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A COMPARATIVE STUDY OF CLASSICAL KSHAR SOOTRA AND CHANDAN KSHAR SOOTRA LIGATION OF ARSHA (HEMORRHOID) IN RELATION TO POST LIGATION BURNING SENSATION

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ABSTRACT

Hemorrhoids are one of the most common ailments to afflict mankind, but it is impossible to give an accurate figure for their prevalence. About 500,000 people are medically treated for hemorrhoids annually, with 10 to 20% of them requiring surgeries. Hemorrhoids have plagued humans since they attained the erect posture, it is also proved by the fact that *VEDA* has also described "*Arsha*" In Ayurveda, word "*Arsha*" is stand for "*Mamsakeelaka*" which threatens "*PRANA*" because of it's origin in "*Gudai Marma*". There has been a long search for the best method of treatment for hemorrhoids. A wide variety of techniques, are currently available for the surgical treatment of hemorrhoids.

Enthusiastic reports of success with injection sclerotherapy, rubber band ligation (Barron 1963), anal dilatation (Lord 1969), cryosurgery (Lewis et al 1969, Lloyd Williams et al 1973), photocoagulation (Neiger 1979 and Leicester et al 1981) and formal hemorrhoidectomy have been made. However, the increasing number of techniques suggested for dealing with hemorrhoids attests to the lack of universal satisfaction with those currently available. Under these circumstances, other factors like associated morbidity, long-term complications, hospital bed stay requirements and cost effectiveness should be taken into consideration in choosing a form of therapy. In Ayurveda, for the treatment of *Arsha*, there are four ways explained. First one is by *BHESAJ* use, which one is very much restricted

to uncomplicated new cases with very few symptoms, second one is *KSHAR* for soft, extended root, deep seated and protruded piles. *AGNI KARMA* is third one and is for rough, immovable, hard, broad and large piles. The fourth but most effective way is *SHASTRA* and indicated for almost all protruded and thin rooted piles. Concomitant use of *KSHARA* and *SHASTRA* is very effective method to cure all type of third and fourth degree hemorrhoids. *KSHARSURTRA* ligation is a good example of this combination of *Kshar* and *Shastra* Karma. Use of this method is superior to modern surgical procedures because of being less invasive; provide healthy healing without use of heavy dosage of prophylactic antibiotics, escape the patient from complications of modern surgical hemorrhoidectomy, much economic and no need of long term hospitalization. Besides having all this significant superiority, patient has to face post ligation burning pain, which is again a big query for Ayurvedic surgeons. So the concern work is an effort to come over from this complaint during and after the procedure.

INTRODUCTION

Charaka Sanhita confined the disease *Arsha* in *Guda* (ano-rectal) region whereas *Sushruta* says that *Arsha* may develop in other parts of the body as ear, nose, penis, vagina etc.

Arsha contributes the major part of Ano-rectal diseases influences the human society. It is very disagreeable condition for the patient and often creates the problems which become the source of his restlessness.

DEFINITION

The definition of *Arsha-rog* is not mentioned in very distinct manner in *Charak Sanhita* and *Sushruta Sanhita*. *Sushruta* has mentioned as origin of '*Mams-praroha'* in '*Guda-vali'*. *Charak Sanhita* indicates this disease as '*Adhimamsa-vikara'*.

Ashtanga Hridaya has been given most distinct view in the reference of definition of *Arsha*. According to *Vagbhat* '*Arsha'* is a '*Mams-keeleka'* which afflictes the 'Prana' like an adversary due to obstruction of '*Guda-marg'*.

CHARAKA has enumerated a detailed list of dietic ingredients, therapeutic abuses, habits and mechanical factors in two groups. First group comprising mainly dietic ingredients leads to accumulation of *Mala* and second group leads to vitiation of *Doshas* especially *Apana Vayu*, which is responsible for physiological functions of *Guda*, plays major role in the development of *Arshas*.

It has been traditional to grade hemorrhoidal disease into four degrees, depending on the extent of prolapsed. This is to use the term "piles" in its true meaning.

• First-degree piles: are cushions that do not descend below the dentate line on straining and they bleed.

• Second-degree piles: are cushions that protrude below the dentate line on straining and can be seen at exterior, only to disappear again immediately straining stops.

• Third-degree piles: are cushions that descend to the exterior on straining or defecation and remain outside until they are digitally replaced into the anal canal.

