

APPLICABILITY OF FUNDAMENTAL PRINCIPLE OF SUSHRUTA IN MODERN ERA

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ABTRACTS

Sushruta father of surgery, has elaborated the basic principles of surgery in ancient era Sushruta is well known as 'pioneer of plastic surgery'. He also has elaborated many concepts of Medicine, Paediatric, Obstetrics, Gynaecology, Toxicology, Psychiatry, ENT diseases, Fracture and Dislocations and detailed anatomy of human body with cadaver preservation and dissection, etc. Sushruta's principles of surgery has been complied in Sushruta Samhita. He has described very minute and discrete concepts of surgery like saptavidha Shopha upakram, Trividha karma, Trividha bandha, Ashtavidha shatrakarma, Shashti vrana upkram, Raksha karma, Gunas of

Shalyachikitsak, Surgical ward maintenance which are very relevant in today's era also. In Bandha Vidhi Adhyay, Sushruta has described 14 types of bandha, bandha according to organs, according to bandaging and its importance, application of medicated gauze piece (which resembles to Bactigrass in modern surgical management of wound), Three types of bandaging, organs for tight and loose bandaging, bandha according to doshas, bandha according to season, importance of proper bandaging, complications due to faulty bandaging or if bandaging not done at all. He has also explained which wound to be bandaged and which not to be bandage and rules and regulation regarding tying knots.

KEYWORDS: Bandha, Karma, Upakram, Basic principle of surgery, Fundamentals.

INTRODUCTION

Ayurveda has its origin in *Vedas* mainly divided into 8 parts of *Atharvaveda*. *Ayurveda* has holistic approach towards treatment of a disease. It is namely *Shalya*, *Shalakya* (ENT),

Kayachikitsa (Medicine), Bhutvidya, Kaumarbharitya (Paediatrics), Agadtantra(Forensic), Rasayantantra and Vajikarantantra(Aphrodisiac).^[1]

Sushruta explored the basics of Surgery and compiled his work in *Sushruta Samhita*. He believed that the knowledge of both Surgery and Medicine are necessary to constitute a good Vaidya who otherwise is like “a bird with only one wing.”^[2]

Sushruta Samhita was written around 1000 B.C., is an ancient text book of Surgery and one of the foundational text of the *Ayurveda* along with *Charaka samhita*. Though it encompasses basics of surgery it also includes Salient portions of medicine and other disciplines like Paediatrics, Geriatrics diseases of Eyes, Ear, Nose, Throat, Toxicology, Aphrodisiac and Psychiatry. It is divided into two parts 1) *Purvatantra* and 2) *Uttaratantra* containing 184 chapters, 1120 diseases, around 300 surgical Procedures, classification of Surgery in 8 categories, 121 surgical instruments and around 700 drugs of animal, plant and mineral origin.^[3] Various principles are still being used proved its applicability in this modern era.

1) Stages of surgical procedure

All surgical procedure consist of 3 stages.

- I. Purva karma (Pre-surgical procedures like patient screening and investigations, operation theatre fumigation and surgical instruments sterilization).
- II. Pradhan karma (Surgery involves 8 basic surgical procedures viz. *Chhedana*- excision to Sivan (Suturing).
- III. Paschat karma(Post-surgical management).

In *Sushruta Samhita* emphasis given on Medical management first, in failure of medical management and with appropriate Indication surgery is advised.^[4]

2) Basic surgical procedures

Sushruta has described 8 basic surgical procedures-

- i. *Chhedana* (Excision):- Part or whole organ is cut off.
- ii. *Bhedana*(Incision):- For effective drainage or exposure of underlying structures.
- iii. *Lekhana*(Scrapping or Scooping):-Removal of over growth or flesh of an ulcer
- iv. *Aharana* (Extraction):- Extraction of foreign body or tartar teeth.
- v. *Vedhana* (Puncturing):-For draining the fluid as in Hydrocele or Ascitic fluid from abdomen and Vein puncturing.
- vi. *Esana* (Probing):- To access the direction and length in sinuses and cavities.

- vii. *Vistravana*(Blood-letting):-Blood letting by leech or vein puncturing.
- viii. *Sivana* (Stitching):- wound margins are approximated and united by suturing.^[5]

3) Principle of Anesthesia

Before undergoing surgery for anesthetic purpose patient must have (who is unable to tolerate the pain) to consume the heavy meal and to take alcohol if he is habituated to drinking.

The verse confirm that Sushruta has recognized the necessity of anesthesia before a surgery, so advocated strong wine in the absence of better drugs for operative purpose.^[6]

In diseases such as obstructed foetus, abdominal enlargement, renal calculus, rectal fistula and diseases of the oral cavity, surgical operation should be done when the patient has not taken any food means nil by mouth.^[7]

4) Principle of *Shashtrakruta Vrana*

The wound made by surgeon should be broad, even (devoid of elevation and depression inside), well divided (edges clearly separated) and devoid of hollow space inside.

