



**SUSHRUTA BASIC SURGICAL TECHNIQUES W.S.R. HALSTED PRINCIPLES OF SAFER SURGERY**

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Article Received on 14/11/2017

Article Revised on 04/12/2017

Article Accepted on 24/12/2017

**ABSTRACT**

A familiar interrogation always arising from the site of modern medical discipline, that how surgery is a part of Ayurveda. The most of the work in field of surgery is being done by modern people and so that it's a property of Allopathy. But on collecting evidence and keen-sighted back in the history of medical science particularly Ayurveda, it is found that it's not exactly true. Sushruta (1000-1500 BC), a famous surgeon and legendry the father of surgery, described the Shalya Tantra (surgery) in his text book Sushruta Samhita as a superior branch among eight branch of Ayurveda. Sushruta Samhita covers various surgical ethics and basic principal of surgery as well as general health care tips. As it is well known that the father of safe surgery in modern era is Halsted (19th Cent AD) and he advocated seven principles of surgery. It is ideal concept and must be follow in every minor or major surgical cases. Here an attempt is taken to demonstrate the Ayurveda surgical principles in relation to Halsted principal of surgery for justifiable ness of ancient surgery.

**KEYWORDS:** Ayurveda, Halsted, Sushruta, Surgery.

**BACKGROUND**

In existing setting the modern medical science is well established profession having incredible advancement with many specialized and super specialized branches. The surgery is a branch of medicine dealing with manual and operative procedures for correction of deformities and defects, repair of injuries and diagnosis and cure of certain diseases (Taber's D.).<sup>[1]</sup> The Halsted's principles, is the view of William Stewart Halsted (19<sup>th</sup> cent AD), co-founder of Johns Hopkins Hospital. Their views are the elementary principles of surgical technique regarding tissue handling. These are the vital tips for surgeon to attain worth in surgery with minimal hospital stay and postoperative care, early health recovery and cost effectivity. The principles is as follows.<sup>[2]</sup> –

- 1) Gentle handling of tissue,
- 2) Meticulous haemostasis,
- 3) Preservation of blood supply,
- 4) Strict aseptic technique,
- 5) Minimum tension on tissues,
- 6) Accurate tissue apposition,
- 7) Obliteration of dead space

On the other hand the Ayurveda is ancient medical science and is a sub part of Atharvaveda of Veda (the source of knowledge). Ayurveda have concept of Astanga Ayurveda at the time of its creation, means it have eight branches of medical science.<sup>[3]</sup> Among these the Shalya Tantra is predominantly described by

Sushruta (1000 BC-1500 BC) in his text Sushruta Samhita, which is an ideal text book of Ayurvedic surgery.<sup>[4]</sup> Sushruta added and composed the surgical principles from the ocean of Ayurveda. Not only the principle of safer surgery but other minute to major surgical procedure, subspecialty and super speciality of surgery is clearly labelled in Sushruta Samhita. The concept of cauterization by heat and chemical, wound clinic, blood and bloodletting procedures, plastic surgery, fracture and dislocation, dermatology, different tools and technique along with surgical procedures etc. are specified by Sushruta. His views are adopted till now by all practitioners, academicians and researchers. Their principles are still valid but justification is necessary in current scenario as modern medical science is main stream of health care. Here glimpse of Ayurveda is presenting which shows the glory of Ayurveda in context to surgical principal of Halsted.

**DISCUSSION**

Any opinions can be recognised if justified by evidence and facts. For that debate on topic is obligatory. To highlight the primordial Ayurvedic surgical glory in context to Halsted's surgical principles here the debate is prepared on every aspect and on point to point. These are as follows-

1. **Gentle handling of tissue** – The skin and soft tissues need respect while making incision,

dissecting layer and tissues, suturing wounds, cleaning wounds etc. In this honour Sushruta make attention about ideal quality of incision, correct technique of incision, correct shape of incision at particular site, direction of incision, extension of incision, method of suturing, complication of improper incision etc. (Sushruta Samhita Sutrasthana 5).<sup>[5]</sup>

