Review Article

Importance of Parasurgical Procedure in Ayurveda

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Sushruta, father of surgery described para surgical procedure as anushastra karma. Para surgical procedures are performed by non-surgical instruments hence called para surgical procedures. Sushruta has explained different para surgical procedures (anushastra karma) like kshar karma, agnikarma, siravedha karma and jalaukavcharan. These para surgical procedures are very helpful to avoid surgical procedures and with the help of these procedures, we can avoid surgical as well as anesthetic complication. These procedures are very useful in scared patients or patients with co-morbid condition in which it is difficult to perform surgery, due to this usefulness in various surgical condition like hemorrhoids, thrombosed external hemorrhoid, fissure in ano, fistula in ano, pilonidal sinus, calcaneal spur, warts, arbuda (tumors), cellulitis etc. Para surgical procedures are useful to treat these diseases with less chances of recurrence. Hence, para surgical procedures have great importance in Ayurveda.

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kancha (glass), kuruvind, jalauka (leech), agni (flame), kshara (alkali), nakha (nails), goji, shephalika (harashringar leave), shakapatra, kareera, bala (hair) and anguli (finger) (Sushruta, 2002; Sutra sthana-7:15) These are indicated in children sensitive/fearful persons and in the absence of surgical instruments (Sushruta, 2002; Sutra sthana-7:16-17). Kshara karma, agnikarma and jalaukavchararana are most important anushastra karma included in shashti upakarma which involves utilization of kshara, agni and jalauka for various therapeutic purposes. Agni karma helps in vata and kapha predominant diseases. Kshara obtained from ash of different plants mainly used in arsha (piles) and bhagandara (fistula in ano). Jalaukawchararana mainly used for bloodletting or purification purposes. Kshara is a medicine obtained from ash of different plants. Kshara is mainly of two types- paaneeya kshara (ingestible) and pratisarniya kshara (local applicable) (Sushruta, 2002; Sutra sthana-11:6). Kshara is best among shastra and anushastra. Pratisaraniya kshara is mainly used as chemical cauterization and in wound management, various anorectal disorders such as arsha (haemorrhoids), guda bhramsha (rectal prolapse). Along with pratisaraniya kshara, kshara sutra and kshara varti these two are being practiced in a wide variety of diseases like bhagandara, nadivrana, dushta vrana. Agnikarma is second widely used parasurgical procedure it is indicated as a therapy of choice in many diseases, it indicated in vata and kapha related diseases. Moreover, the scope of this therapy is further extended to diseases that are found to be hard to treat by sheeta-ushana snigdha-rooksha kind of treatment. The final attribute of agnikarma can be considered on its tremendous prophylactic potential to prevent certain diseases and also has developed as a precursor to ‘cauterization’ of modern era. Jalaukawcharan is third para surgical procedure explained by sushruta which is widely used in ayurveda in dushta vrana (non healing wound) surgical condition like thrombosed haemorrhoid, non healing chronic wound in which debridement is indicated. Considering usefulness of these procedures present article summarizes importance of para surgical procedures in Ayurveda.

Aim of the present work is, ‘to study the importance of para surgical procedures (anushastra karma) in Ayurveda through literary and practical approach’.

**Material and Methods**

This article is literary review regarding importance of Para surgical procedure (Anushastra karma) depending on procedure of Kshara karma, Agnikarma and Jalaukavchararana as described by Acharya Sushruta in Sushruta samhita. There are 15 types of Anushastra as described by Sushruta. Among them important and practically used in present time is as follows; 1) Kshara karma, 2) Agnikarma, 3) Jalaukavchararana

