

## MEDICO HISTORICAL PERSPECTIVE OF SUSHRUTA- THE FATHER OF SURGERY

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Article Received on  
12 August 2020,

Revised on 02 Sept. 2020,  
Accepted on 23 Sept. 2020,

DOI: 10.20959/wjpr202012-18853

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### ABSTRACT

In India curative periods and healing mantras preceded the birth of Modern medicine. *Bhisag Atharvan* was the 1<sup>st</sup> man who treated the patients. In the *Rigveda* there exists descriptions of surgeries like legs were surgically removed and replaced with iron nails, injured eyes were removed out, and arrow shafts were taken out from the limbs of the Aryan soldiers. It suggests that many difficult surgical operations were successfully performed at that time. Among eight branch of Ayurveda Shalya Tantra is most important branch. Sushruta samhita Samhita is the main book where we get the descriptions of Surgery. This manuscript is well organised to give information to medical readers, particularly those from a surgical background. The detail description of the progression of surgical procedures from prehistoric

times to the present day is placed in this paper.

**KEYWORD:** Shalya, Ayurveda, Surgery, Sushruta, Rig veda, sandhan karma.

### INTRODUCTION

To correctly portray the medico historical perspective, it is essential to understand the aim and scope of the Sushruta Samhita. Who was Sushruta When and where did he live and flourish These are natural questions commonly raised in the mind of readers of this page. Lives of saints and glorified kings had been made use of in certain instances as themes of

national epics. But they were premeditated more to clarify or pronounce the doctrines of certain schools of Ethics than to record any historical fact or event. Authentic history we have none beyond records of state events and royal names in some instances.

This manuscript is well organised to give information to medical readers, particularly those from a surgical background. The detail description of the progression of surgical procedures from prehistoric times to the present day is placed in this paper.

Selected surgeries are used to exemplify the advance of surgery from what today seems unimaginable e.g. limb amputation without anaesthesia. Some procedures such as tracheotomy, described in detail by Sushruta remain appropriate even today. Here we have tried to combine detailed historical facts with narratives of famous surgeon Sushruta.

## **MATERIAL AND METHODS**

All the classical ayurvedic texts has been consulted during the study.

## **BEGINNING OF AYURVEDIC SURGERY IN VEDIC ERA**

In India, as in all other countries, curative periods and healing mantras preceded medicine. A priest was the first person in India who treats the patients. He was known as *Bhisag Atharvan*. He holds highest position in the society. The first Aryan settlements in the Punjab were often attacked by the dark aborigines of the country. Therefore in the wars, surgeons had frequently to attend to the Aryan chiefs and army. So in the Rigveda we find that legs were surgically removed and replaced with iron nails, injured eyes were removed out and arrow shafts were taken out from the limbs of the Aryan soldiers. So we have reasons to believe that many difficult surgical operations were successfully performed, though some of them sound almost unbelievable. Even though the surgery was frequently required, surgeons were not allowed to mix in the Brahmanic society of Vedic India. The story of the progress of Ayurvedic surgery is long and interesting, but it is pertinent to mention here that with the return of peace, the small Aryan community grew in number and prosperity. The rich Aryan nobles travelled in majestic carts, and as there were constant accidents, so there evolve a class of surgeons who solely dedicated themselves to the treatment of injured Aryan nobles and animals. Since the surgeons not required in base camps and on battle fields, had to attend on the rich ladies at palaces during parturition. The doctor (Bhisag Atharvan) who could relive fever and formulated decoctions to increase sexual power believed as the greatest of them all. But the Vedic Aryans had continuously tried against pain and suffering, which is in no way inferior

to our present day Pharmacology.