2. **Meticulous haemostasis** - Sushruta stated that the blood is important part of body, as a dhaatu (composite the body) and also considered it equivalent to life (Sushruta Sutra 14/44<sup>[6]</sup>, Charak Sutra 24/4<sup>[7]</sup>). He advise the careful haemostasis during surgical procedure. After incision in surgical procedure or removal of foreign body make sure *Nirlohitam vranam kritwa* (make blood leakage free) by appropriate measures (Sushruta Sutrasthana 27/8)<sup>[8]</sup> like hot fomentation, sandhaan (by applying astringent lotion), skandan (process of coagulating local blood), paachan, dahan (cauterization) (Sushruta Sutrasthana 14/ 39).<sup>[9]</sup> Sushruta also instructed that in a wound dust, hairs, nails, other unwanted or foreign matters (like oozed blood) must be removed before suturing (S.Su.25/18-19).
3. **Preservation of blood supply** - The result of surgery depend on proper blood supply at operative site. In this regard Sushruta advocate that surgeon always kept in mind that not try for union where there is no blood, impure blood, excess blood or inadequate blood supply (Sushruta. Sutrasthana 16/19).<sup>[10]</sup> So always try to make proper blood supply for correct union of tissue margin.
4. **Strict Aseptic technique** – The source of addition of pathogen in operative area is mainly by infection from outside like, sleepers, gowns, unrestricted/overcrowded entry, unsterilized instruments and equipment's etc. Sushruta advocated that before going to perform surgical procedure one should well dressed and cut their nails, hairs etc. to prevent infection. Always ensured a well-planned, well equipped, well arranged *dhoopit(fumigated by drugs)* wards or rooms (*Vranitagaar*) for surgical patients to avoid sepsis (Sushruta sutrasthana 19/3).<sup>[11]</sup> *It prevents the Nisachar (dangerous and invisible creatures, infectant), krimi(worms), flies, dust, direct sun light, harmful animals etc* (Sushruta Uttartantra 60/3<sup>[12]</sup>, Sushruta Sutrasthana 19/23.<sup>[13]</sup>). *Constantly practice to avoid commencement of sepsis in wounded patient because it causes destruction of muscles, veins, nerves etc* (Sushruta Chikitsasthana 1/119<sup>[14]</sup>, Sushruta Chikitsasthana 3/69).<sup>[15]</sup> Concept of dhoopan (fumigation by drugs) in shalyakarma (surgery) is a torch bearer and is indicative of antiseptic consideration of all parts including wound, bandage material, dressing material, bed, gowns, surgical wards/rooms etc. Also do not press

or itch the wound site (Sushruta Sutrasthana 19/28-31).<sup>[16]</sup> Sushruta and his commentator Dalhan mentioned a better exposition of aseptic surgery that surgical instruments should be used after *agnitaptena* (heated in fire) otherwise risk of suppuration may happen (Sushruta.<sup>[17]</sup> Chikitsa 2/46 and on this Dalhan<sup>[18]</sup> commentary). Astanga Hridaya also quoted that no one should sneeze, laugh or yawn without wrapping his mouth (Astanga Hridaya Sutrasthana 2/35).<sup>[19]</sup> On comprehensive study of Sushruta Samhita it can be concluded that Sushruta was really the originator of aseptic surgery

5. **Minimum tension of tissues** – The minimum tension and avoidance of strain at incision site facilitating the healing process. The suturing at wound site must be done after leaving proper gap and is neither too near nor too far to avoid the cut through and pain respectively. This is suturing technique mentioned by Sushruta.<sup>[20]</sup> (Sushruta Sutrasthana 25/26).
6. **Accurate tissue apposition** – During stitching, always take effort to make correct apposition of tissue margin. This will aid early union of tissue and minimum scar formation. The same believed is mentioned in Sushruta Samhita (Sushruta Sutrasthana 25/20)<sup>[21]</sup> like raised the edges of wound and brought them into opposition, then sutured it with fine thread and needle.
7. **Obliteration of dead space** – After removal of lipoma, cyst, lump, foreign body, pus etc., one should always try to avoid dead space existence. Its presence causes collection of fluid which hinders the surgical outcome. In Ayurveda it is a general code that if there is any Kha (dead space), it may be a site of pathogenesis and the kupit doshas easily attracted at that site (Sushruta sutrasthana 25/19).<sup>[22]</sup> Also mentioned as don't try to heal the wound in hurriedness as leaving some insipid matter (blood, pus, dead space etc) underneath cause recurrence by tiniest disturbances (Sushruta Sutrasthana 5/38).<sup>[23]</sup> It help to start the healing from bottom and that is possible by abolishing the dead space.

## CONCLUSION

On keen observation of above thing the conclusion approached that all the principle of safer surgery mentioned by Halsted are surviving in Sushruta Samhita. Sushruta described the principle of safer surgery in his text but not by such heading. So from the sea of Ayurveda the matters are collected and justified. So it can be said that the surgical ethics, surgical principles and soul of surgery actually follow the ancient Ayurveda principal. The Sushruta ideas prevailing subsequently many years ago but there is basic lacuna in its advertisement on suitable modern platform. This shows Ayurvedic surgical spirit. Here a glimpse is trying to put from sea of Ayurveda. With an expectation that few

more surgical perception can be coined as an eye opener in surgical society.

#### ACKNOWLEDGEMENT

From the bottom of my heart, thanks to all seers of Ayurveda and stakeholders of Shalya Tantra (surgery) for trusting, conserving, disseminating and practicing the Ayurvedic surgical procedures (and skill) which is gifted by God (Lord Dhanwantari).