**Kshara Karma**

*Kshara* is a medicine obtained from ash of different medicinal plants. *Kshara* is mainly of two types- Paaneeya kshara and Pratisarneeya kshara. *Kshara* is best among shastra and anushastras. Pratisaraniya kshara is mainly used in wound management, various anorectal disorders such as Arsha (Haemorrhoids), Guda bhramsha (Rectal Prolapse). In wound management it is mainly used for Shodhana (debridement). Ushna and Tikshna properties of Kshara are helpful in wound debridement. Sushruta clearly mentioned those Vrana Lakshana- Utsanna Mansan (elevated margin and hyper granulation tissue), Kathinana (hard consistency), Kandu Yukta (severe itching), Chiroththitan (chronic wounds) and unhealthy wounds can be cleaned easily i.e. help in wound bed preparation, which is the principal management in chronic wound (Sushruta, 2002; Chikitsa sthana-1:88). Pratisaraniya Kshara also help in Darana Karma in the large pus pockets having no opening especially in those where one cannot perform surgical intervention, like wounds in children, elder patient, weak patient, panic patients, ladies and wounds over sensitive and vital portion. *Kshara* is also useful in second to third degree haemorrhoid and it can avoid surgery. *Kshara Sutra* and *Kshara Varti* are other two variants of *Kshara Karma* which are used in...
the management of Nadi (Sinus) and Bhagandara (fistulas). These diseases are difficult to treat otherwise. This is because of its undermined edge and unexposed infective site and difficult in wound debridement. These conditions are treated by both methods- Shasra Karma and Anushastra (Kshara sutra & Kshara vartti). Sushruta mentioned that Nadi (sinus) present in emaciated, weak, anxious patient and present over vital parts should be treated by Kshara Sutra, not by Chhedana (surgery) (Sushruta, 2002; Chikitsa sthana-17:29). Bhagandara is also treated by Kshara sutra in same manner. Kshara Varti is another cleansing agent which treats Nadi effectively described in all Ayurvedic texts. Kshara is also used on that places where Shastra cannot be effective and appropriate (Sushruta, 2002; Sutra sthana- 11:3).

### Procedure of Kshara Karma (Pratisaarniya Kshara) Prativa Karma (Pre-Operative Care)

A patient who is considered fit for procedure is prepared accordingly. Patients are counseled and given explanation about the procedure in order to make them aware about the process of treatment. Agropaharaniya - Before starting the procedure material required such as Pratisaarniya Kshara, Nimbu Swarasa, spatula, cotton, bowl, proctoscope, Changeri Ghrita/Jatyadi Ghrita or Taila are kept ready.

Pradhana Karma (Operative Procedure)- Patient is taken on the operation table in lithotomy position. After cleaning, local anaesthesia is given and manual dilatation is done. Pratisaarniya Kshara is taken in a bowl and applied over the pile mass or any other selected area. It is kept until the colour changes to Pakwajambu phalavarna (Sushruta, 2002; Chikitsa sthana-5:4).

Pashchata Karma (Post-operative Care)- Applied Kshara is wiped with distilled water followed by Nimbu Swarasa. The procedure can be repeated for 2, 3 times according to indication and severity of disease. If required the procedure can be repeated for 2nd or 3rd sittings at interval of 21 days.

### Agni Karma

Agni karma is second important Anushastra Karma which is described by all Acharya. There are so many tools for Agnikarma called Dahamuparana like Pippali, Ajashakrit, Godanta, Shalaka (probes) Ghrita, Tail and Guda (Sushruta, 2002; Sutra sthana-12:4)

According to Akriti (Sushruta, 2002; Sutra sthana-12:11) Agnikarma may be following types;

- Valaya - Circular shape,
- Bindu - Dot shape

According to Acharya Dahana shalaka should be of pointed tip. Vilekha - Making of different shapes by heated shalaka. Vilekha type of agnikarma is further subdivided by Acharya Dalhana into three types according to the direction of line- Tiryaka (Oblique), Riju (Straight), Vakra (Zig-zag)

Pratisarana - Rubbing at indicated site by heated shalaka and there is no specific shape. According to Ashtang Hridaya there are 3 more types of Agnikarma based on Akriti Ardhachandra-Crescent shape, Swastika- Specific shape of Swastika Yantra, Ashtapada - Specific shape containing eight limbs in different directions. Different types of agnikarma performed according to body parts—Twak Dagdha, Mamsa Dagdha, Sira Snayu Dagdha and Asthi Sandhi Dagdha. Dahana Upkarana are used according to site. So Agnikarma can be classified as (Sushruta, 2002; Sutra sthana-12:8);

- Twakgata Vyadhi: Diseases involving skin; Pippali, Ajashakrit, Godanta, Shara, Shalaaka are used.
- Mamsagata Vyadhi: For diseases involving muscles, Jambavaushtha, Panchadhaatu Shalaaka Kshaudra are used.
- Sira Snayu Asthisandhi: For diseases of Sira, Snaayu, Sandhi, Marma diseases Kshaudra Madhu (honey), Guda (Jaggery) and Sneha are used.