### THE EXTENT AND FEATURES OF SUSHRUTA'S SURGERY

Sushruta was certainly a surgeon and the Sushrutas Samhita is the only complete book we have which deals with the problems of practical surgery and midwifery in ancient age. Most of the Samhitas written by Sushrutas fellow students are either lost to us or are badly preserved. *Sushruta* is the 1<sup>st</sup> surgeon who educates the art of handling a scalpel or forceps for practical surgery. For painless surgery *Sushruta* also used *Sangyahaarana* (Anaesthesia). In Sushruta Samhita we first found a scientific method of arrangement of the surgical experiences of the older surgeons and collections of the scattered fact of the science from the vast descriptions of Vedic literature. The unsophisticated methods and equipment of incision like, bits of glass, bamboo skins etc., laid down and described in the Samhita could also be the remnants of a primitive instrumentology.<sup>[1]</sup> Practical surgery requires an honest knowledge of practical anatomy. The cut up animals at the Vedic sacrifices afforded excellent materials for the framing of an anatomy. Sushruta dedicated his whole life to the quest of surgery proper, to which he brought a mind stored with brilliant equivalence from the lower animals. It is the Sushruta in Sushruta Samhita who categorised all surgical procedures into eight types and arrange them under heads such as *Aharan* (extractions of solid bodies), *Bhedan* (excising), *Chhedan* (incising), *Eshan* (probing), *Lekhan* (scarifying), *Sivan* (suturing), *Vedhan* (puncturing) and *Visravan* (evacuating fluids).<sup>[2]</sup> Sushruta in Sushruta Samhita described hundred and twenty-five different instruments, constructed after the shape of animals and birds<sup>[3]</sup> and permit the surgeon to make new instruments according to the requirement of each case. The qualifications and equipment of a surgeon are practically the same as are suggested at the present time. A light diet is advised to be given to the patient before a surgical operation. Specifically the abdominal operations and operations in the mouth are advised to be performed while the patient is in fasting.<sup>[4]</sup> Sushruta advised the surgical ward should be fumigated with the vapours of white mustard, bdellium, Nimba leaves and resinous gums of Shala trees, etc.<sup>[5]</sup> which indicates the antiseptic theory of recent times. The number of surgical equipment described in the Sushruta Samhita is small in comparison with the almost vast resources of present day surgery, and one may be naturally suspect the authenticity of the glorious achievements claimed to have been performed by the ancient surgeons. In Sushruta Samhita ophthalmic, obstetric and other surgeries were performed with the extreme proficiency and care.

## PLASTIC AND RHINO PLASTIC OPERATIONS

According to doctor Hirschberg of Berlin - the whole plastic surgery in Europe took a new turn when this sneaky instrument of Indian workmen became known to us. The transplanting of sensible skin flaps is also totally Indian method in which Sushruta has first successfully established the feasibility of mending a cut earlobe with a patch of sensible skin- flap worn out from the neck or the adjacent part.<sup>[6]</sup>

Sushruta was the 1<sup>st</sup> person who discovered the skill of cataract operation which was not known to the surgeons of ancient Greece and Egypt. Limbs were surgically removed, abdominal sections were performed, fractures and dislocations were set, hernia was reduced, haemorrhoids and fistula were removed.

In case of injured intestine Sushruta advised that “the stick out part should be smoothly put back with the finger” A surgeon should expand the lesion if necessary, with a surgical knife. In the case where the intestine is detached, the detached parts should be held together by applying live black ants to their split ends. Then their bodies should be cut of leaving only the heads.<sup>[7]</sup> This will serve the same purpose which in modern improved European surgery an animal tissue like catgut is expected to fulfil. After this the intestine should be put back in the abdominal cavity and the external opening stitched and properly dressed. There are so many abdominal and peritoneal surgery described elaborately by Sushruta in Sushruta Samhita. Medicated plasters were applied to restrict the shafts of arrows entrenched in the limbs of injured soldiers and their exact positions were ascertain from the inflammation produced by the application of such a plaster with correctness which is well acknowledged even in these days of X Ray.

## LITHOTOMIC OPERATIONS

Detail descriptions of making perineal incision and post-operative care of surgical wound and operated patients were found. Sushruta described a typical method of perineal cystolithotomy in case of a stone due to seminal concretion or spermatic concretion. Sushruta advised that the stone, if in the urethra, should be removed with the help of *Anuvisanam* and urethral emanates, failing which the perineum should be cut open and the concretion remove out with the help of a hook.

