



Review Article

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DISTINCTIVE SURGICAL PRACTICES IN ANCIENT SURGICAL ARENA: A REVIEW

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ABSTRACT

Sushruta Samhita the first document of surgical knowledge incorporates the details of surgical diseases. This classic has detailed method of examination (trividha Pareeksha), presentation and treatment principles of surgical diseases. Emergency and complicated conditions like Chidrodara (peritonitis), Baddhagudodara (Intestinal obstruction), and Bhagnas (Fractures and dislocations) were treated surgically. Treatment principles and postsurgical care with wound management are extensively documented. Reconstructive surgeries in sadyovrana (trauma) as well as cosmetic approaches are mentioned. Yantra (Blunt instruments), Shastra (Sharp instruments), Seevana prakara (method of suturing), materials used for the surgical procedures and surgical principles are true even today. Concepts like Vranitagara (place for wounded), Taila droni (oil tub), Pranashta shalya nirharana upayas (technique of removal of foreign bodies) are unique of their kind. The ancient surgical knowledge and emergency care were exemplar and astonishing.

Keywords: Ancient surgery, Shalya tantra, Sushruta samhita.

INTRODUCTION

Sushruta Samhita is an ancient surgical treatise with respect to aetiopathology and management of surgical diseases. Surgical references are described in five sthanas namely Sutrasthana (46), Nidanasthana (16), Shareera sthana (10), kalpasthana (08) and Chikitsasthana (40) in Poorwardha and Uttaratantra possessing 66 chapters¹. Each division contribute to surgical knowledge which invariably connect the role of Surgeon in surgical and in other specialties of medicine for example Moodhagarbha chikitsa (obstructive labour) in prasooti tantra, Arma chikitsa in Shalakyata tantra and even Kayachikitsa has places regarding surgical referrals in Gulma (Abdominal tumour) and Jalodara (Ascitis) chikitsa. Shalya chikitsa has numerous modes of treatment options including Shashti upakrama for Vrana (Ulcer), Saptopakrama for Vranashotha (Inflammation) and four types of treatment for Arshas (Hemorrhoids). Special emphasis was described for wounded as Vranitagara and Rakshakarma. In Nutshell Sushruta Samhita deals with Nidana (Aetiology), Roopa/Lakshanas (presenting features) and Chikitsa (treatment) in detail which encompasses the knowledge for successful clinical practice.

Uniqueness about Sushruta Samhita

Apart from various Surgical and parasurgical contribution Sushruta samhita has unique contribution to medical field.

- First documentation to define Health: Healthy person should have dosha, dhatu, Agni in optimum level and should possess mental and spiritual wellbeing. WHO also define Health as a state of physical mental and spiritual wellbeing which synchronizes with Swastha (Health) definition of Sushruta².
- Method of Dissection: Cadaveric dissection has been extensively described to explain minutest details about Anatomy, the knowledge of which is utilized for removal of foreign bodies³.

- Application of Marma points in Shalya Chikitsa: Marmas with respect to sthana (location), pramana (measurement), parinama (effect on injury) have been classified and importance of Marma sthanas has been highlighted⁴.
- Kriyakala: Kriyakala a unique concept in which progressive phases of diseases is discussed starting with prodromal features, presenting features along with prognosis⁵.

Impact of Shalya Chikitsa

Sushruta classifies vyadhi (disease) as Agantuja (Accidental), Nija (Physical-Dosha vitiation), Manasika (Psychological) and Swabhavika (Natural).

Nidana: Aetiological factors of a diseases are discussed in various ways. Mainly Ahara (food), Aghata (Trauma), Vihara (Faulty practices), shalyaja (Foreign bodies), Beejadoshaja (Hereditary) factors involve in resulting the diseases.

Aharaja (Diet considerations): Apathya ahara (consuming unwholesome diet) is the main cause for Ashmari (Renal calculi)⁶, Bhagandara (Fistula-in Ano)⁷, Udara, Vidhrudhi (abscess) and Arshas (Hemorrhoid)⁸. Indulging in vidahi and abhishyandi food is the etiology for Pleehodara (Splenomegaly)⁹ and Picchila anna in Badhagudodara (Intestinal obstruction)¹⁰. Importance of Ahara and normalcy of Agni are important even in surgical conditions especially in GI involvement.

Aghata (Trauma): Aghata (Trauma) as an etiology for surgical conditions are plenty. Patana (fall), peedana (crushed assault), Dashana (Bites of wild animals) are enlisted in Bhagna nidanas¹¹. Abhigata as a nidana described in Parikartika, anterior fissure in Ano after vaginal delivery can be accounted for it. Ashwapatana and Goodha prahara for Vidhrudhi and mushtiprahara (repetitive injury) for Mamsaja arbuda are listed etiologies for traumatic origin¹².

