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Research Article

EFFICACY OF *KSHARASOOTRA* LIGATION IN *ARSHACHIKITSA* W.S.R. TO THIRD DEGREE HAEMORRHOIDS

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KEYWORDS: *Ksharasootra* Ligation, *Arsha*, Haemorrhoids.

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ABSTRACT

Enumeration of the vast number of aetiological factors (including dietetic ingredients, habits of prolonged sitting during defaecation etc.) and the systematic description of pathogenesis are indicative of scientific knowledge of the disease haemorrhoid. Its incidence has increased due to *Mithyaahara- Vihara* (faulty food habits and improper sedentary lifestyle). In third degree haemorrhoid pile masses prolapses during defaecation and need to be replaced manually. *Ksharasootra* ligation is mentioned in treatment of *Arshachikitsa*. In present study efficacy of *Ksharasootra* ligation in *Arshachikitsa* w.s.r. to third degree haemorrhoids *Ksharasootra* has been prepared using the methodology based on the description in the Ayurvedic text of 17th centaury *Rasakamadhenu* with some necessary modifications.

Ksharasootra Ligation was done in randomly selected 15 patients of either sex with third degree haemorrhoids. The study design was open, randomized, and prospective. The duration of the trial was of 15 days, with a follow-up of 4 weeks. The total effect of therapy was assessed based on Clinical & Postoperative criteria. Statistical analysis has determined significance of the treatment. For all values significance level was $p<0.05$. In proctorrhagia percentage relief was 81% and results were highly significant while in prolapse percentage relief was 95%. *Ksharasootra* ligation had statistically highly significant and better results after treatment ($p<0.001$). Percentage relief in discharge per anum was 66.6% ($p<0.05$) and percentage relief in heaviness in the anorectal region was 80.63% with highly significant results in both complaints. According to the total effect of therapy 93.3% patients were cured while 6.6% patients were markedly improved after *Ksharasootra* ligation. Prolapse & Proctorrhagia (Chief clinical complaints of haemorrhoids) were almost completely cured after *Ksharsootra* ligation. *Ksharasootra* ligation results in higher degree of patient satisfaction in third-degree haemorrhoid patients. It can be concluded that *Ksharasootra* ligation gives almost complete relief from the symptoms of haemorrhoid.

INTRODUCTION

The disease haemorrhoid has scientific shreds of evidence of its causes of habits of prolonged sitting during defaecation, excessive straining etc. A fleshy sprouts or growth in the ano-rectum, which tortures the patient seems the most characteristic features of *Arsha (A.H.Ni. 7/3).*[1] *Mamsankura* is present in the anal region in *Arsha*. The Prime etiological factor is *Mithyaahar- Vihara* (faulty food habits and improper sedentary lifestyle). According to *Acharya Sushruta Guda* is stated as *Sadya Pranahara Marma (Su.Sa 6/9)*[2] and included in *Astamahagadas* (fatal diseases) *(Su.Su. 33/4).* [3] *Arshas* is a disease of special type of muscle tissue." [4].

अर्शांसीत्यधिमांसविकाराः।। (Ch.Chi.14/5)

Haemorrhoids are dilated veins formed by the radicals of the superior, middle and inferior rectal veins within the anal canal in subepithelial region.[5] Third-degree haemorrhoid comes out only during defaecation and needs to be replaced manually in anal canal**.** [6] The most common reason for development of haemorrhoid is constipation resulting in increased intraabdominal pressure and excessive straining. Increased venous pressure aggravates the swelling of haemorrhoidal veins.[7] *Ksharasootra* is capable of performing excision (*Chedana*) by virtue of its mechanical pressure and chemical cauterization. In *Rasa Kamadhenu* (17th century), "*Kshara*" has been used along with other ingredients to prepare *Ksharasootra*.[8] In present study efficacy of *Ksharasootra* ligation is assessed in patients suffering from third-degree haemorrhoids.

