory impediment, and a failed primary rhinoplasty.

An otolaryngologist, a Maxillofacial surgeon , or a Plastic and Reconstructive surgeon, creates a functional, aesthetic, and facially proportionate nose by separating the nasal skin

and the soft tissues from the osseo-cartilaginous 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 non-surgical 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.

Methodology

This review was conducted after a extensive literature search from the institutional Journals, Departmental library and a search from electronic media such as PUBMED, google scholar using the key word History and Rhinoplasty. The important information obtained was compiled.

History of Rhinoplasty

The ancient Indian Medicine is based on Vedic literature (1600 BC to 800 BC.), the ancient Holy Scriptures of Hindu philosophy. There are four main Vedic scripture, i.e. Rig Veda, Yajur Veda, Sam Veda and Atharva Veda. The Ayurveda (Knowledge of life) derived from Athrva Veda has two main treatises. Charak Samhita, which deals with the medicine and Sushruta Samhita, written by Sushruta is pertaining to Surgery. Hessler later translated Sushruta Samhita in Latin in 1844 [1].

Sushruta was a highly moral and innovative surgeon and wrote Sushruta Samhita in Sanskrit (? 800 BC) in the form of verses in India along the banks of the holy river Ganges. He passionately believed that the anatomy was the foundation of successful surgery and made his students perform dissection. He described 24 arteries, veins, nerves and various ducts in the body. He designed tubular nasal speculum called “Netiyantra” and diagnosed 31 diseases of the nose including atrophic rhinitis. He recommended acid vapours and oil for the treatment of atrophic rhinitis. Mutilating noses were seen as a result of social crime these were reconstructed with forehead and cheek flap, the very first step in the evolution of modern plastic surgery. Sushruta used leaf patterns of the nose to measure the various dimensions prior to nasal reconstruction. Tissues were sutured with hoarse hairs. Sushruta provided

minute details of surgical indications, contraindications, techniques, pre and postoperative care, complications and the type of diet to be taken following surgery. He classified surgical procedures as excision, incision, scarification, puncture, probing, extraction, drainage/evacuation and described suturing. He practiced surgical procedures on watermelons, cucumbers, bladder, dead animal, and on leather pouch. He performed venesection on a Lotus stem, and practiced extraction of teeth by taking out jackfruit seeds [1].

Treatments for the plastic repair of a broken nose are first mentioned in the Edwin Smith Papyrus [3], a transcription of an Ancient Egyptian medical text, the oldest known surgical treatise, dated to the Old Kingdom from 3000 to 2500 BC.[4] Rhinoplasty techniques were carried out in ancient India by the ayurvedic physician Sushruta (800 BC), who described reconstruction of the nose in the Sushruta samhita (500 BC), his medico–surgical compendium. The physician Sushruta and his medical students developed and applied plastic surgical techniques for reconstructing noses, genitalia, earlobes, that were amputated as religious, criminal, or military punishment. Sushruta also developed 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.

Further development in the field of Rhinology transpired in Italy with two great surgeons i.e. Branka and Tagliacozzi around 1500 AD. During this time there were several wars being fought in Europe. Syphilis was rampant in the society resulting in nasal deformities and the interest in the nasal reconstruction was kindled. Branka and Tagliacozzi, the two Italian physicians developed an arm pedicle flap for mutilated noses. Tagiacozzi, a professor of anatomy and medicine at Bologna University published a series of 40 patients of rhinoplasty in 1597 and became quite popular in Europe. This was the beginning of the serious attempt of corrective rhinoplasty, A sudden surge in the magnification of the reconstructive surgery of the nose materialised when two British surgeons, Thomas Cruso and James Findlay observed a forehead flap reconstruction of the nose on a prisoner of war named Cowesjee, captured in a war with Tipu Sultan in 1794 in India. These two British surgeons described the operation in detail and reported as a curious operation of a new nose in October 1794 in London. This

marked the beginning of interest in rhinoplasty in Europe. Based on this Indian method of rhinoplasty, described by Sushruta, a British surgeon J.C. Corpue was the first surgeon to perform Indian rhinoplasty in London in October 1814. Subsequently the method was introduced in Germany by Von Graefe in 1816 and later by Dieffenbachia in 1829. Lisfranc made the technique popular in France in 1827, by Warren in 1837 in North America. As we know today [1].