Vihara: Mithya vihara (Faulty practices) practiced for long duration can lead to diseases. To name a few Urdhwa nireekshana (adopting a position where person see upwards) is the cause for Manyasthambha¹³, walking in barefoot on uneven hard surfaces lead to Vatakantaka (Calcaneal spur)¹⁴, Vegasandharana (non - attending natural urges) for Sanniruddha guda¹⁵ and Pravahana (straining during defecation) has been explained for Guda bhramsha (Rectal prolapse)¹⁶.

Nidana of Sahaja arshas: Concept of Beejadoshha has been explained in Sahaja arshas nidana where Sushrutacharya significantly specifies that Gudaarambhaka beeja dushti¹⁷ (The defective genetic material if present in embryonic development of rectum and anal canal will result in genetic transmission of the disease) will lead to the disease. If whole shukra and shonita is dushti then there will be no progeny.

Shalya as cause: Apart from foreign bodies entering the body by accidents, shalya by means of Grasa (Food morsel), Asthi (Bone) as a shalya in Asthi vidrudhis and in Chidrodera, Bala (Hair) as a shalya mentioned in Baddhagudodara and Nakha (Nail) in Dushyodara¹⁸.

Ayasa Visheshha (Excessive exertion) nidana are mentioned in Antravrudhi where Bhara harana (lifting heavy weights), Balavad Vighraha (fight with strong persons), Vrukshapatana are explained¹⁹.

Roopa

Prodromal and clinical features are indicators of diseases which aid to the diagnosis.

- Shataponaka bhagandara: As a result of Apathya ahara sevana, vata dominant tridosha prakopa lead to Mamsa and shonita dushti around gudapradesha (perianal area) result in Bhagandara pidaka. If untreated result in paka and results in Bhgandara. If multiple pidakas and the nadis develop resulting in Shataponaka Bhagandara²⁰. Good Sal's rule and watering can perineum (Multiple fistulous tracts at perineum) can be traced for the same²¹.
- Vataja Ashmari: Clinical features of Vataja Ashmari signifies the severe intensity of the pain where patient present with severe radiating pain from loin to groin. Vataja Ashmari resembles kadamba pusavat kantaka (Spiky stone surface)²².
- Baddhagudodara: Symptomatology of Baddhagudodara find congruent to Intestinal obstruction. Vitsamagandhikam chardi²³(Feculent vomiting) classical presentation of large bowel obstruction. Due to the obstruction of large intestine, fluid and gases are obstructed in intestine which results in bacterial proliferation and liberation of harmful foul smell gases. When the patient vomits, the vomitus will be feculent (resembling fecal smell)²⁴ which is described exactly in similar way in way back 5000 years ago.
- Kandabhagna (Fractures) lakshanas: Description of Kandabhagna Lakshanas²⁵ Sushrutacharya enlists lakshanas as sparshasahatwam-Tenderness, Avapeedyamano Shabda-Crepitus and no relief of pain in any position, the main presenting features of any fracture.
- Udara samprapti patient will present with Pada Shopha- Pedal oedema, Jatthare rajya- caput medusa and valivinasha which are commonly noticed in conditions where distension of abdomen is present²⁶.

The presenting/clinical features does not only indicate the diagnosis and also gives the clue of avastha (stage) and sadhyasadyata (Prognosis) of the diseases.

Chikitsa (Treatment principles): Sushruta, the father of surgery has explained numerous surgical skills and techniques in Sushruta samhita.

- **Ashtaavidha shastra karma**²⁷: Shastrakarmas namely Chedana (Excision), Bhedana (Incision), Lekhana (Scrapping), Eshana (Probing), Vyadhana (Puncturing), Aharana (Extraction), Visravana(Draining) and Seevana(Suturing) are explained in detail with the indications, materials used and technique of these surgical techniques. Surgical and parasurgical techniques are represented with respective pre surgical preparation of patient like Abhukta (Nothing per Oral), Laghubhukta (less food intake), Tila yavagu before Siravyadha, Piccila anna before Agni karma and so on.
- **Vrana Chikitsa (Wound care):** Vrana chikitsa has been given more emphasis in Sushruta samhita where 17 whole chapters are dedicated to vrana. Sixty Upakramas (treatment options)²⁸ are described for vrana chikitsa which is the highest treatment options mentioned for any condition. Local treatment of Vrana includes medical and surgical debridement methods, shodhana and ropana of vrana (Healing techniques). Art of bandaging and its techniques, materials used for the bandaging are described. As nutrition one of the major contributory factors in wound healing Pathyapathya, Ahara and Brahmana line of treatments upholds the same. Krimighna (antibacterial), Rakshoghna (protective measures), vrana dhupana (fumigation) concepts indicate the importance of hygiene and sterile condition of wound so that a non-healing ulcer can show the tendency for healing.
- **Vaikrutapaha chikitsa:** Vrana after healing may not result in acceptable form, either it may be depressed, elevated, and hyper or hypo pigmented, hard or soft edges etc. These types of vrana are remodeled to the acceptable scar form by Vaikrutapaha Chikitsa.
- **Vidrudhi (Abscess) chikitsa** explains the need of extra incision²⁹ other than primary so as to drain pus completely has been explained. The same principle is adopted even today in the management of Breast abscess where a counter incision is usually required if dominant area is not the dependent area of abscess.
- **Anorectal diseases:** The treatment modalities explained for anorectal diseases like Arsha (Haemorrhoids), Bhagandara (Fistula-in Ano), Nadivrana (Pilonidal sinus), and Parikartika (Fissure –in Ano) are practiced globally, accepted by patients and have success rates with minimum recurrence. Kshara sutra management For Bhagandara (Fistula-in Ano) is very successful in terms of minimum hospital stay, less chances of recurrences. These anorectal ailments have multiple treatment options like for Arsha- Bhesaja, Agni, Kshara and Shastra, Bhagandara-various types of Chedana. Nadivrana chikitsa Sushrutacharya mentioned the details regarding ksharasutra and referred to follow the same for Bhagandara treatment³⁰.
- **Udara Patana:** Emergency surgeries for Perforation and Intestinal obstruction are explained with the minutest details. Chidrodera and in Baddhagudodara udara patana(laparotomy)³¹ has been explained to take incision left to the midline leaving 4 angulas signifies left lower para median incision which is commonly used for these interventions. In Baddhagudodara certain measure of Aantra (intestine) has to be brought out from operating wound and observed for any obstruction and viability, the same has been explained in the chikitsa. In Parisravi udara Antrasravana Samshodhya word clearly indicate peritoneal wash which is followed after closing the perforation. So, these are the