Literary Survey

Arsha is local manifestation of systemic derangement of *Dosha* or bodily humours. Vitiation of *Dosha* adversely affects the digestive fire (*Agni*) resulting in *Mandagni*, which in turn leads to constipation**.**[9] Prolonged contact of accumulated mala or excretory material affects *Gudavali* and thus due to effect of pressure of hard stool over *Gudavali Arsha* develops.[10] The contribution of four-fold treatment is very authentic in *Arsha Chikitsa (Su.Chi..6/3).*[11] Dilated plexus of superior haemorrhoidal vein in relation to anal canal is called as haemorrhoids.[12] Prolapse is an important feature in Haemorrrhoid. Depending upon prolapse, haemorrhoids can be divided into four grades, i.e. First degree, Second degree, Third degree and Fourth degree haemorrhoid. In Third-degree haemorrhoid, pile masses come out only during defaecation and do not return by themselves. They need to be replaced manually in anal canal**.**[13] In Modern several types of operative treatment are available for third-degree haemorrhoids ex- Open Haemorrhoidectomy (Miligan Morgan Ligature and excision method), Closed Haemorrhoidectomy (Hill-Ferguson Method).[14]

Ksharasootra karma is a parasurgical method. It is capable of performing excision (*Chhedana*) by virtue of its mechanical pressure and phyto-chemical cauterization. In the text of *Rasakamadhenu* (17th century) in *Arshachikitsa* the description of *Ksharasootra* preparation was found. In this context, it is worthwhile to mention that "*Kshara*" as one of the ingredients was used to prepare *Ksharasootra*. Shri Chudamani Misra has mentioned *Kshara* as one of the ingredients in *Ksharasootra* preparation. [15]

Preparation of *Ksharasootra (Rasa Kamdhenu)*

In present study *Ksharasootra* has been prepared using the methodology based on the description in the Ayurvedic texts with some necessary modifications.

स्नुहीकर्कनिर्गते

क्षीरेभल्लातकसमन्वितैः।ज्योतिष्मतीवरादन्तीकोशातक्यग्निसैन्धवैः||126||

चूर्णैरेतैः सघृतैर्गुण्ड्येत्सूरजोलवणानिहरिद्रया।अर्कस्नुहीपयोलिप्तंपुनः सूत्रं विशोषयेत् ||127||

त्रीन्वारां शोषयित्वातु क्षारेणैवप्रलेपयेत्।एतेन बद्धान्यर्शासिपतन्त्यैव न संशयः।।128।। (रसकामधेनु 48/126-128)

Bhallataka shodhana was done according to *Rasamrita (3/74)*[16] and its powder was made. *Yavakshara* was prepared according to *Rasa Taragani* (13/3-5).[17] Surgical linen thread No. 20 was tied to the hanger. Threads were then smeared in *Snuhi* latex. Threads were kept dry in the *Ksharasootra* Cabinet. Thereafter thread was smeared with *Arka Ksheera*. Wet thread was passed through a heap of finely powdered *Shodhita bhallataka phalachurna.* The same process was repeated 3 times*. Jyotishmati, Haritaki, Amalaki, Vibhitaka, Danti, Koshataki, Chitraka, Saindhav lavanachurna* were mixed properly with *Ghrita*. Then this whole mixture was used for coating over thread (3 coatings). Then smearing of thread was done with *Snuhi* latex and *ArkaKsheera*. Wet thread was passed through a heap of finely powdered *Sowarchal, Saindhav lavana* & *Haridra churna* (3 coatings). The smearing of thread was done with *Snuhi* latex and *Arka Ksheera*. Wet thread was passed through a heap of finely powdered *Yavakshara* (3 coatings). Then smearing of thread was done with *Snuhi* latex and *Arka Ksheera*. Wet thread was passed through a heap of finely powdered *Haridra churna*. This process was done only once to avoid direct contact of *Kshara* with atmospheric air (1 coating) Since the *Kshara* is excessively hygroscopic, which absorbs the moisture easily. Coating has also prevented the direct contact of *Kshara* with the atmospheric air that could lessen the potency of *Ksharasootra*. After each coating UV exposure was given to the threads. Thus, thirteen coatings over the threads were completed.

METHODOLOGY

Materials and Methods

After detailed history & physical examination (*Asthavidha Pariksha* and *Dashavidha Pariksha*).