Similarly amputations were freely made and medicated wines were given to the patients as anaesthetics. These suggested that the surgery of Sushruta does not lies with the mere

bursting or opening of an abscess, and the healing of the incidental wound, but lays down processes for major operations as well. The removal of the scar until it becomes of the same colour with the adjacent skin and the growth of hair thereon are ideas which we find nowhere else.

### OPHTHALMIC SURGERY

Out of seventy six types of eye diseases, Sushruta regarded that fifty-one are surgically curable.<sup>[8]</sup> The method of operation in each case has been vividly described in the Samhita. Sushruta was aware of the fact that the angle of reflection is equal to the angle of incidence, and that the same ray which invade upon the retina serves the both the purpose of illuminating the eye and the external world and is transformed into the light sensation.

### MIDWIFERY

It is in the field of practical midwifery were first systematically described by Sushruta in his treatises. The various turning, flexing, gliding movements, the use of the forceps in cases of complex labour and other obstetric operations involving the mutilation of the child, such as craniotomy, were first scientifically described in the Sushruta Samhita long before fillets and forceps were thought of in Europe and thousands of years before the birth of Christ. Sushruta, who advised Caesarean Section in hopeless cases of obstruction, advised that the instrument should be used only in those cases where the proportion between the child and the maternal passage is so tapered that medicated plasters, fumigations, etc., are not sufficient to affect a natural delivery.<sup>[9]</sup> His advice about the management of the puerperal state, lactation and management of the new born and the choice of a wet-nurse are same to a large extent as are found in modern scientific works of European Surgeon. In those old days perhaps there were no hospitals to crowd patients together in the same room and thereby acquired nosocomial infection which are now so common and so fatal were not described. However the description of *vranitagara* was described clearly.

### DISSECTION

Sushruta, was the first surgeon who suggest the dissection of dead bodies is crucial for a successful student of Surgery. An incompetent surgeon is a public danger and Sushruta says that, “theory without practice is like a one-winged bird that is incapable of flight.”<sup>[10]</sup> Sushruta has also highlighted the importance of preservation of dead body and also lauds about practical observation for acquiring a thorough knowledge.<sup>[11,12,13]</sup>

## STUDY OF PRACTICAL SURGERY

To give competency in surgical operations, the scholars of Dhanvantari (Sushruta etc.) were asked to practice their knives frequently first on natural and artificial objects similar to the diseased parts of the body before doing an actual operation. Incision was performed on, *Alavu Pushpatala*) or *Trapusha*, evacuation on leather bags filled with water and on the urinary bladders of dead animals, scarification on the skin of animals on which the hair was present. Dead animal's vessels and stalks of water lily plant were used to practised venesection. Bamboo reeds were used to practised probing and stuffing. Similarly extraction was adapted on *Panasa* (*Artocarpus integrifolia*) and/ or similar fruits. Scraping was practised on wax spread on a *Shalmali* (*Bombox Malabaricum*) board, and suturing on pieces of cloth, skin. Ligaturing and bandaging were practised on dummies, cauterisation on pieces of flashes.<sup>[14]</sup>

## STUDY OF PRACTICAL ANATOMY

It was mentioned earlier that the quartered sacrificial animals provide materials for the study of comparative anatomy. The *Aitareya Brahmana* contains special sanction for the quartering cutt of such animals and the preceptors availed themselves of the religious meetings to demonstrate the lessons on practical anatomy. During the description of *Rajayakshma* nice depiction of Lungs were found.

## CONCLUSION

The *Sushruta Samhita* touches every aspect of the medical arts. It was not known outside India till the 8th century CE. Then it was translated into Arabic. Even then, the text was not known to the West till the late 19<sup>th</sup> century CE. Then Bower Manuscript was discovered. In Bowers manuscript name of Sushruta was found in a list of sages. Sushruta emphasised on treatment of whole patient and not only the symptoms. Bedside manner of a physician's in the modern day is very important in developing trust and encouraging the success of treatment. These practices and policies are considered an innovation as recent as mid 20<sup>th</sup> which was already implemented by Sushruta 2000 years ago.

