Clinical Research

Comparative clinical evaluation of Kshara Sutra ligation and hemorrhoidectomy in Arsha (hemorrhoids)

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Abstract

Arsha (hemorrhoids) is engorgement of the hemorrhoidal venous plexus, characterized by bleeding per rectum, constipation, pain, prolapse and discharge. It is manifested due to improper diet, prolonged standing and faulty habits of defecation causing derangement of tridosha, mainly vata dosha. Vitiated doshas localize in guda vali, pradhan dhamani and manshara kala and vitiates twak, mansa, meda and rakta, resulting in the annavaha sruto dushti. Modern management of arsha needs, mainly, a surgical approach, i.e. hemorrhoidectomy, wherein the result was found to be less satisfactory. In this regard, to determine a solution for satisfactory cure, the kshara sutra ligation method in arsha was studied in comparison with hemorrhoidectomy. Kshara sutra ligation in arsha was employed in 35 patients, and 26 patients were dealt with hemorrhoidectomy. The study revealed a better result of the kshara sutra ligation-treated group in comparison with hemorrhoidectomy. The observations revealed that maximum advantages like minimum hospital stay, no bleeding during or after operation, no post-operative anal stenosis, a low cost-effective hemorrhoidectomy. The observations revealed that maximum advantages like minimum hospital stay, no bleeding during or after operation, no post-operative anal stenosis, a low cost-effective hemorrhoidectomy. Statistically, kshara sutra ligation for arsha was found to be highly significant and effective management. No adverse effects were noted during the follow-up period.

Key words: Arsha, hemorrhoidectomy, hemorrhoids, kshara sutra ligation

Introduction

Ayurveda has immense potential to solve many challenging and unresolved problems of the medical world. Shalya Chikitsa is one of the most important branches of ayurveda, which has its own originality with authenticity, contributing to the modern surgical technology of today.

Sushruta Samhita is the only available text in surgical practice, and it has been opined that there are many diseases that are difficult to manage by conservative treatment alone. Among them, arsha (hemorrhoids) is one such grave disease, for which it has been included in ashta mahagada[1] by Sushruta, showing the gravity of this disease. The present westernized lifestyle is adding to the prevalent rate of this disease. The incidence of this disease is showing augmentation with advancing age. At least 50% of the people over the age of 50 years have some degree of symptoms related to hemorrhoids.

Hemorrhoids are dealt rationally under the concept of arsha.

However, it includes some other fleshy masses like polyp, warts, etc. In Sushruta Samhita, the whole treatment is covered under four categories of treatment,[2] i.e. Bheshaj Chikitsa (palliative treatment), Kshara Karma (potential cauterization agent therapy), Agnikarma (direct cauterization agent therapy) and Shastra Karma (operation by sharp instrument).

As far as the modern modalities are concerned, the conservative treatment of piles consists of use of laxative and high-residual diet. But, not more than 80% of the hemorrhoidal symptoms can usually be controlled by non-excision techniques.[3] Other methods of treatments like sclerotherapy, rubber band ligation, infrared photocoagulation, laser therapy, Lord’s dilatation, cryosurgery, hemorrhoidectomy,[4] hemorrhoidal artery ligation under Doppler/ultrasonography and stapled hemorrhoidectomy, etc. are in practice. Despite a range of treatment modalities, the options are limited in concern with their effectiveness. There still exist controversies and lack of agreement on the treatment strategies.

Keeping in view authenticity, shalya chikitsa, i.e. parasurgery, has been selected. Under the heading of parasurgery, the kshara karma procedure, interpreted as “Potential Cauterization Application Therapy,” is the specific field taken in the present research work. Under kshara karma, the kshara sutra[5] treatment is found to be suitable and acceptable as compared with the prevalent methods in modern medical science.
Hence, in the present research work, the efficacy of the kshara sutra ligation (K.S.L.) method and hemorrhoidectomy procedure in arsha were studied clinically and results were presented statistically.