• Fourth-degree piles: is the term sometimes used to describe mucosal covered internal cushions that are permanently prolapsed outside the anal verge

According to *Charaka*, the vitiated *Doshas* follow external and internal *Roga-Marga* to produce *Arshas*, and that they are produced due to all 3 *Doshas*, hence, it is called *Vatolvana* etc. In his further descriptions, he has mentioned that all the five types of *Vata*, *Pitta* and *Kapha* were affecting the *Twak*, *Mansa* and *Meda* in *Gudavali* producing *Guda Arshas* where as same pathology in other than this site is known as *Adhimansa* eg. nose, ear etc.

SUSHRUTA has expressed *Arshas* under *Raktaja* and *Mamsaja* disease. He has described the pathogenesis of *Arshas* as following –

Anatmvan Mandagni Purush

↓

Causative factors

↓

Pathological *Doshas*

↓

Through *Pradhan Dhamani Adho Gati*

↓

Doshas in *Guda*

↓

Affection of *Gudavali*

↓

Manspraroha in *Guda-Vali*

↓

ARSHA (fleshy sprout)

According to *VAGBHATA* different etiological factors as mentioned earlier lead to *Mandagni* and vitiation of *Apana Vayu* resulting in stasis of faecal mater in *Guda* causes development of pathological changes in *Guda Vail* and finally different types of *Arsa*. Generally, all the others described *Guda* is the seat of *Arsas* but *SUSHRUTA* has specified further that *Mansa-dhara* of skin of *Guda* region is affected by *Doshas* leads to *Arshas*. Thus, through perusal of above mentioned classical books of *Ayurveda* on the issue of *Arshas* it can be said that it is a disease of local manifestation of systemic derangement by disequilibrium of *Doshas*.

(A) MATERIAL AND METHODS

SELECTION OF THE PATIENTS

A series of 30 cases of hemorrhoids were selected from the O.P.D. and I.P.D. of Department of surgery of *Rishikul Ayurvedic College, Haridwar*. Most cases were registered as IPD patients. The cases were recorded with the help of a special Performa prepared for this purpose. For this clinical study 30 patients were divided into three groups. First group of patients has treated with classical *Kshar Sutra*, second group has treated with *Shweta Chandan Kshar Sutra* and third group has treated with *Rakta Chandana Kshar Sutra*.

DIAGNOSTIC CRITERIA

INCLUSION CRITERIA

Inclusion criteria for patients of hemorrhoids which has included in this work are as follows:

1. All Patients having classical symptoms of *Arsha*.
2. Patients has selected for this work, are of third and fourth degree cases of hemorrhoids. Uncomplicated cases of hemorrhoids
3. Patients with complications firstly treated with medicinal management and then selected for this work

EXCLUSION CRITERIA

First degree hemorrhoids and second degree hemorrhoids having other associated diseases like T.B. or Diabetes Mellitus were excluded from the studies which were complicated.

PLAN OF STUDY

Total 30 cases suffering from hemorrhoids were registered for the study after clinical examination. On the basis of plan of study these patients has been divided in three groups and every group has ten patients.

-the patients of group A has been treated with classical *Kshar Sutra*

-the patients of group B has been treated with *Rakta Chandan Kshar Sutra*.

-the patients of group C has been treated with *Shweta Chandan Kshar Sutra*

METHOD OF PREPRATION OF KSHAR-SUTRA

Various ancient authors have provided vivid literature in reference to use of *Ksharsutra* in various ailments in their treatise. *CHARAKA* has described in chapter of *Shotha Chikitsa* that *Ksharsutra* should be used with other measures in the treatment of *BHAGANDARA. SUSHRUTA* has mentioned it in the *NADIVRANA Chikitsa*. *Chakradatta* has given the idea about the preparation and use of *Ksharsutra*, but use of *Kshara* in the preparation of this thread has not been mentioned by him. Later on *Sadananda Sharma* in his treatise '*Rasa Tarangini'* has thrown more light on the preparation and uses of *Ksharsutra*. Although he has also not mentioned the *Apamarg* or any type of *Kshar* in the preparation of this thread but in that reference *Kshar* has described every where in that chapter so that is non-spoken mentioned there. He has described those 7 coatings of *Haridra* powder should be done on the thread. So in *KSHARSUTRA* for group 'A' alternate 7 coatings of *Haridra* and *Kshar* had done. After each coating thread was let to dry.

