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Original Research

The father of oral and maxillofacial surgery, “Sushruta the legend”: An overview

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ABSTRACT:

Sushruta's contributions to medicine, detailed in his seminal work "The Sushruta Samhita," signify a golden era in surgical history. His pioneering techniques in plastic surgery, fracture management, and dental procedures laid the foundation for many modern practices. Emphasizing anatomical knowledge and stringent sterilization protocols, Sushruta's methods predated and influenced later medical advancements. His innovative use of surgical instruments and natural anaesthetics, along with his practical training techniques, highlight his profound impact on the field. Sushruta's enduring legacy remains a cornerstone in the history of medicine and surgery, continuing to influence contemporary medical practices. This review article sheds light on his contribution for Oral and Maxillofacial surgery.

Keywords: Oral and Maxillofacial Surgery, Sushruta Samhita, Sushruta, Rhinoplasty.

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INTRODUCTION

History of Medicine is more ancient than we think. It dates back to 600 BC ^[1] when surgical techniques were practiced by Sushruta. It is the era of ayurveda, the ancient surgeon to perform surgery, The Sushruta was born in Kashi, a town in India ^[1]. His teachings and understanding of the surgeries were one of the earliest presentations in Indian literature. All his surgical teachings are compiled in a form of book named “The Sushruta Samhita” that is also believed to be a part of Atharvaveda by some scholars. As per the Sushruta Samhita vol I English translation, Sushruta is regarded as disciple of Dhanvantari, who first offered medical science. Apart from the understanding of medical science, his knowledge for plastic surgery was impeccable. He was hence also title as “Father of Plastic Surgery” ^[3]. In his book, he has described ayurvedic medicine, surgical instruments which were made by himself, surgical anatomy, dealing with fractures and even fumigation practices ^[3]. Sushruta is one of the ancient pioneers of surgery even ahead of Hippocrates, Celsius, and Galen ^[4]. Sushruta defines surgeon as “A person who

possesses courage and presence of mind, a hand free from perspiration, tremor less grip of sharp and good instruments and who carries his operations to the success and advantage of his patient who has entrusted his life to the surgeon. The surgeon should respect this absolute surrender and treat his patient as his own son” ^[5]. Even in ancient times, the surgeries were termed as Shalya Tantra, wherein Shalya refers to a sharp part of a weapon and Tantra means maneuver. Due to high war affairs, the surge injuries required immediate surgical attention leading to refinement in surgical practices ^[5]. His practices also hold a prominent position in The Rigveda, which describes the ancient Indian civilization. Apart from Sushruta Samhita, Charak Samhita, and Ashtanga Sangraha are the backbone of Ayurveda medicine. Among these, only Sushruta Samhita holds surgical expertise ^[5]. Much controversies exist in the ancient literature regarding Sushruta's biography his survival. According to a source, Sushruta's existence dates between 1000 BC to 10th century AD ^[6]. He is believed to be the disciple of Dhanvantri, Divodasa Kasi Raja ^[6]. His renowned compilation consisted of

preoperative and post operative patient care, diet charts, indications for surgery, complications and prevention. Sushruta believes that “medicine and surgery is like a bird with only one wing”^[6] and believed that it goes hand in hand. His book consisted of script with 184 chapters, 1,120 diseases, up to 300 surgical procedures, classification of 8 types of surgery including oral and maxillofacial surgery, and 700 plant, animal and mineral based drugs. Such a colossal knowledge made the era “A Golden era of surgery”^[1]. Despite being the oldest surgical literature, it has snippets of plastic surgery mainly rhinoplasty and cosmetic surgeries. Many renowned scholars dived deeper into the literature and translated the original Sushruta Shmita into Latin, German, Arabic, and in English^[3]. His quest to treat the diseases led him to diagnose diabetes by tasting the urine of the patient with a resultant sweet taste. He even diagnosed malaria and found its connection with plaque to rats. In his book he mentioned 8 main types of surgery namely: extraction, excision, incision, probing, scarifying, suturing, puncturing, and fluid clearing^[4]. Englishmen learned the science of plastic surgery from the Sushruta. A source from Sushruta Samhita states that in order to mend an earlobe, Sushruta successfully transferred skin-flap from the neck^[2]. Sushruta himself discovered instruments such as syringes, retractors, and forceps inspiring from the horns of animals and beak of birds.