Laboratory investigations Haematology, Biochemistry along with Radiological Chest X ray (PA view), ECG were also carried out along with local rectal examination. Per rectal examination was

carried out in proper position of patient by inspection (*Darshanpariksha*), palpation/digital examination (*Sparshanpariksha*) and proctoscopy. Written informed consent was taken from randomly selected 15 patients of either sex with complaint of third degree haemorrhoids from OPD.

Inclusion criteria

1) Patients willing to undergo trial.
2) Patients of either sex between the aged 20 to 65 years.
3) Patients having the complaints of third degree haemorrhoids.

Exclusion criteria

Patients were further screened through the following exclusion criteria before their inclusion in the study. Following are the exclusion criteria.

1. Patients not willing to undergo trial or not ready to give informed consent.
2. Patients of either sex, age less than 20 and more than 65 years.
3. Patients with uncontrolled systemic disorders like, Diabetes Mellitus, Tuberculosis, Uncontrolled Hypertension, Ischaemic Heart diseases.
4. Patients with any type of Endocrinal disorders
5. Female patients having pregnancy.
6. Patients having severe Anaemia and evidence of Malignancy.
7. Rectal polyp in association with Crohn's disease, Ulcerative Colitis.

Clinical findings in each case were recorded in properly designed proforma. The study design was open, randomized, and prospective. The duration of the trial was 15 days with a follow upof 4 weeks.

Technique of *Kshar Sootra* ligation in haemorrhoids

As per routine Bowel preparation along with local part preparation was done. Patient was laid down in Lithotomy position, area Cleaned and draped. Under Saddle block Digital rectal examination was performed to exclude any specific pathology. After Intra-canal packing Digital anal dilatation (stretching of the anal sphincters) was done in anal canal by gently stretching with both index fingers and then index and middle fingers of both hands, Revelation of the 'Triangle of Exposure was done with Allis tissue holding forceps in anatomical position (3, 7, 11 0'Clock). First of all left lateral internal haemorrhoid was grasped with pile mass holding forceps. In Perianal skin including the external part of haemorrhoids semi-circular groove was made. Pile mass crushing clamp was applied to the external and internal pile components held with two forceps. The pile masses were twisted and crushing of pedicle of pile mass was done. *Ksharasootra* loaded on 76 mm round body curved needle was passed through the base of crushed pedicle and transfixation and Ligation was done. The haemorrhoidal mass was excised about 5 mm. distal to ligature and *Ksharasootra* was left in situ. Right posterior and right anterior haemorrhoidal masses were dealt in the same manner. Haemostasis ensured and transfixed *Ksharasootra* were divided to a short length. Gauze soaked in *Jatyaditaila* was placed inside the canal to safeguard the anal canal from corrosive action of extra *Kshara*. Flatus tube was inserted insitu and T- bandage applied. Step wise technique of *Ksharasootra* ligation is clearly shown in the Fig. 1 to Fig.8 on the patient of third-degree haemorrhoid.

Postoperative management

Patient was advised to remain nil orally for 6 hours. Frequent *Ushnodaka avaghana* with *Sphatika churna* every 6 hourly was advised. Instillation of *Jatayaditaila* (*Matravasti*) was done into the anal canal. Bulk evacuates (Isabgol) and light diet was advised till first bowel movement. Falling out of haemorrhoidal masses with automatic removal of *Kshara-sootras* and wound healing was monitored daily.