### Procedure of Agnikarma

Poorna Karma- A patient who is considered fit for procedure is prepared accordingly. Patients are counseled and given explanation about the procedure in order to make them aware about the process of treatment., Agropaharaniya - Before starting the procedure Gas stove, Shalaka, Madhuyashti churna, and Ghritkumari (Aloe vera) are kept ready. The area is cleaned and marked.
Pradhana Karma- Panchdhatu shalaka or any other Dahanopkarana for a particular disease is selected. Panchadhatu shalaka, the Shalaka is heated red hot on the gas burner and applied over the selected area. The process is repeated according to indication and need.Corn is Mamsagata Vikara so Panchadhatu Shalaka is used, frozen shoulder is Snayusandhigata vikara, thus Guda, Sneha or Madhu is selected as Upkarana for Agnikarma. Immediately after completion of procedure pulp of Ghritkumari Majja is applied in the area followed by Madhuyashti Churna. During the procedure, patient is carefully observed for any untoward complications. Patients are advised to keep the area dry, clean, avoid exertion, trauma and Guru Apathya (Unhealthy) diet. Same procedure can be repeated according to the disease and severity of disease.

Jalaukavacharana (Leech therapy) (Sharma RK., et al., 2017)
Jalaukavacharana is third important Anushastra karma explained by ancient Acharya. Jalaukavacharana is a method of Raktamokshana. Raktamokshana has been described in Sushruta samhita and Ashtanga hridya. It has two methods Shastrakrita and Ashastrakrita. Shastrakrita further have two methods- Shrevedha and Prachhana. Ashstraakrita method can be achieved with following tools- Shringa, Jalauka,Alabu and Ghati. There are mainly two types of Jalauka-Savish (Poisonous) and Nirvisha (Non-poisonous) having six jalauka in each type. Nirvisha Jalauka is of therapeutic use. They are indicated in various diseases e.g. Twak roga, Raktaja roga, Dushta Vrana (Sushruta, 2002; Sutra sthana-13:12). In wound management Jalauka is generally applied in initial phase of wound progress. Raktamokshana reduces the pain and suppress the suppuration of premature swelling. Wounds with inflammation, hardness, reddish black in color, tenderness and uneven surface are treated by Raktamokshana.

Application of Jalauka (Jalaukavacharana) (Sushruta, 2002; Sutra sthana-13:19-22)
Purvakarma (Pre-operative Care)
a. Purification of Jalauka- Jalauka are kept in Haridra Jala, containing Haridra Churna (Turmeric powder) in a kidney tray half filled with fresh water.
b. Preparation of Patient- Before application of Jalauka, patient’s proper counseling should be done for better outcome of Jalaukavacharana. Preferably patient should be in lying down position. The part where Jalauka is to be applied is cleaned with normal water if we use Antiseptic solution to clean leech will not stick to the desired part and will not suck the blood.
Pradhana Karma (Operative Care)
Firstly, part of the body is selected where Jalauka is to be applied according to indication. Selected site is cleaned carefully. Nirvisha Jalauka is kept over the selected part. Jalauka sticks to that part. If a jalauka does not stick, then puncture the site with sterile needle and jalauka is applied. Jalauka sucks the blood by its anterior sucker which is attached to the base by posterior sucker. During sucking of blood jalauka should be covered with cold and wet cotton swab to protect the leech from excessive heat of blood. Number of application of leeches depends on severity and general condition of the disease.
Pashchata karma (Post-operative Care)
a. Jalauka Care- Jalauka should be removed from the site by sprinkling Haridra Churna or Saindhava or otherwise Jalauka leaves the site on its own when completely sucked. Vomiting is induced to Jalauka so that sucked blood is removed by Haridra Churna on its mouth and by slowly and gently squeezing from tail to mouth & then kept in fresh water. Again same Jalauka can be used after one week interval. The jalauka should move freely in water otherwise it is diseased Jalauka, called Durvanta by Sushruta.
b. Patient Care- Dressing of the affected part should be done by Triphala Kashaya and application of Haridra Churna and Madhu as these are haemostatic, antiseptic and analgesic in nature. After cessation of bleeding, tight pressure bandaging should be done to avoid chances of re-bleeding. Patient is instructed to be aware of oozing of blood from the site about 1-8 hrs. Contraindication of Jalaukavacharana: It is contraindicated in treatment of hemorrhagic diseases like haemophilia, severe anaemia,
coagulopathies, hypotension, active tuberculosis, high grade fever, immuno-compromised patients.