5) Principle of Incision

In places such as the eyebrows, cheeks, forehead, eyelids, lip, gum, axilla, abdomen and groins incision should be horizontal. (The intelligent surgeon should make incision like the disc of the moon (circular) on the hands and feet (extrimities) and in the shape of half moon (semicircular) in the anus and penis, otherwise there will be cutting of veins and ligaments,severe pain, long time for the wound to heal and formation of muscular sprouts which is similar to modern review.

6) Counter incision

If by one incision if pus not drained properly then another incision should be made considering the conditions and suitability.

7) Debridement

After determining the route of the sinus (channel of movement of pus), wound (incision) may be created so that the vitiating materials like pus, blood etc. do not remain inside.^[8]

8) Principle of Wound healing

Wound should not be made to heal in a hurry when the doshas (suppuration, inflammation etc.) are still inside; if healed slight violation of regimen produces elevation inside and gives rise to many abnormalities.^[9]

Sandhana- joining the edges of the wound

Skandana- promoting clotting

Pachana- cooking

Dahana- Burning or cauterization

Astringents drugs joins the edge of wound, Cold makes the blood to clot, Ash/alkali cooks the wound and burning constricts the vein. Diseases do not get aggravated even when little quantity of vitiated blood remains in the body, hence bleeding should be stopped, allowing the balance to remain. Too much of treatment should not be undertaken.

9) Thermal cauterization

If the blood does not clot, then methods promoting union (joining the edge of the wound) should be done. If the joining fails then it should be treated with digestives. By these three methods, the physician should try (to stop excess bleeding). If these do not succeed, then burning with fire is best.^[10]

10) Principle of Auroplasty

Reconstruction of lobe should be done by surgeon by cutting out a flap of the living muscles from the cheek retaining its connection intact turning it over to the site of the lobe after scrapping the area.^[11] This principle is similar as much as today's modern principle of plastic surgery.

11) Shopha Upkrama (Treatment of swelling)

Vimlapana- Softening by kneading with fingers

Avasechana- Blood letting

Upnaha- Warm poultice

Patana- Cutting/ Incision

Shodhana- Cleaning

Ropana- Healing

Vaikrutapaham- Removing of abnormalities.^[12]

12) Alepa phala (Benefits of poultice)

Poulticing is beneficial in unripe swellings. It mitigates the doshas and relieves burning sensation, itching and pain.^[13]

13) Bandhaprakar (Bandaging patterns)

Patterns of bandaging are fourteen- 1) Kosha 2) Daama 3) Swastika 4) Anuvellita 5) Mutoli 6) Mandala 7) Sthagika 8) Yamaka 9) Khatwav 10) Cheena 11) Vibandha 12) Vitana 13) Gophana 14) Panchangi.^[14]

14) Bandaging according to season

In diseases of *Pitta* origin and during autumn and summer, bandaging should be done twice in a day. This is same for diseases produced by vitiated blood. In diseases of *Shleshma* and in winter and spring bandaging should be done once in three days. This is same for diseases produced by aggravation of *Vata*.^[15]

15) Vranitagara (Chambers or wards for the wounded)

First of all, a chamber for the wounded person should be selected that should be auspicious and in accordance with Vastu shashtra. Residing in such a auspicious house free from dirt, sunlight and heavy breeze, the person will not suffer from physical, mental and traumatic diseases.

16) Ahita Aacharana (Activities and food to be avoided)

wounded person should not sleep during day. By sleeping during day, itching in the wound, feeling of heaviness in the body, swelling, pain, redness and exudation occurs and infection may greatly increased.^[16]

17) Raksha Karma (Fumigation)

Fumigation of the chamber should be done for ten days twice a day without laziness using Sarshapa, leaves of Arishta (*Nimba*) added with *Ghee* and Salt.^[17]

DISCUSSION

Various surgical procedure performed today whether they are modified due to advancement in techniques, the principle behind it still relevant to or similar with the principles of Sushruta.

However the surgery to be performed, but the procedures like incision, excision etc. were already been explained by Acharya Sushruta long time ago under Ashtavidha Shashtrakrut Karma.

Sushruta has also explained in a very detailed manner about bandaging: when to be done, how to be done, which to be done as per body parts; they are still relevant till now. Principle regarding sterilization, Operation Theater, cauterization and wound management are still applicable.

CONCLUSION

The fundamentals of surgery as described by Sushruta are still being practiced. There might be advancement in the surgical techniques but the base of surgical procedure has originated from Sushruta Samhita. Sushruta has described very minute and discrete concepts of surgery like saptavidha Shopha upakram, Trividha karma, Trividha bandha, Ashtavidha shatrakarma, Shashti vrana upkram, Raksha karma, Gunas of Shalyachikitsak, Surgical ward maintenance which are very relevant in today's era.

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