EVOLUTION OF PLASTIC SURGERY BY PIONEER “SUSHRUTA”

Sushruta is the name behind the rhinoplasty who gave the world the knowledge of facial aesthetic with ayurvedic medicines. During the Vedic period, as per the verses in Ramayana, nasal amputation was regarded as a punishment for the princess Soorpankha since then this practice took a surge in Indian history as a cruel punishment by kings. In the year 1767, the Gurka King announces nasal amputation on a large scale with 865 male nasal amputation labelling the town as “Naskatapoor” which means a city full of people with no nose. In 1889, Shah Tribowandas realized that nasal amputation has become a symbol of disrespect and a loss of reputation was experienced even in modern times. Recently, in 2010 a young woman received a punishment from her husband for attempting to flee away from her husband. For rhinoplasty procedures, Sushruta began his technique with a leaf of dimension similar to the defect. This leaf is measured as the dimension to same as that of patient’s cheek. Then this leaf graft is placed on the severed nose covered with cotton and pure sesame seeds. The care is taken for nostrils with hollow tubes

that aids in respiration. This technique spread like a fire in parts of Nepal and India. With accurate consents and patient registry, the Kanghiari family practiced this technique thoroughly up until 1440. After its popularity, the cheek flap was modified to forehead flap^[4]. This rhinoplasty procedure spread so much so that Arabian lands accepted this and translated it into Arabic language labelling it as “The Indian Method”. It took no time for this rhinoplasty procedure to spread to Italy making a modification of pedicled arm flap. This modification brought disadvantages like growing of new hairs at the transplanted site^[4].