For group 'B' *Ksharsutra* coatings were -

1- *Haridra + Snuhi Ksheer*

2- *Kshar + Snuhi Ksheer*

3-- *Shweta Chandana + Snuhi Ksheer*

4-- *Kshar + Snuhi Ksheer*

5- *Haridra + Snuhi Ksheer*

6- *Kshar+ Snuhi Ksheer*

7- *Shweta Chandana + Snuhi Ksheer*

8- *Kshar + Snuhi Ksheer*

9- *Haridra + Snuhi ksheer*

10- *Kshar+ Snuhi Ksheer*

11- *Shweta Chandana+ Snuhi Ksheer*

12- *Kshar+ Snuhi Ksheer*

13- *Haridra + Snuhi Ksheer*

14- *Haridra + Snuhi Ksheer*

For group 'C' *Ksharsutra* coatings were-

1- *Haridra + Snuhi Ksheer*

2- *Kshar+ Snuhi Ksheer*

3- *Rakta Chandana+ Snuhi Ksheer*

4- *Kshar + Snuhi Ksheer*

5- *Haridra + Snuhi Ksheer*

6- *Kshar + Snuhi Ksheer*

7- *Rakta Chandana + Snuhi Ksheer*

8- *Kshar+ Snuhi Ksheer*

9- *Haridra + Snuhi Ksheer*

10- *Kshar + Snuhi Ksheer*

11- *Rakta Chandana + Snuhi Ksheer*

12- *Kshar + Snuhi Ksheer*

13- *Haridra + Snuhi Ksheer*

14- *Haridra + Snuhi Ksheer*

Then we evaluated the pH of all the three types of threads, which had no significant differences-Classical *Kshar Sutra* – 10.5

Shweta Chandana Kshar Sutra – 10.0

Rakta Chandana Kshar Sutra – 10.5

After drying properly thread packed in dry conditions

PROCEDURE OF OPERATION

GROUP A

After local and systemic examination, Enema has been given to the patient to evacuate the rectum of the patient. Then sensitivity test has been done. Then stable the patient in lithotomy position on the OT table. Then the perianal skin has been anaesthetized. After anaesthetization use the piles forceps to hold the pile mass. Then *Kshar Sutra* has been used in non-cutting curved needle and transfix the pile mass from the root. After transfixation, hot fomentation has been done with hot water. Then dressing has been done with *Jatyadi Taila Pichu* and use T bandage then patient has been shifted in the ward.

Normal diet has been given to all the operated patients and *Jatyadi Vasti* has been given before and after defecation. Patients have been instructed to escape from straining during defecation and *USHNODAKA AVAGAHAN* after defecation twice in a day. Progress report of patient has been indicated in registration Performa.

GROUP B

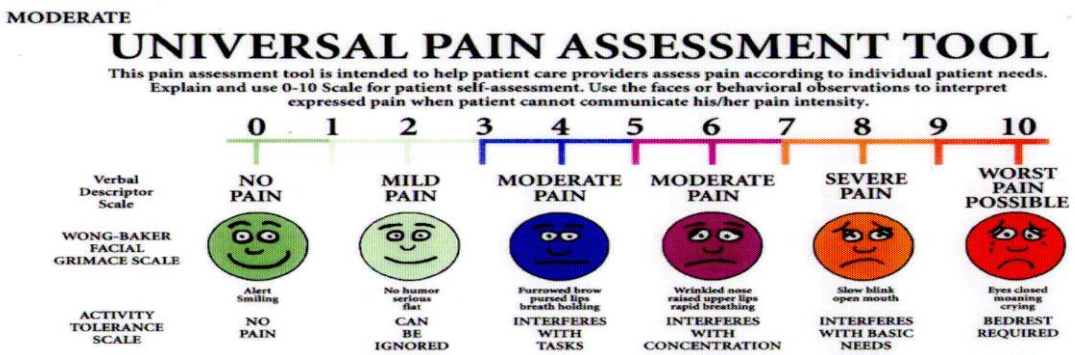
After local and systemic examination, Enema has been given to the patient to evacuate the rectum of the patient. Then sensitivity test has been done. Then stable the patient in lithotomy position on the O T table. Then the perianal skin has been anaesthetized. After anaesthetization use the piles forceps to hold the pile mass. Then *Shweta-Chandan Kshar Sutra* has been used in non-cutting curved needle and transfix the pile mass from the root. After transfixation, hot fomentation has been done with hot water. Then dressing has been done with *Jatyadi Taila Pichu* and use T bandage then patient has been shifted in the ward. Normal diet has been given to all the operated patients and *Jatyadi Vasti* has been given before and after defecation. Patients have been instructed to escape from straining during defecation and *Ushnodaka Avagahan* after defecation twice in a day. Progress report of patient has been indicated in registration Performa.