**Discussion**

In Shalya tantra; Shastra Karma is the principle procedure mainly followed, but along with shastra karma different Anushastra Karma is equally important and effective in surgical disease management. As Acharya have explained different Anushastra with Shastra Karma; there are some places or diseases where we cannot perform Ashtvidha shastra karma or it is difficult to perform surgery, so we have to use alternative tools in those cases. Here lies the importance of Anushastra Karma. In present era three main Anushastra karma are there Kshara Karma, Agnikarma and Jalauka karma are gaining popularity because of their usefulness. Kshara Karma is very much effective in the treatment of Arsha (Haemorrhoids), Gudabhramsha (Rectal Prolapse) and Kshara sutra is applied to sinuses and fistulas. When Kshara is applied it should be kept until 100 Matra kala as described by Sushruta and Samyaka Dagdh Lakshana appear as Pakwajambuphala Varna. After that it should be washed with Nimbu Swarasa to prevent extra caustic effect of Kshara. The probable mode of action of Pratisarneeya Kshara is, as it creates a chemical burn on prolapsed rectal mucosal folds which causes cicatrization (in wound healing process) and may strengthen the anorectal ring in rectal prolapse. Its importance lies in its action and effectiveness, because of its ability to cure those diseases which can’t be cured by the Bheshaja, Shastra. Agnikarma works on all the Vataja and Kaphaj disorders as Ushna Guna of Agnikarma is opposite to Sheeta Guna of Vata and Kapha Dosha with less recurrence. Jalauka are more effective in the management of Dushta Vrana and Thrombosed haemorrhoid. Leech saliva contains following chemical substances such as Bdellins (Trypsin plasmin inhibitor), Hyaluronidase, Hirudin, Carboxypeptidase- A inhibitors, and many others which act on the affected part (Anonymous, 2019). Bdellins is found to have anti-inflammatory action at the wound site. Hyaluronidase has antibiotic property. Carboxypeptidase-A inhibitors increase the blood flow at the wound site. Histamine and Acetylcholine like substances present in saliva of Jalauka are found to act as vasodilatation on the microvasculature over the site of application. All these properties like anti-inflammatory, antibiotic, vasodilatation increase blood flow and are very much helpful to healing of a wound. Increased blood flow in terms increase oxygen supply an eventually remove toxic materials from affected part.

**Conclusion**

In Ayurveda, Anushastra Karma (Para surgical procedure) is equally important in surgical practice to Shastrakarma. Kshara are widely described in wound management at different places of Ayurvedic texts. Pratisarniya Kshara is used in debridement of chronic non healing wounds. Kshara karma is a conducive, day care procedure and is very cost effective, which can be performed under local anaesthesia with minimal and trivial post-procedure complications which are very less. Agnikarma therapy is result oriented for Sihanika (Local) involvement of Vata in Vatakaphaja disorders. It is an ambulatory treatment modality and affordable to the common man. Agnikarma employ on those wounds which are hard and discharging in nature. Agnikarma can also be used in corn, calcaneal spur etc. Jalaukavacharana has shown to be very effective in the management of various skin disorders, chronic non healing ulcers, Thrombosed haemorrhoid etc with a very cost effectiveness.

**Conflicts of Interests**

Authors do not have any conflicts of interest with the publication of the manuscript.

**Reference**

3. Sushruta, Sushruta Samhita with Ayurveda Tatva Sandipika Hindi commentary by


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