Aims and objectives
1. To study the clinical comparative effect of kshara sutra ligation with hemorrhoidectomy in arsha (hemorrhoids).

Materials and Methods

Apamarga kshara sutra
It is a standard kshara sutra used in this study. It contains 20 number barbour surgical linen thread, snuhi latex, apamarga kshara and turmeric powder. Kshara sutras were prepared under the standard guidelines given by I.C.M.R. in the Shalya Tantra Department, I.P.G.T. and R.A., Jamnagar, Gujarat.

Selection of patients
Patient, fulfilling the clinical criteria made for the diagnosis of hemorrhoids were randomly selected irrespective of their sex, religion, occupation, etc. from the OPD and IPD sections of the Department of Shalya Chikitsa, I.P.G.T. and R.A. Hospital, G.A.U., Jamnagar, Gujarat.

Inclusion criteria
Patients with age ranging from 10 to 80 years, having internal piles of 2nd, 3rd and 4th degree, were included in this study.

Exclusion criteria
Patients were excluded from study if they had pregnancy, Carcinoma rectum, hepatitis, heart diseases, 1st degree piles, tuberculosis, leprosy, inflamed piles, rectal prolapse, thrombosed piles, piles with fistula in ano and piles with ulcerative colitis.

Grouping
Group A: Kshara sutra ligation group.
Group B: Hemorrhoidectomy group.

Criteria of assessment
All the signs and symptoms were assigned a score depending on their severity to assess the effect of the procedure objectively. The following grading pattern was adopted for the scoring [Table 1].

Methodology

Kshara Sutra ligation

Pre-operative
After taking written consent for operation, perianal hair was shaved and the part was painted with antiseptic solution 1 day earlier. The patient was kept nil orally for at least 6 h before the procedure. Soap water enema was given on the night prior to and 2 h prior to the procedure. Inj. tetanus toxoid (0.5 ml), I/M was given and xylocaïn sensitivity test was performed in each patient. On the night prior to the operation, the patient was given a light diet and, afterwards, kept nil orally.

| Grade | Bleeding P/R* | Pain P/R | Constipation | Discharge P/R |
|-------|---------------|----------|--------------|--------------|
| 0     | No bleeding   | Painless condition | Regular bowel evacuation | No discharge |
| 1     | Dropping      | Dull pain and no requirement of medicine | Hard stool, once a day | Dropping |
| 2     | Syringing     | Pain requires oral medication | Hard stool, after 2 days | Staining |
| 3     | Streaming     | Unbearable pain, requires injectable drug | Hard stool after more than 2 days | Scanty |

*P/R = per rectum

Operative procedure
After giving spinal anesthesia, the patient was positioned in lithotomy on the operation table. The part was painted with antiseptic solutions and draped. Positions of piles masses were assessed. Catch hold: The pile mass was held with the help of pile-holding forceps. Transfixation: Each pile mass was transfixied by passing the curved round body needle mounted with kshara sutra at its base. Ligation: After transfixiation of kshara sutra, the pile mass was ligated anteriorly and posteriorly with adequate knots. The ligated and prolapsed pile masses were tried to push inside the rectum. Bleeding per rectum was observed to be nil. Finally, warm water irrigation was carried out followed by “T” bandaging. Then, the patient was shifted to the recovery room.

Post-operative
Patients were allowed to orally sip liquids after 6–8 h of operation and were gradually shifted to normal diets. Later, patients were advised for Avagaha sweda with sphatikadiyoga (5 g/sitting) up to at least 10 min with maintenance of equal warm water. Daily dressing with irrigation of warm water and 10 ml jatyadi taila as matra vasti was given once till removal of all kshara sutra-ligated pile masses. After removal of all masses twice-daily application of adequate quantity of jatyadi ghrita with insertion of 05 ml jatyadi taila per rectum was continued till healing completed.

Hemorrhoidectomy

Pre-operative
Same as in kshara sutra ligation cases.