GROUP C

After local and systemic examination, Enema has been given to the patient to evacuate the rectum of the patient. Then sensitivity test has been done. Then stable the patient in lithotomy position on the O T table. Then the perianal skin has been anaesthetized. After anaesthetization use the piles forceps to hold the pile mass. Then *Rakta-Chandan Kshar Sutra* has been used in non-cutting curved needle and transfix the pile mass from the root. After transfixation, hot fomentation has been done with hot water. Then dressing has been done with *Jatyadi Taila Pichu* and use T bandage then patient has been shifted in the ward.

Normal diet has been given to all the operated patients and *Jatyadi Vasti* has been given before and after defecation. Patients have been instructed to escape from straining during defecation and *Ushnodaka Avagahan* after defecation twice in a day. Progress report of patient has been indicated in registration Performa.

OBESERVATION AND RESULT



STATISTICAL CALCULATIONS WITH THEIR RESULTS

TABLE NO. 24: BLEEDING FROM ANAL ROUTE: MEAN + S.D

group	**MEAN±SD B.T.**	**MEAN±SD A.T.**	**With in the group comparison, paired 't' test (B.T.- A.T.)**
Group 'A'	2.2 ± 0.63	0.2 ±0 .42	2.0 ± 0.3162 t =21 p <0.01(HS)
Group 'B'	2.1 ± 0.5163	0.1 ± 0.32	2.0 ± 0.3162 t =19 p <0.01(HS)
Between Group	t =0.557		
Comparison (A vs B) unpaired 't' test (B.T.- A.T.)	p >0.10(NS)		

The above table regarding bleeding from anal route shows that the Mean ± S.D. for Group A is 2.2± .63 before treatment and 0.2± 0.42 after treatment. While the Group B has 2.1 ± 0.5163 Mean ± S.D. B.T. and 0.1± 0.32 after treatment. In Group A 'p' is less than 0.01 and in Group B, less than 0.01. Both are proved highly significant. Between the Group A and B comparison, unpaired't' test is 0.557 and 'p' value is m0re than 0.1 which is not significant. It shows that both Groups showing approximately same improvement. This may be understood with the comparison of Means of (BT-AT) within the group.

Group A has same mean (2.0) in comparison to Group B (2.0).

Comparison between Group B and Group C

Groups	**MEAN±SD B.T.**	**MEAN±SD B.T.**	**With in the group comparison, paired 't' test (B.T.-** A.T.)
Group 'B'	2.1 ± 0.5163	0.1± 0.32	2.0± 0.3162 t =19 p<0.01(HS)
Group 'C'	1.9 ± 0.32	0.1 ± 0.32	1.8 ± 0.4216 t =13.5 p<0.01(HS)
Between Group Comparison (B vs C) unpaired 't' test (B.T.- A.T.)	t =0.8018 p>0.1(NS)		

The above table is regarding for bleeding from anal route shows that the Mean ± S.D. for Group B is 2.1± 0.5163 before treatment and 0.1± 0.32 after treatment. While the Group C

has 1.9 ±0.32 Mean ± S.D. B.T., and 0.1± 0.32 after treatment. In Group B 'p' is less than 0.01 and in Group C, less than 0.01. Both are highly significant. Between the Group B and C comparison, unpaired‘t’ test is 0.8018 and p value is more than 0.1 which is not significant. It shows that both Groups showing approximately same improvement. This may be understood with the comparison of Means of (BT-AT) within the group. Group A has greater mean (2.0) in comparison to Group C (1.8).

Comparison between Group A and Group C

Group	**MEAN±SD B.T.**	**MEAN±SD A.T.**	**With in the group comparison, paired 't' test (B.T.- A.T.)**
Group ‘A’	2.2± 0.63	0.2± 0.42	2.0± 0.3162 t=21 p>0.01 (H.S.)
Group ‘C’	1.9±0 .32	0.1± 0.32	1.8± 0.4216 t =13.5 p<0.01(HS)
Between Group Comparison (A vs C) unpaired 't' test (B.T.- A.T)	t = 1.0 p >0.1(NS)		

The above table regarding bleeding from anal route shows that the Mean ±S.D. for Group A is 2.2± 0.63 before treatment and 0.2± 0.42 after treatment, while the Group c has 1.9± 0.32 Mean ± S.D. B.T. and 0.1± 0.32 after treatment. In Group ‘A’ 'p' is less than 0.01 and in Group B, less than 0.01. Both are highly significant. Between the Group A and B comparison, unpaired‘t’ test is 0.557 and p value is more than 0.1 which is not significant. It shows that both Groups showing approximately same improvement. This may be understood with the comparison of Means of (BT-AT) within the group.