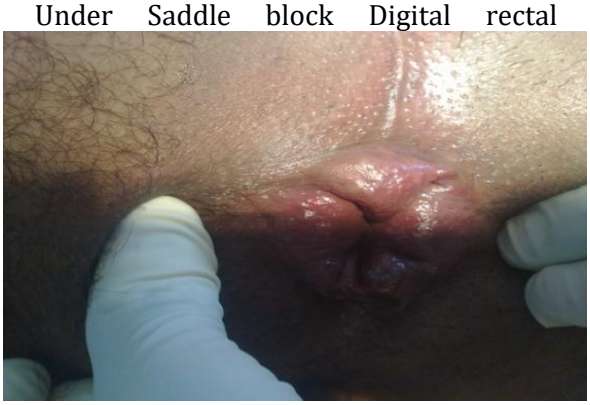


Fig 1: Patient in Lithotomy Position

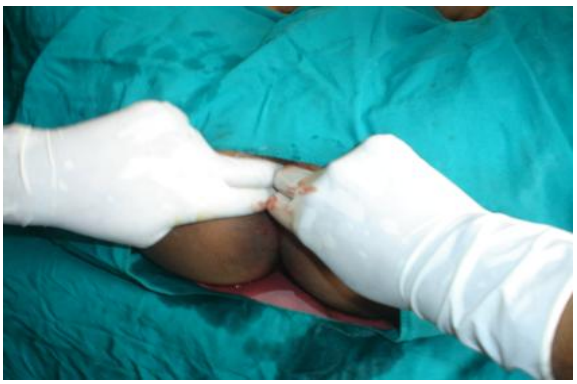


Fig 2: Digital Anal Dilatation

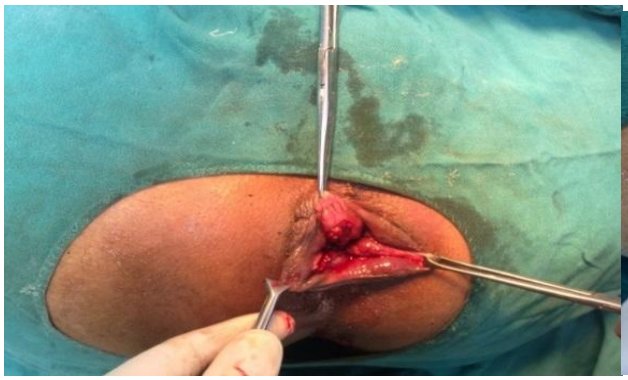


Fig 3: Revelation of Triangle of Exposure

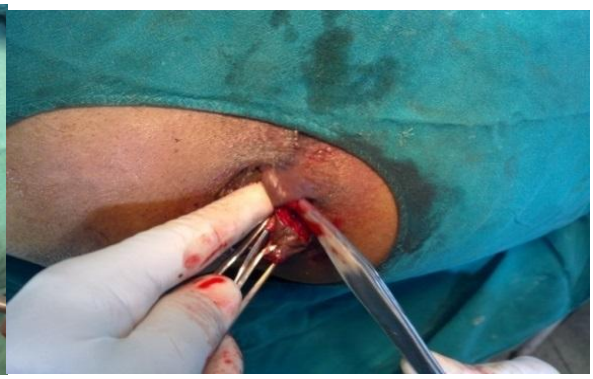


Fig 4: Holding of Pile Mass

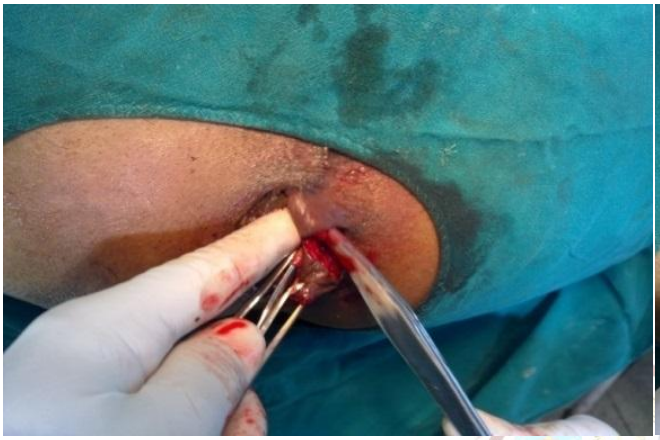


Fig 5: Semi-Circular groove was made

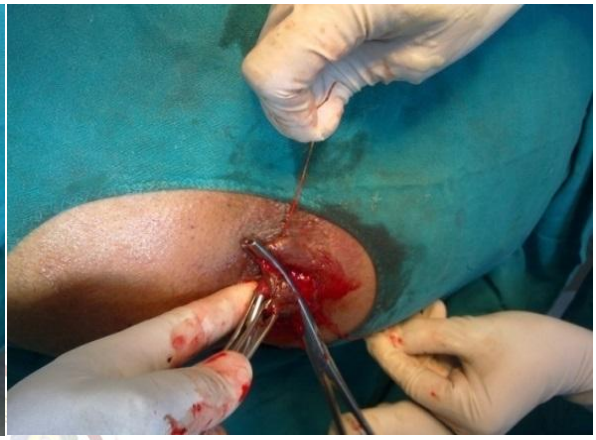


Fig 6: Crushing of Pedicle of Pile Mass

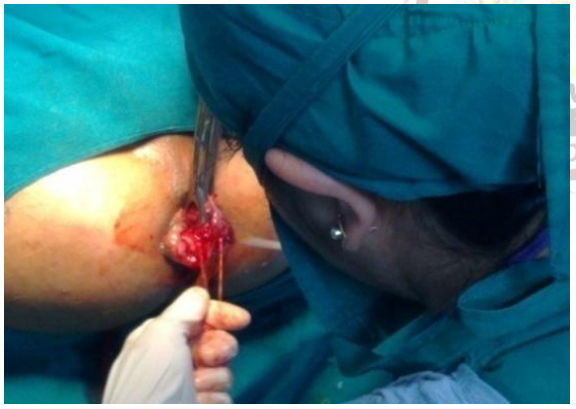


Fig 7: Transfixation of Pile Mass)

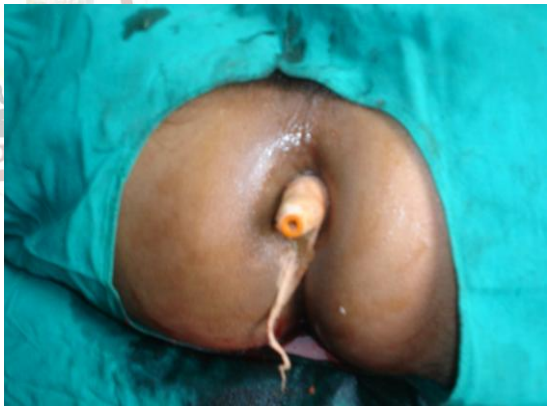
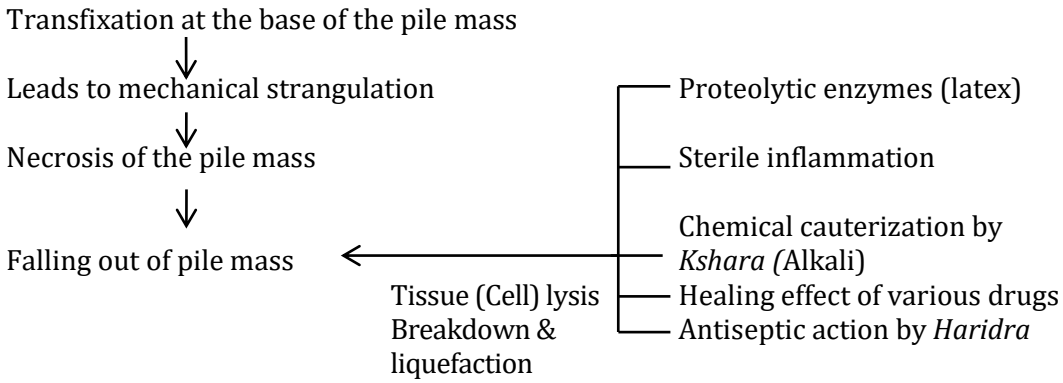


Fig 8: Anal Packing with Flatus Tube

Mechanism of Action of *Ksharasootra*

Ksharasootra is medicated encircling ligature made up of latex, alkali powder of different drugs coated on surgical barbour linen thread size 20 in definite order. *Ksharasootra* transfixation & ligation leads to strangulation of the haemorrhoidal tissue. It exerts mechanical pressure along with chemical cauterization.

The definite order of coating of the ingredients in sequential manner is to preserve the proteolytic action of the latex, anti-inflammatory action of various drugs, the caustic or chemical cauterization action of the *Kshara* and the antiseptic action of the *Haridra*. Thus *Ksharasootra* described in *Rasakamdhenu* text has the dual advantage of acting as mechanical ligature and performing phytochemical cauterization in *Arsha*.



Results & Analysis

Criteria for assessment

The following criteria were used for assessment of clinical trial of *Ksharasootra* ligation in third degree haemorrhoid patients.