Operative procedure
The operation that was performed consisted of the following steps:

After giving spinal anesthesia, the patient was kept in a lithotomy position on the operation table. The part was painted with antiseptic solutions and draping was performed with a sterilized cut-sheet. Later on, the positions of various pile masses were assessed. Catch hold: The pile mass was held individually with artery forceps. Incision: A “V”-shaped incision on the perianal skin corresponding to the pile mass was made. Transfixation: Each pile mass was transfixied by passing the curved round body needle mounted with Barbour linen thread.
at its bases. Ligation: After transfixation, the pile mass was ligated properly. Excision: One centimeter distal to the ligature, masses were excised and complete hemostasis was achieved. Application of betadine solution dressing and “T” bandage was performed. The patient was shifted to the recovery room.

**Post-operative procedure**

Patients were kept nil by mouth till 12 h and were administered suitable I/V fluids for 3 days. Appropriate administration of antibiotics and analgesics was continued for 5-7 days. Patients were advised to take warm water sitz bath three times/day from the 1st post-operative day onwards. Daily dressing was performed with betadine solution till the healing completed.

**Observations and Results**

Maximum numbers of patients (27.80%) were found from the middle age group (31-40) and from Hindu community (93.44%). Male predominance was found to be higher (96.27%). Occupation wise distribution was maximum having sedentary jobs (42.62%). Maximum patients found to have Krura Koshtha (70.49%). Socioeconomically 53.58% were from lower middle class. According to marital status; maximum were married (81.96%). Analysis of dwelling status of patients found that majority of them belonging to urban area. Maximum number of patients (70.49%) having constipated bowel habit [Table 2].

The shape of the pile mass is similar to Karpasa Phala in maximum number of patients (26.38%), the character of pile mass is Snigdha / unctuous found in maximum number of patients (95.08%). Pain in ano found in 31.15% and discharge in 6.56% of patients. According to gradation of pile mass; 50.81% of patients having second degree pile mass. Per rectal bleeding in drop wise manner found in 45.90% and irregular per rectal bleeding found in 45.57% of patients. In total; 89.57% of registered patients have primary pile mass and 57.37% patients having normal sphincter tone [Table 3].

Effect of *Kshara Sutra* ligation on clinical features of *Arsha* such as per rectal bleeding, pain in ano and constipation showed highly significant results but no non-significant relief was found in pain in ano [Table 4].

In overall effect of therapy by *Ksharasutra* ligation therapy; 100% of patients got cured. But by hemorrhoidectomy therapy overall effect was seen as 11.54% patients got marked improvement, 30.77% got moderate improvement, 15.38% shown improvement only and maximum number of patients i.e. 42.31% have been reported as unchanged effect [Tables 5 and 6].

On comparison of cardinal symptoms in both groups; there was statistically highly significant decrease in bleeding per rectum, significant decrease in constipation and non significant decrease seen in pain in ano symptom in *Ksharsutra* ligation therapy compared with hemorrhoidectomy therapy [Tables 7-9].

**Discussion**

Maximum patients were of the middle age group [Table 2] because they were more active, enthusiastic and working hard to earn money for the family without giving much time to maintain personal health regimens, particularly diet. Male predominance was found to be higher in this study, which may be due to reporting of more male patients to the anorectal

**Table 2: Personal history-wise distribution of 61 patients of Arsha**

| Personal history | %  | Personal history | %  |
|------------------|----|------------------|----|
| Age (31-40 years)| 27.80 | Koshtha (Krura) | 70.49 |
| Sex (male)       | 96.27 | Socioeconomic status (lower middle) | 53.58 |
| Religion (Hindu)| 93.44 | Marital status (married) | 81.96 |
| Occupation (sedentary job) | 42.62 | Habitat (urban) | 57.37 |
| Dietary habit (improper) | 80.43 | Constipation | 70.49 |

**Table 3: Particulars related to disease**

| Particulars | %  |
|-------------|----|
| Similar to Karpasa phala | 26.38 |
| Snigdha/unctuous | 95.08 |
| Pain | 31.15 |
| Discharge | 6.56 |
| Second-degree pile mass | 50.81 |
| Bleeding in dropping manner | 45.90 |
| Irregular bleeding | 47.57 |
| Primary piles | 89.57 |
| Sphincter tone (normal) | 57.37 |