Group A has same mean (2.0) in comparison to Group c (1.8).

PROTRUSION OF MASS FROM ANAL ROUTE

MEAN ± S.D

Comparison between group A and Group B

Group	**MEAN±SD B.T.**	**MEAN±SD A.T.**	**With in the group comparison, paired 't' test (B.T.- A.T.)**
Group ‘A’	2.3± 0.4830	0.1± 0.32	2.2± 0.94 t =6.71 p<0.01(HS)
Group ‘B’	2.3±0.4830	0.1±0.32	2.2±0.94

			t=6.71 p<0.01 (H.S.)
Between Group Comparison (A vs B) unpaired 't' test (B.T.- A.T)	t = 1.0 p >0.1(NS)		

The above table regarding: protrusion of mass from anal route shows that the mean ± S.D. for Group A is 2.3± 0.4830 before treatment and 0.1± 0.32 after treatment.

While the group B has 2.3±0.4830 Mean± S.D. B.T. and 0.1± 0.32 after treatment. In Group A 'p' is less than 0.01 and in Group B, less than 0.01.

Both are highly significant. Between the Group A and B comparison, unpaired 't' test is 1.0 and p value is more than 0.1 which is not significant. It shows that both Groups showing approximately same improvement. This may be understood with the comparison of Means of (BT-AT) within the group. Group A has same mean (2.2) in comparison to Group B (2.2).

Comparison between Group B and Group C

Group	**MEAN±SD B.T.**	**MEAN±SD A.T.**	**With in the group comparison, paired 't' test (B.T.- A.T.)**
Group 'B'	2.3± 0.4830	0.1± 0.32	2.2±0.94 t = 6.71 p<0.01(HS)
Group 'C'	2.2±0.4216	0.1± 0.32	2.1±0.5676 t =11.70 p<0.01(HS)
Between Group Comparison (A vs B) unpaired 't' test (B.T.- A.T)	t = 0.3180 p >0.1(NS)		

The above table regarding protrusion of mass from anal route shows that the Mean± S.D. for Group B is 2.3± 0.4830 before treatment and 0.1± 0.32 after treatment. While the group C has 2.2±0.4216 Mean± S.D. B.T. and 0.1± 0.32 after treatment. In Group B 'p' is less than 0.01 and in Group C, less than 0.01.Both are highly significant. Between the Group B and C comparison, unpaired 't' test is 0.3180 and p value is more than 0.1 which is not significant.
It shows that both Groups showing approximately same improvement. This may be understood with the comparison of Means of (BT-AT) within the group. Group B has greater mean (2.2) in comparison to Group C (2.1).

Comparison between Group A and Group C

Group	**MEAN±SD B.T.**	**MEAN±SD A.T.**	**With in the group comparison, paired 't' test (B.T.- A.T.)**
Group 'A'	2.3± 0.4830	0.1±0.32	2.2± 0.94 t =6.71 p<0.01(HS)
Group 'C'	2.2±0.4216	0.1± 0.32	2.1±0.5676 t =11.70 p<0.01(HS)
Between Group Comparison (A vs B) unpaired 't' test (B.T.- A.T)	t =1.0 p >0.1(NS)		

The above table regarding protrusion of mass from anal route shows that the mean± S.D. for Group A is 2.3± 0.4830 before treatment and 0.1± 0.32 after treatment. While the group C has 2.2± 0.32 Mean ± S.D. B.T. and 0.1± 0.32 after treatment. In Group A 'p' is less than 0.01 and in Group C, less than 0.01. Both are highly significant. Between the Group A and C comparison, unpaired 't' test is 1.0 and p value is more than 0.1 which is not significant. It shows that both Groups showing approximately same improvement. This may be understood with the comparison of Means of (BT-AT) within the group. Group A has approximately same Mean (2.0) in comparison to Group C (1.8).

TABLE FOR MEAN+SD OF POST LIGTION BURNING SENSATIONOF THREE GROUPS 1ST TO 7TH DAY AFTER OPERATION

	MEAN+SD OF POST LIGATION BURNING SENSATION		
Days	Group A	Group B	Group C
1st day	1.2±0.4216	1.3± 0.4830	1.1± 0.32
2nd day	2.3 ±0.4830	2.1± 0.4216	1.1± 0.32
3rd day	2.1± 0.4830	1.6±0.5163	1.1± 0.32
4th day	1.7± 0.4830	1.2±0.4216	0.9±0.32
5th day	1.0± 0.333	0.9±0.32	0.9±0.32
6th day	0.5± 0.5345	0.67±0.5796	0.33±0.6442