## ACKNOWLEDGMENT

The authors are thankful to the writers from whom material assistance was taken.

## REFERENCES

1. SushrutaSamhita of Sushruta with NibandhaSangraha commentary by Dalhanacharya and Nyayachandika by Gayadasa, edited by Vaidya Jadavji Trikamji, Published by Krishnadas Academy, Varanasi, Re-Print 1998, Su.Su.9/15, Page-41.
2. SushrutaSamhita of Sushruta with NibandhaSangraha commentary by Dalhanacharya and Nyayachandika by Gayadasa, edited by VaidyaJadavjiTrikamji, Published by Krishnadas Academy, Varanasi, Re-Print 1998, Su.Su.5/5, Page-19.
3. SushrutaSamhita of Sushruta with NibandhaSangraha commentary by Dalhanacharya and Nyayachandika by Gayadasa, edited by VaidyaJadavjiTrikamji, Published by Krishnadas Academy, Varanasi, Re-Print 1998, Su.Su.7/8, Page-31.
4. Acharya Ambika Datta Shastri, Acharya Sushruta's, Sushruta Samhita with Ayurveda Tatva Sandipika Hindi Commentary, Sutra Sthana 5/16, 13th edition, Chowkhambha Sanskrit Sansthan, Varanasi, 2002; 17.
5. SushrutaSamhita of Sushruta with NibandhaSangraha commentary by Dalhanacharya and Nyayachandika by Gayadasa, edited by VaidyaJadavjiTrikamji, Published by Krishnadas Academy, Varanasi, Re-Print 1998, Su.Su.5/18, Page-21.
6. SushrutaSamhita of Sushruta with NibandhaSangraha commentary by Dalhanacharya and Nyayachandika by Gayadasa, edited by VaidyaJadavjiTrikamji, Published by Krishnadas Academy, Varanasi, Re-Print 1998, Su.Su.16/26, Page-80.
7. SushrutaSamhita of Sushruta with Nibandha Sangraha commentary by Dalhanacharya and Nyayachandika by Gayadasa, edited by VaidyaJadavjiTrikamji, Published by Krishnadas Academy, Varanasi, Re-Print 1998, Su.Chi.14/17, Page-460.
8. SushrutaSamhita of Sushruta with NibandhaSangraha commentary by Dalhanacharya and Nyayachandika by Gayadasa, edited by VaidyaJadavjiTrikamji, Published by Krishnadas Academy, Varanasi, Re-Print 1998, Su.Ut.9/3-5, Page-610.
9. SushrutaSamhita of Sushruta with Nibandha Sangraha commentary by Dalhanacharya and Nyayachandika by Gayadasa, edited by Vaidya JadavjiTrikamji, Published by Krishnadas Academy, Varanasi, Re-Print 1998, Su.Chi.15/13-19, Page-462-463.
10. P. V. Sharma, Sushruta Samhita of Maharsi- Susruta, english commentary part-2, Chaukambha Bharati Academy Varanasi, reprintedition 2000, Sharir Sthana5/47-48, Page no-182.
11. P. V. Sharma, Sushruta Samhita of Maharsi- Susruta, english commentary part-2, Chaukambha Bharati Academy Varanasi, reprint edition 2000, Sharir Sthana5/49, Page no-182.



12. P. V. Sharma, Sushruta Samhita of Maharsi- Susruta, english commentary part-2, Chaukambha Bharati Academy Varanasi, reprint edition 2000, Sharir Sthana 5/50, Page no-183.
13. P. V. Sharma, Sushruta Samhita of Maharsi- Susruta, english commentary part-2, Chaukambha Bharati Academy Varanasi, reprint edition 2000, Sharir Sthana 5/51, Page no-183.
14. Sushruta Samhita of Sushruta with Nibandha Sangraha commentary by Dalhanacharya and Nyayachandika by Gayadasa, edited by Vaidya Jadavji Trikamji, Published by Krishnadas Academy, Varanasi, Re-Print 1998, Su.Su.9/4, Page-42.