Clinical

1. Proctorrhagia
2. Prolapse
3. Discharge P/A
4. Pain
5. Heaviness in the anorectal region

Postoperative

1. Postoperative pain - (recorded on days 1 and 15 after the operation)
2. Time taken for falling out of pile masses
3. Healing time after falling out of pile masses
4. Postoperative urinary complaints
5. Anal incontinence
6. Anal stenosis
7. Hospital stay (In days)

Criteria for assessing the total effect of therapy

Grade 0-Deteriorated (Aggravation of the sign and symptoms)

Grade 1-Unchanged

Grade 2-Improved (Less than 50% relief of the complaints)

Grade 3-Markedly Improved (50% relief in complaints)

Grade 4- Cured (>80% relief in complaints)

Results of study on clinical criteria

The efficacy of *Ksharasootra* ligation on 15 patients was judged on various parameters and results were derived after execution of statistical methodology.

Proctorrhagia –Percentage relief was 81% and results were highly significant.

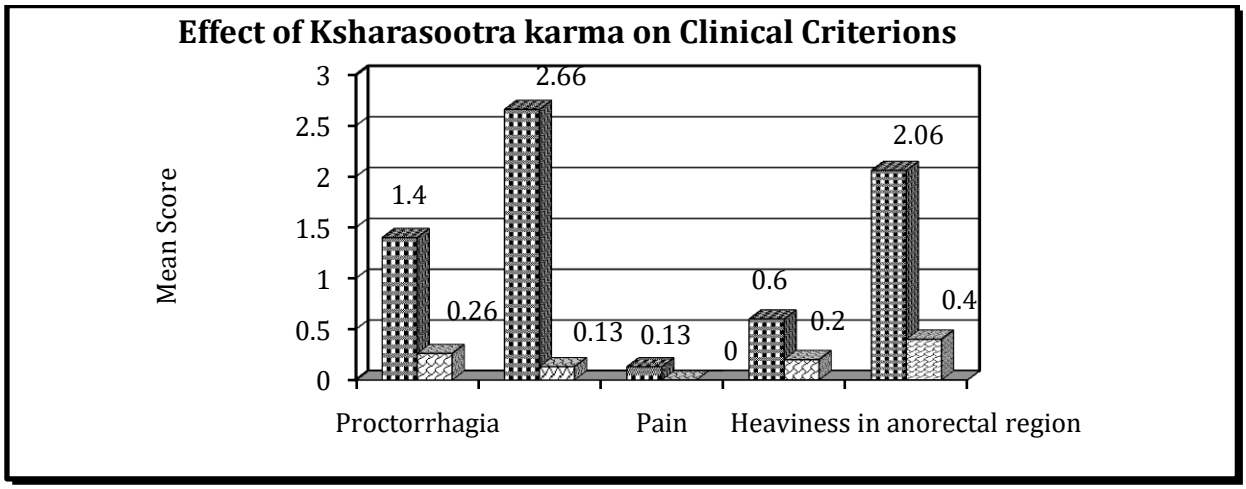
1. Prolapse-Percentage relief was 95%. *Ksharasootra* ligation had statistically highly significant and better results after treatment ($p<0.001$).
2. Pain – Percentage relief was 100% and results were non-significant.
3. Discharge per anum – Percentage relief was 66.6% ($p<0.05$) and result was highly significant.
4. Heaviness in the anorectal region–Percentage relief was 80.63% with highly significant result.

Effect of *Ksharasootra Karma* on Clinical Criterions

S.no	Parameters	n	Mean		d	%age Relief	SD ±	SE±	T	p	Results
			BT	AT							
1.	Proctorrhagia	15	1.40	0.26	1.13	81	0.74	0.19	5.90	<0.001	HS
2.	Prolapse	15	2.66	0.13	2.53	95	0.51	0.13	19	<0.001	HS
3.	Pain	15	0.13	0.00	0.13	100	0.35	0.09	1.46	>0.05	NS
4.	Discharge per anum	15	0.60	0.20	0.40	66.6	0.50	0.13	3.05	<0.001	HS
5.	Heaviness in anorectal region	15	2.06	0.40	1.66	80.63	0.48	0.12	13.22	<0.001	HS

In above shown table *n* is the representative of no. of sample, *BT* – Before Treatment, *AT* – After treatment, *d* – difference, *SD* – Standard Deviation, *SE*- Standard Error, *t* - Difference (Calculated) represented in units of standard error, *p* - estimated probability of rejecting the null hypothesis, *HS* – Highly significant, *NS* – Non-significant and *MS* - Moderately significant (All the values are average values of 15 patients). As shown in above table the values clearly indicate the efficacy of the rubber band ligation methods on the set of patients.