TABLES FOR THE COMPARISION OF THREE GROUPS IN RELATION TO POST LIGATION BURNING SENSATION 1st DAY COMPARISION

Between Group A and Group B

Groups	MEAN±SD	Improvement	With in the group comparison, paired 't' test
Group A	1.2 ±0.4216	-8.333%	t=0.557 p >0.1(NS)
Group B	1.3 ±0.4830		
D± S.D.	-0.1 ± 0.5676		

This table shows improvement in relation to post ligation burning sensation in Group B on the basis of Group A. The Mean ±SD of Group A is 1.2±0.4216 and the Mean ±SD of group B is 1.3±0.4830. The difference is negative (-0.1) and improvement percentage is also negative (-8.333%) which is proving negative improvement. Between the Group A and B comparison, unpaired 't' test is 0.557 and p value is more than 0.1 which is not significant.

Groups	MEAN±SD	Improvement	With in the group comparison, paired 't' test
Group B	1.3± 0.4830	4.76%	t=1.0 p >0.1(NS)
Group C	1.1± 0.32		
D± S.D.	0.2± 0.6325		

This table shows improvement in relation to post ligation burning sensation in Group C on the basis of Group B. the Mean ±SD of Group B is 1.3± 0.4830 and the Mean ±SD of Group C is 1.1±0.32. The difference is positive (0.2) and improvement percentage is also positive (4.76%) which is proving positive improvement. Between the Group B and C comparison, unpaired 't' test is 1.0 and p value is more than 0.1 which is not significant.

Groups	MEAN±SD	Improvement	With in the group comparison, paired 't' test
Group A	1.2±0.4216	8.333%	t=0.557 p >0.1(NS)
Group C	1.1±0.32		
D± S.D.	0.1±0.5676		

This table shows improvement in relation to post ligation burning sensation in Group C on the basis of Group A. The Mean ±SD of Group A is 1.2 ±0.4216 and the Mean ±SD of Group C is 1.1±0.32. The difference is positive (0.1) and improvement percentage is also positive (8.333%) which is proving positive improvement. Between the Group A and C comparison, unpaired 't' test is 0.557 and p value is more than 0.1 which is not significant.

2nd DAY COMPARISON

Between Group A and Group B

Groups	MEAN±SD	Improvement	With in the group comparison, paired 't' test
Group A	2.3±0.4830	4.3478%	t=0.4286 p >0.1(NS)
Group B	2.1±0.4216		
D± S.D.	0.2±0.7379		

This table shows improvement in relation to post ligation burning sensation in Group A on the basis of Group B. The Mean ±SD of Group A is 2.3 ±0.4830 and the Mean ±SD of Group B is 2.1±0.4216 the difference is positive (.2) and improvement percentage is also positive (4.3478%) which is proving positive improvement. Between the Group A and B comparison, unpaired‘t’ test is .4286 and p value is more than 0.1 which is not significant.

Comparison between Group B and Group C

Groups	Mean ± S.D.	Improvement	With in the group comparison, paired 't' test
Group B	2.1± 0.4216	50%	t=6.1279
Group C	1.1± 0.32		
D± S.D.	1.0± 0.5676		

This table shows improvement in relation to post ligation burning sensation in Group C on the basis of Group B. The Mean ±SD of Group A is 2.1 ± 0.4216 and the Mean ±SD of Group B is 1.1± 0.32. The difference is highly positive (1.0) and improvement percentage is also highly positive (50%) which is proving positive improvement. Between the Group B and C comparison, unpaired 't' test is 6.1279 and p value is <0.01which is highly significant.

Groups	MEAN±SD	Improvement	With in the group comparison, paired 't' test
Group A	2.3± 0.4830	52.174%	t=9.0 p <0.01
Group C	1.1± 0.32		
D± S.D.	1.2± 0.4216		

This table shows improvement in relation to post ligation burning sensation in Group C on the basis of Group A. The Mean ±SD of Group A is 2.3± 0.4830 and the Mean ± SD of Group B is 1.1± 0.32. The difference is highly positive (1.2) and improvement percentage is also highly positive (52.174%) which is proving positive improvement. Between the Group A and C comparison, unpaired 't' test is 9.0 and p value is <0.01which is highly significant.