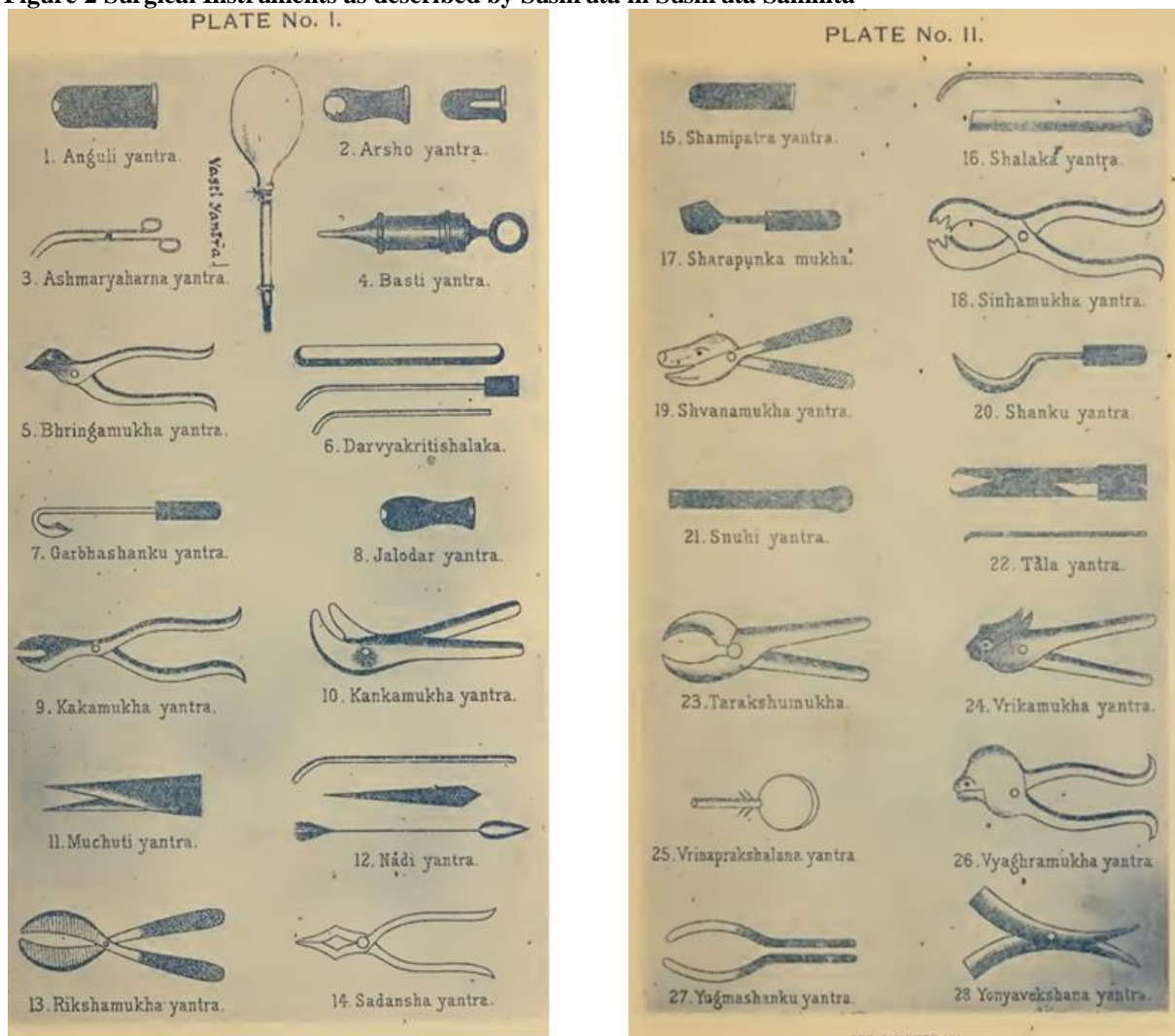
SUSHRUTA’S CONTRIBUTION IN ORAL AND MAXILLOFACIAL SURGERY

The basic principles of the surgery were followed at the time of Sushruta. He even believed that “for a surgeon to be successful in his operations he must first learn the basis of anatomy”^[7]. Moreover, the sterilization protocols followed in the present times also coincides to the Sushruta’s belief of shaving of beard, clipping of nails, taking a bath, wearing clean clothes and even fumigating with an elixir of mustard added with butter and salt. For disinfection, fumes of medicinal plants were used along with disinfection of surgical instruments^[7]. Sushruta abides to present protocols for the management of mandibular fractures. Even before Greek physician Hippocrates 150 years ago,^[8] Sushruta managed fractures of the jaw with closed reduction method. However, they were unaware about the open reduction methods but knowledge of closed reduction persisted in the form of complicated bandaging using bamboo splints mixed with flour and glue. These splints were placed at fracture site in order to immobilize the fractured fragments. Moreover, these practices are still in use by rural areas in India by the people who abide and trusts traditional practices.^[8] Moreover, third removal surgeries were also performed by placing a simple incision. At that time, they were also aware about the sinus tract formed around the root and removal of infected tooth root. Mandibular fractures were treated by closed reduction with the help of manual manipulation and bandaging. There are also mentions of treatment of TMJ joint dislocation by placing the joint at its right place and bandaging it. Wine was used a sedation and fumes of hemp cannabis as anaesthetic agent. Suturing was practised with horsehair, fibres of Asman taka tree and hemp trees. Mock surgeries were performed on watermelon and cucumber and incision were done on animals and leather bag^[7].

Figure 1 Statue of Sushruta^[4]



Figure 2 Surgical Instruments as described by Sushruta in Sushruta Samhita^[2]



DISCUSSION

In conclusion, Sushruta, born in Kashi around 600 BC, is a pioneering figure in the history of medicine, especially in surgical practices. His comprehensive work, "The Sushruta Samhita," is a cornerstone of ancient Indian medical literature, detailing surgical techniques, instruments, anatomy, and even fumigation practices. Revered as the "Father of Plastic Surgery," Sushruta's contributions predate those of notable figures like Hippocrates and Galen [3]. His holistic approach to medicine and surgery, emphasizing the surgeon's skill and patient care, has had a lasting impact [5]. Despite the controversies surrounding his exact timeline, his teachings have been integral to the development of Ayurveda and continue to influence medical practices today [6]. Sushruta, an ancient Indian surgeon, emphasized the importance of anatomical knowledge for successful surgery and implemented sterilization protocols akin to modern practices, including personal hygiene and fumigation with medicinal plants [7]. Sushruta's extensive contributions to medicine, encapsulated in his book "The Sushruta Samhita," marked a golden era of surgery. Sushruta's legacy continues to be a cornerstone in the history of medicine and surgery.

CONCLUSION

Sushruta's contribution is remarkable and is carried forward generations by generations. The modern surgical practices coincide with the traditional

methods even today. The basics of the surgery is robust and this knowledge of our ancestors is a boon for us. We must be proud of our Indian heritage and take pride in our surgical science which was more than what we could think of. We bow down to the contributions of the legendary surgeon "The Sushruta".

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