Bar Diagram



Analysis of above Bar diagram table revealed following points

- Statistically Highly Significant relief ($p<0.001$) was found in Proctorrhagia (%age relief=81%), Prolapse (%age relief=95%), Discharge per anum (%age relief=66.6%) and Heaviness in anorectal region (%age relief=80.63%).
- Non significant relief was found in Pain (%age relief=100%).

Study of Postoperative criteria

1. Postoperative pain (1st day)- Mean score was 2.86.
2. Postoperative pain (15th day)- Mean score was 0.20.
3. Time taken for falling out of pile mass- Mean score was 0.66. Mean time taken for falling out of pile mass was 5.3 days after *Ksharasootra karma.*
4. Healing time after falling out of pile mass – Mean score was 0.80. Healing time after falling out of pile mass was significantly less after RBL.
5. Postoperative urinary complaints – Mean score was 1.20. No patient complained of postoperative urinary complaints on the 15th postoperative day. On 15th postoperative day no patient complained of postoperative urinary complaint in both the groups.
6. Wound infection – Mean score was 0.06.
7. Anal incontinence - None of the patients developed anal incontinence.
8. Anal stenosis - This complication was not encountered.
9. Hospital stay- Mean hospital stay was 7.2 days. It indicates that patients after Rubber band ligation required a comparatively less hospital stay. It indicates that patients after *Ksharasootra* ligation were required a comparatively longer hospital stay.
10. Type of anesthesia- All the 15 patients of *Ksharasootra* ligation were operated under Saddle block. Under saddle block with inj. Bupivacaine injected in L3 L4 space. This facilitated Recamier's digital anal dilatation upto maximum of 6 fingers. External haemorrhoidal mass along with internal mass were transfixed without pain due to effect of anaesthesia.

Total Effect of Therapy

According to the total effect of therapy 93.3% patients were cured (>80% relief in complaints, complete healing of the wound), while 6.6% patient were markedly improved (50% relief in complaints, more than 50% of the wound healing).

DISCUSSION

Ksharasootra karma dealt with external part of the haemorrhoidal plexus along with internal haemorrhoidal plexus of third degree haemorrhoid. Incorporation of external haemorrhoidal tissue within the *Ksharasootra* ligature caused pain after coming out from the effect of anaesthesia. Pain responded well to analgesics & warm sitz bath. Raw margin of wound surface after *Ksharasootra karma* caused mild pain even on 15th postoperative day probably due to trauma by hard stool. In *Ksharasootra karma* after falling out of pile masses larger raw wound area took longer time for healing. This procedure was done under saddle block. Saddle block had postoperative complications like retention of urine. Solitary case of wound infection in patient treated by *Ksharasootra karma* was might be due to poor anal hygiene. It was treated with long term antibiotic along with local antiseptic dressings. *Ksharasootra karma* is an operative procedure that requires preoperative preparation starting an evening prior to operation. Aftercare and surveillance of operative wound with management of postoperative conditions like

urinary retention, postoperative pain requires hospital stay. Longer hospital stay was essential after *Ksharasootra karma*.

CONCLUSION

Sedentary life style and excessive straining during defaecation was an important cause for the development of third degree haemorrhoids. *Ksharasootra* ligation dealt with internal as well as external haemorrhoidal component. *Ksharasootra* was the treatment of choice of patients already been subjected to repeated non operative conservative procedures. Heaviness in anorectal region was more effectively reduced after *Ksharasootra* ligation. Prolapse & Proctorrhagia (Chief clinical complaints of haemorrhoids) were almost completely cured after *Ksharsootra* ligation. *Ksharasootra* ligation results in higher degree of patient satisfaction in third degree haemorrhoid patients. It can be concluded that *Ksharasootra* ligation gives almost complete relief from the symptoms of third degree haemorrhoid.

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