**Table 4: Effect of Kshara Sutra ligation on clinical feature of Arsha: n = 35**

| Symptoms                  | BT | AT  | MD | %   | ±SD | ±SE | ‘t’ | ‘P’   |
|---------------------------|----|-----|----|-----|-----|-----|-----|-------|
| Bleeding per rectum       | 1.542 | 0  | 1.542 | 100 | 0.8520 | 0.144 | 10.71 | <0.001 |
| Pain in ano               | 0.846 | 0  | 0.314 | 100 | 0.471 | 0.079 | 3.94  | <0.001 |
| Constipation              | 0.857 | 0  | 0.8571 | 100 | 0.7333 | 0.123 | 6.914 | <0.001 |

**Table 5: Effect of hemorrhoidectomy on the clinical features of Arsha: n = 26**

| Symptoms                  | BT | AT  | MD | %   | ±SD | ±SE | ‘t’ | ‘P’   |
|---------------------------|----|-----|----|-----|-----|-----|-----|-------|
| Bleeding per rectum       | 1.807 | 1.423 | 0.384 | 21  | 0.571 | 0.111 | 3.43  | <0.01  |
| Pain in ano               | 1.0  | 0.192 | 0.115 | 11.53 | 0.325 | 0.063 | 1.81  | >0.5   |
| Constipation              | 0.807 | 0.481 | 0.346 | 42.8 | 0.485 | 0.095 | 3.62  | <0.01  |
The predominance of pile masses indicate the predominance of the valveless rectal veins and, ultimately, manifests as fecal matter in the rectum, which in turn creates pressure on the hemorrhoidal plexus, referring to types of bleeding per rectum showed greater engorgement of pile masses had a Maximum incidences of of the blood vessels and tissue, which in fact causes the local necrosis of pile mass and, ultimately, forces falling out of the pile mass during defecation.

The nature of work plays an important role in the formation of arsha. The people with sedentary jobs are more susceptible for this disease because the type of work lead to improper digestion, resulting in improper bowel clearance and always creates pressure on the anal region by sitting for a long time in one posture. Jobs that require standing for long periods also create pressure on the anal region by sitting for a long time.

The mode of action of kshara sutra starts immediately after contact with the tissue. Kshara invades into the cells of the lesion till the engorged tissue of the mass destruction occurs or up to the removal of the pile masses. During the cutting effect, there may be oozing of blood, which is ceased by the sclerosing action of the kshara by its coagulating property of protein. Hence, there was no chance of bleeding during cutting of the mass. The chance of infection is least due to the sustained effect of the cheese, which is the main cause of arsha.

Other injury if ligated by skilled persons. Hence, there was no chance of bleeding during cutting of the ligated masses indirectly by its ksharana guna (corrosive properties). The action of turmeric powder provides the effect of bactericidal action with healing properties. All three drugs do not contradict each other in their actions but rather support them by equal and desirable effects. Apamarga kshara sutra has the ability to perform incision with excision slowly by virtue of its control chemical cauterizing action. This has a controlled chemical cauterizing action on living tissue for destruction of the pile mass without producing any other injury if ligated by skilled persons.

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### Table 6: Effect of therapy in Kshara Sutra ligation Group A and hemorrhoidectomy Group B

| Total effect          | Group A | Group B |
|-----------------------|---------|---------|
|                       | No. of patients | %   | No. of patients | %   |
| Cured                 | 35       | 100     | 0              | 0    |
| Marked improved       | 0        | 0       | 3              | 11.54 |
| Moderate improved     | 0        | 0       | 8              | 30.77 |
| Improved              | 0        | 0       | 4              | 15.38 |
| Unchanged             | 0        | 0       | 11             | 42.31 |