Nonetheless, during the centuries of the European Middle Ages (AD 5th – 15th centuries) that followed the Imperial Roman collapse (AD 476), the 5th-century BC Asian plastic surgery knowledge of the Sushruta samhita went unknown to the West until the 10th century AD, with the publication, in Old English, of the Anglo-Saxon physician's manual Bald's Leechbook (AD 920) describing the plastic repair of a cleft lip; as a medical compendium, the Leechbook is notable for categorizing ailments and treatments as internal medicine and as external medicine, for providing herbal medical remedies, and for providing supernatural incantations (prayers), when required.

In the 11th century, at Damascus, the Arab physician Ibn Abi Usaibia (1203–1270) translated the Sushruta samhita from Sanskrit to Arabic. In due course, Sushruta's medical compendium travelled from Arabia to Persia to Egypt, and, by the 15th century, Western European medicine had encountered it as the medical atlas Cerrahiyet-ul Haniye (Imperial Surgery, 15th century), by Şerafeddin Sabuncuoğlu (1385–1468); among its surgical techniques featured a breast reduction procedure.[4,5]

In time, the 5th-century BC Indian rhinoplasty technique — featuring a free-flap graft — was rediscovered by Western medicine in the 18th century, during the Third Anglo–Mysore War (1789–1792) of colonial annexation, by the British against Tipu Sultan, when the East India Company surgeons Thomas Cruso and James Findlay witnessed Indian rhinoplasty procedures at the British Residency in Poona. In the English-language Madras Gazette, the surgeons published photographs of the rhinoplasty procedure and its nasal reconstruction outcomes; later, in the October 1794 issue of the Gentleman's Magazine of London, the

doctors Cruso and Findlay published an illustrated report describing a forehead pedicle-flap rhinoplasty that was a technical variant of the free-flap graft technique that Sushruta had described some twenty-three centuries earlier [6].

Pre-dating the Indian Sushruta samhita medical compendium is the Ebers Papyrus (1550 BC), an Ancient Egyptian medical papyrus that 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 [7]. In the event, the Indian rhinoplasty technique continued in 19th-century Western European medicine; in Great Britain, Joseph Constantine Carpue (1764–1846) published the Account of two Successful Operations for Restoring a Lost Nose (1815), which described two rhinoplasties: the reconstruction of a battle-wounded nose, and the repair of an arsenic-damaged nose. (Carpue's operation) [4,8]

In Germany, rhinoplastic technique was refined by surgeons such as the Berlin University professor of surgery Karl Ferdinand von Gräfe (1787–1840), who published Rhinoplastik (Rebuilding the Nose, 1818) wherein he described fifty-five (55) historical plastic surgery procedure (Indian rhinoplasty, Italian rhinoplasty, etc.), and his technically innovative free-graft nasal reconstruction (with a tissue-flap harvested from the patient's arm) [9].

In the United States, in 1887, the otolaryngologist, John Orlando Roe (1848–1915) performed the first, modern endonasal rhinoplasty (closed rhinoplasty), about which he reported in the article The Deformity Termed “Pug Nose” and its Correction, by a Simple Operation (1887), and about his management of saddle nose deformities [10,11].

In 1982, Jack Anderson reported his refinements of nose surgery technique in the article Open Rhinoplasty: An Assessment (1982) [12].

Hence does contemporary rhinoplastic praxis derive from the primeval (600 BC) Indian rhinoplasty (nasal reconstruction via an autologous forehead-skin flap) and its technical

variants: Carpue's operation, the Italian rhinoplasty (pedicle-flap reconstruction, aka the Tagliocotian rhinoplasty); and the closed-approach endonasal rhinoplasty, featuring exclusively internal incisions that allow the plastic surgeon to palpate (feel) the corrections being effected to the nose [13].

The modern era of rhinoplasty as we know today began in 1898 with the work, not of an ENT surgeon but an orthopaedic surgeon from Berlin, named Jacque Joseph. He was not a very popular surgeon among his colleagues but had contributed a great deal to the technique of rhinoplasty. He described in detail reduction rhinoplasty for the hump and other specific deformities. He particularly drew attention to the social and psychological factors to be taken into consideration prior to rhinoplasty. He also designed several instruments, which are being used today. He published a paper on surgical correction of the nose in great detail and established intranasal rhinoplasty in Europe on a scientific basis at the turn of the 20th Century. He also published a comprehensive book on rhinoplasty in 1928. At the same time John Roe in New York continue to perform corrective rather than reconstructive surgery and popularised intracartilagenous approach to the bulbous tip [1].

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Authors Column



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Dr. Kesari has special interest in the field of Otolaryngology and Head & Neck Surgery. He is a guide for ICMR Short Term Student Project, 2015.