#### REFERENCES

1. Taber's cyclopedic medical dictionary, 19<sup>th</sup> edition, F.A. Davis company Philadelphia ISBN 0-8036-0654-0(indexed), page 2007.
2. Halsted's Principles - [https://en.wikipedia.org/wiki/Halsted%27s\\_principle](https://en.wikipedia.org/wiki/Halsted%27s_principle) seen on 10/12/2017.
3. Tripathi Ravidatta, "Saroj" hindi commentary on Astanaga Samgraha sutrasthana chapter 01/10, Chaukhambha Sanskrit Pratishthan Delhi, reprint edition 2001, p. no.5.
4. Shastri Ambikadatta, "Ayurveda-tattva-sandipika" hindi commentary on Sushruta Samhita, Chaukhambha Sanskrit Sansthan Varanasi; reprint edition 2005 p.no.5. Sushruta sutrasthana 01/26.
5. Shastri Ambikadatta, "Ayurveda-tattva-sandipika" hindi commentary on Sushruta Samhita, Chaukhambha Sanskrit Sansthan Varanasi; reprint edition 2005, p.no.16-19 (Sushruta Sutrasthan 5).
6. Shastri Ambikadatta, "Ayurveda-tattva-sandipika" hindi commentary on Sushruta Samhita, Chaukhambha Sanskrit Sansthan Varanasi; reprint edition 2005, p.no.56(Sushruta Sutrasthana 14/44).
7. Tripathi Brahmanand, Charak Chandrika hindi commentary on Charak Samhita, Chaukhambha surbharti prakashan Varanasi, reprint edition 2004, p.no.429(Charak Samhita Sutrasthan 24/4).
8. Shastri Ambikadatta, "Ayurveda-tattva-sandipika" hindi commentary on Sushruta Samhita, Chaukhambha Sanskrit Sansthan Varanasi; reprint edition 2005, p.no.111(Sushruta Sutrashtana 27/8).
9. Shastri Ambikadatta, "Ayurveda-tattva-sandipika" hindi commentary on Sushruta Samhita, Chaukhambha Sanskrit Sansthan Varanasi; reprint edition 2005, p.no.55(Sushruta Sutrasthana14/39-42).
10. Shastri Ambikadatta, "Ayurveda-tattva-sandipika" hindi commentary on Sushruta Samhita, Chaukhambha Sanskrit Sansthan Varanasi; reprint edition 2005, p.no.67 (Sushruta Sutrasthana 16/19).
11. Shastri Ambikadatta, "Ayurveda-tattva-sandipika" hindi commentary on Sushruta Samhita, Chaukhambha Sanskrit Sansthan Varanasi; reprint edition 2005, p.no.79(Sushruta Sutrasthana 19/3).
12. Shastri Ambikadatta, "Ayurveda-tattva-sandipika" hindi commentary on Sushruta Samhita, Chaukhambha Sanskrit Sansthan Varanasi; part-II, reprint edition 2005 p.no.436 (Sushruta Uttartantra 60/3).
13. Shastri Ambikadatta, "Ayurveda-tattva-sandipika" hindi commentary on Sushruta Samhita, Chaukhambha Sanskrit Sansthan Varanasi; reprint edition 2005, p.no.80-81 (Sushruta Sutrasthana 19/23).
14. Shastri Ambikadatta, "Ayurveda-tattva-sandipika" hindi commentary on Sushruta Samhita, Chaukhambha Sanskrit Sansthan Varanasi; reprint edition 2005, p.no.12(Sushruta Chikitsa 1/119).
15. Shastri Ambikadatta, "Ayurveda-tattva-sandipika" hindi commentary on Sushruta Samhita, Chaukhambha Sanskrit Sansthan Varanasi; reprint edition 2005, p.no 25(Sushruta Chikitsasthana 3/69).
16. Shastri Ambikadatta, "Ayurveda-tattva-sandipika" hindi commentary on Sushruta Samhita, Chaukhambha Sanskrit Sansthan Varanasi; reprint edition 2005. no.81(S.Su 19/28-31).
17. Shastri Ambikadatta, "Ayurveda-tattva-sandipika" hindi commentary on Sushruta Samhita, Chaukhambha Sanskrit Sansthan Varanasi; reprint edition 2005 p.no.17(Sushruta Chikitsasthan 2/46).
18. Nibandha samgraha commentary of Dalhan on Sushruta Samhita on the verse of Sushruta Chikitsa-sthaana 2/46.
19. Gupta Atridev, Viddyotini hindi commentary on Astanga Hridaya, Chaukhambha Prakashan Varanasi UP, reprint edition 2007, page. P.no.24(Astanga Hridaya sutrasthana 2/35).
20. Shastri Ambikadatta, "Ayurveda-tattva-sandipika" hindi commentary on Sushruta Samhita, Chaukhambha Sanskrit Sansthan Varanasi; reprint edition 2005, p.no.105 (Sushruta Sutrasthana 25/26).
21. Shastri Ambikadatta, "Ayurveda-tattva-sandipika" hindi commentary on Sushruta Samhita, Chaukhambha Sanskrit Sansthan Varanasi; reprint edition 2005, p.no.104 (Sushruta Sutrasthana 25/20).
22. Shastri Ambikadatta, "Ayurveda-tattva-sandipika" hindi commentary on Sushruta Samhita, Chaukhambha Sanskrit Sansthan Varanasi; reprint edition 2005, p.no.104(Sushruta Sutrasthana 25/19).
23. Sharma Anantram, Sushrutavimarshini hindi commentary on Sushruta Samhita, Ist part, Chaukhambha surbharti prakashan Varanasi, reprint-2010, (Sushruta Sutrasthana 5/38).