3rd DAY COMPARISON

Comparison between Group A and Group B

Groups	MEAN±SD	Improvement	With in the group comparison, paired 't' test
Group A	2.1± 0.4830	23.81%	t=3.0
Group B	1.6± 0.5163		
D± S.D.	0.5± 0.527		

This table shows improvement in relation to post ligation burning sensation in Group B on the basis of Group A. the Mean + SD of Group A is 2.1+.4830 and the Mean +SD of Group B is 1.6+.5163. The difference is positive (.5) and improvement percentage is also positive (23.81%)which is proving positive improvement. Between the Group A and B comparison, unpaired 't' test is 3.0 and p value is <.01which is highly significant.

Comparison between Group B and Group C

Groups	MEAN±SD	Improvement	With in the group comparison, paired 't' test
Group B	1.6± 0.5163	31.25%	t=3.0
Group C	1.1± 0.32		
D+ S.D.	0.5± 0.527		

This table shows improvement in relation to post ligation burning sensation in Group C on the basis of Group B. The Mean ±SD of Group A is 1.6± 0.5163 and the Mean ±SD of Group B is 1.1± 0.32. The difference is positive (0.5) and improvement percentage is also positive (31.25%) which is proving positive improvement. Between the Group B and C comparison, unpaired 't' test is 3.0 and p value is <0.01which is highly significant.

Comparison between Group A ad Group C

Groups	MEAN±SD	Improvement	With in the group comparison, paired 't' test
Group A	2.1± 0.4830	47.619%	t=6.7082 p <0.01
Group C	1.1± 0.32		
D ± S.D.	1.0± 0.4714		

This table shows improvement in relation to post ligation burning sensation in Group C on the basis of Group A. The Mean ±S.D. of Group A is 2.1± 0.4830 and the Mean ±SD of Group B is 1.1± 0.32. The difference is highly positive (1.0) and improvement percentage is

also highly positive (47.619%) which is proving positive improvement. Between the Group A and C comparison, unpaired 't' test is 3.0 and p value is <0.01which is highly significant.

4th DAY COMPARISION

Comparison between Group A and Group B

Groups	**MEAN±SD**	**Improvement**	**With in the group comparison, paired 't' test**
Group A	1.7± 0.4830	29.41%	t=3.0 p <0.01
Group B	1.2± 0.4216		
D ± S.D.	0.5± 0.527		

This table shows improvement in relation to post ligation burning sensation in Group B on the basis of Group A. The Mean ±SD of Group A is 2.1± 0.4830 and the Mean ±SD of Group B is 1.2± 0.4216. The difference is positive (0.5) and improvement percentage is also positive (29.41%) which is proving positive improvement. Between the Group A and B comparison, unpaired 't' test is 3.0 and p value is <0.01which is highly significant.

Comparison between Group B and Group C

Groups	**MEAN±SD**	**Improvement**	**With in the group comparison, paired 't' test**
Group B	1.2± 0.4216	25%	t=1.964
Group C	0.9± 0.32		
D ± S.D.	0.3± 0.483		

This table shows improvement in relation to post ligation burning sensation in Group C on the basis of Group A. The Mean ±S.D. of Group B is 1.2± 0.4216 and the Mean ± S.D. of Group C is 0.9± 0.32. The difference is positive (0.3) and improvement percentage is also positive (25%) which is proving positive improvement. Between the Group B and C comparison, unpaired 't' test is 3.0 and p value is <0.01which is highly significant.

Comparison between Group A and Group C

Groups	**MEAN±SD**	**Improvement**	**With in the group comparison, paired 't' test**
Group A	1.7± 0.4830	47.66%	t=1.964 p<0.01
Group C	0.9± 0.32		
D ± S.D.	0.8± 0.4216		

This table shows improvement in relation to post ligation burning sensation in Group C on the basis of Group A. The Mean ±S.D. of Group A is 1.7± 0.4830 and the Mean ±S.D. of

Group B is 0.9 ±0.32. The difference is positive (0.8) and improvement percentage is also positive (47.66%) which is proving positive improvement. Between the Group A and C comparison, unpaired 't' test is 1.964 and p value is <0.01which is highly significant.

5th DAY COMPARISION

Comparison between Group A and Group B

Groups	MEAN±SD	Improvement	With in the group comparison, paired 't' test
Group A	1.0± 0.333	10%	t=0.557 p >0.1
Group B	0.9± 0.32		
D± SD	0.1± 0.32		

This table shows improvement in relation to post ligation burning sensation in Group B on the basis of Group A. The Mean ±SD of Group A is 1.0± 0.333 and the Mean ±SD of Group B is 0.9± 0.32. The difference is positive (0.1) and improvement percentage is also positive (10%) which is proving positive improvement. Between the Group A and B comparison, unpaired 't' test is 0.557 and p value is >0.1 which is not significant.