exemplar examples of emergency surgeries practiced in sushrutas period.

- **Sandhana:** Reconstructive repair of Oshta (Lips), Karna (Ear pinna), and Nasa (Nose) has been extensively explained which indicate the reconstruction surgeries of damaged tissues along with cosmetic inclination. This is the earliest reference for Reconstructive/Cosmetic Surgery³².
- **Pranashta shalya and its Nirharana Upayas:** Concept of Pranashta Shaya (Foreign bodies) – Anavabaddha (nonimpacted) and Avabaddha (impacted) shalya, lakshanas are explained along with their identification of nature of Shalya and its removal is vividly discussed. Management of drowning, aspiration like acute features is explained³³.

DISCUSSION

Sushruta Samhita of Acharya Sushruta encompasses the surgical disorders –Etiology, pathology, diagnostic and prognostic features with best suitable options of management. The situations where surgeon should be alert and take quick decisions are also highlighted which by themselves can be enlisted under Dictums of Sushruta acharya.

The Surgeon should not extract the Asmari (calculi) from that patient who during operation presents with Vivratksha (dilated pupil) and Vichetana (loss of consciousness)³⁴– the patient due to severity of pain present with symptoms of neurogenic shock. This signifies patient's life risk and instructions to the surgeon to stop the further intervention and manage the situation.

Sushruta highlighted the importance of Pathya and isolation of vranita patients in Vranitagara where care for wound and wounded including rakshakarmas³⁵ are followed to avoid complications. Importance was given to krimighna dhoopa (Antimicrobial fumigation)³⁶ as it guards against secondary opportunistic organisms and maintain the vranitagara in a germ-free state.

Marma points are the vital areas if injured either leads to death or deformity. Sushruta opines that if there is bleeding from sira (blood vessel) in extremities because of injury and is not under control and marma points are involved then better to amputate the extremity to save life³⁷. The same treatment principle is adopted even today, if uncontrollable hemorrhage results due to accidents, amputation is decided to save the life of patient which is one of the treatment principles of Amputation technique as lifesaving measure³⁸.

Chikitsa for vranashopha has been discussed and cautioned. Amashopha should not be incised and if incised it will lead to complications as Shonita pravrutti (Haemorrhage), Vedana (Pain) and amashopha will present like kshataja vidrudhi lakshanas. If PakvaVidrudhi is neglected it will lead to nadivrana and categorize itself into asadhya vyadhi. Differentiating and diagnosing the stage of Vranashopha plays a crucial role to decide the treatment options and prognosis³⁹.

In the context of chikitsa of Sthanavidrudhi (Breast abscess) care should be taken during pachyamanavasta. Unlike other Vidrudhi Sthana vidrudhi should not be subjected to upanaha (fomentation) as Sthana comprises of mrdumamsa it will attain Kotha avasta (Gangrene). So pakavastha of Sthanavidrudhi should be attained by bhojana⁴⁰.

CONCLUSION

Sushruta Samhita is the earliest and first documented treatise in Shalya Tantra (Surgery). The clinical and surgical knowledge

with respect to aetiology, presenting features, classification, examination and treatment are elucidated in all the sthanas of Sushruta samhita. The surgical and parasurgical techniques adopted to relieve the surgical conditions are exemplar and followed even today. Udara patana in Udara, Sandhana Karmas are the incredible illustrations of Ancient Surgery. Kshrakarma, Ksharasutra for various anorectal ailments are well recognized and accepted globally.

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