### Table 7: Comparative effect of treatment on cardinal symptoms in both groups

| Symptoms          | N | Group A mean ± SEM | Group B mean ± SEM | t  | %    | P   |
|-------------------|---|-------------------|--------------------|----|------|-----|
| Bleeding per rectum | 58  | 1.543 ± 0.144      | 0.385 ± 0.112       | 5.996 | ↑75  | <0.001 |
| Pain in ano       | 57  | 0.314 ± 0.079      | 0.115 ± 0.063       | 1.848 | ↑63  | >0.05 |
| Constipation      | 43  | 0.857 ± 0.124      | 0.346 ± 0.097       | 3.08 | ↑60  | <0.01 |

### Table 8: Average time taken for removal of the KSL mass in group-A and group-B

| Removal of pile mass | Group A (no. of days) | Group B (no. of days) |
|----------------------|-----------------------|-----------------------|
| Average days         | 3.2                   | 14.3                  |

### Table 9: Size-wise removal of pile masses in both groups

| Size (inch) | Group A (no. of days) | Group B (no. of days) |
|-------------|-----------------------|-----------------------|
| <1/2        | 2.4                   | 12                    |
| <1          | 3.6                   | 13.7                  |
| >1          | 5.1                   | 15.6                  |

The people with sedentary jobs are more susceptible for this disease because the type of work lead to improper digestion, resulting in improper bowel clearance and always creates pressure on the anal region by sitting for a long time in one posture. Jobs that require standing for long periods also create pressure on the hemorrhoidal veins and lead to the formation of arsha. In the krura koshtha patient, evacuation of mala is always difficult, and this leads to accumulation of fecal matter in the rectum, which in turn creates pressure on the valveless rectal veins and, ultimately, manifests as arsha.

Maximum incidences of karpasaphala and kadamba shapes of pile masses indicate the predominance of vata dosha. Maximum pile masses had a snigdha (glossy) character, which suggested the predominance of kapha dosha. Syringing and streaming types of bleeding per rectum showed greater engorgement of the hemorrhoidal plexus, referring to pitta dosha.

### Probable mode of action

As per the analytical study, linen thread supports the strength of ligation while the snushi latex acts as a binding agent, having almost all the apamarga kshara properties intact, which in fact liberates many fold of medicament having surgical actions like incision, excision debridation, scrapping and medical action like hemostatic, antiseptic, healing, etc., which act simultaneously to cure the arsha. According to research work, it is viewed that seven coatings of apamarga kshara on kshara sutra cauterize the tissue of the ligated masses indirectly by its ksharana guna (corrosive properties). The action of turmeric powder provides the effect of bactericidal action with healing properties. All three drugs do not contradict each other in their actions but rather support them by equal and desirable effects. Apamarga kshara sutra has the ability to perform incision with excision slowly by virtue of its control chemical cauterizing action. This has a controlled chemical cauterizing action on living tissue for destruction of the pile mass without producing any other injury if ligated by skilled persons.

### Conclusion

Kshara sutra ligation procedure can be conducted at OPD level, takes less time and, if the patient has any associated systemic disorder, then the procedure can still be performed with proper prophylactic measures. It is an ambulatory procedure; no primary and reactionary haemorrhage is caused. It requires less duration for completing the treatment. The patient can perform his/her daily routine work from the next day.
day after the surgery. Antibiotic and anti-inflammatory drugs requirement are quite less. In the post-operative period, the patient feels less pain because no anal pack is required. After separation of the mass, the wound heals quickly and smoothly. It takes less hospitalization time and there is least possibility of recurrence. All pile masses; both primary as well as secondary can be ligated at one sitting. It needs minimal expenditure and can be performed under local anesthesia. There is no adverse effect during the post-operative period, like anal stenosis/stricture, incontinence, bowel irregularities, etc. Kshara sutra ligation treatment is much more beneficial in comparison with hemorrhoidectomy at maximum point. It can be concluded that kshara sutra ligation is a standard surgical treatment modality in the 2nd, 3rd and 4th degrees of arsha (hemorrhoids), which is a low, cost-effective and affordable treatment for all classes of people in the society.

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