Comparison between Group B and Group C

Groups	MEAN±SD	Improvement	With in the group comparison, paired 't' test
Group B	0.9± 0.32	0%	**t=0**
Group C	0.9± 0.32		
D ± SD	0± 0.4714		

This table shows improvement in relation to post ligation burning sensation in Group C on the basis of Group B. The Mean ± SD of Group B is 0.9± 0.32 and the Mean ±SD of Group B is 0.9± 0.32. The difference is zero and improvement percentage is also zero which is proving zero improvement.

Between the Group B and C comparison, unpaired 't' test is zero.

Comparison between Group A and Group C

Groups	MEAN±SD	Improvement	With in the group comparison, paired 't' test
Group A	1.0± 0.333	10%	t=0.557 p>0.1
Group C	0.9± 0.32		
D ± SD	0.1± 0.5676		

This table shows improvement in relation to post ligation burning sensation in Group C on the basis of Group A. The Mean ±SD of Group A is 1.0± 0.333 and the Mean ±SD of Group C is 0.9± 0.32. The difference is positive (0.1) and improvement percentage is also positive (10%) which is proving positive improvement. Between the Group A and C comparison, unpaired 't' test is 0.557 and p value is >0.1which is not significant.

6th DAY COMPARISION

Comparison between Group A and Group B

Groups	MEAN±SD	Improvement	With in the group comparison, paired 't' test
Group A	0.5± 0.5345	-33.33%	t=0.42 p>0.1
Group B	0.67± 0.5796		
D +SD	0.17± 0.6667		

This table shows improvement in relation to post ligation burning sensation in Group B on the basis of Group A. The Mean ±SD of Group A is 0.5 ±0.5345 and the Mean ±SD of Group B is 0.67±0.5796. The difference is negative (0.17) and improvement percentage is also negative (-33.33%) which is proving negative improvement. Between the Group A and B comparison, unpaired 't' test is 0.42 and 'p' value is >0.1which is not significant.

Comparison between Group B and Group C

Groups	MEAN±SD	Improvement	With in the group comparison, paired 't' test
Group B	0.67± 0.5796	15%	t=-0.3612
Group C	0.33± 0.6442		
D ± SD	0.34± 0.8756		

This table shows improvement in relation to post ligation burning sensation in Group C on the basis of Group B. The Mean ±SD of Group B is 0.67± 0.5796 and the Mean ±SD of Group C is 0.33± 0.6442. The difference is positive (0.34) and improvement percentage is also positive (15%) which is proving positive improvement. Between the Group B and C comparison, unpaired 't' test is 0.3612 and p value is >0.1which is not significant.

Comparison between Group A and Group C

Groups	MEAN±SD	Improvement	With in the group comparison, paired 't' test
Group A	0.5± 0.5345		

Group C	0.33± 0.6442	20%	t=-0.557
D ± SD	0.17± 0.6442		

This table shows improvement in relation to post ligation burning sensation in Group C on the basis of Group A. The Mean ± SD of Group A is 0.5± 0.5345 and the Mean ±SD of Group C is 0.33± 0.6442. The difference is positive (0.17) and improvement percentage is also positive (20%) which is proving positive improvement. Between the Group A and C comparison, unpaired 't' test is 0.557 and p value is >0.1which is not significant.

DISCUSSION

Post ligation burning sensation on 1st day after operation is of mild degree in almost all the patients of all groups. The Mean ±SD of Group A is 1.2 ±0.4216, the Mean ±SD of Group B is 1.3± 0.4830 and the Mean ±SD of Group C are 1.1± 0.32. Comparison of Group A-B shows -8.333% improvements in Group B which is not significant. Comparison of Group B-C shows 4.76% improvement in Group B which not significant. Comparison of Group A-C shows 8.333% improvement in Group B which not significant. On 2nd day after operation burning varies in all groups. The Mean ±SD of Group A is 2.3 ±0.4830, the Mean ±SD of Group B is 2.1±0.4216 and the Mean ±SD of Group C is 1.1±0.32. Burning was improved in Group C 50% from Group B and 52.274% from Group A. Both were the highly significant changes. On 3rd day after operation burning varies in all groups. The Mean ±SD of Group A is 2.1 ±0.4830, the Mean ±SD of Group B is 1.6±0.5163 and the Mean ±SD of Group C is 1.1±0.32. Burning was improved in Group C 47.619% from Group A and 31.25% from Group B. Both were the highly significant changes. On 4th day after operation burning varies in all groups. The Mean ±SD of Group A is 1.7 ±0.4830, the Mean ±SD of Group B is 1.2±0.4216 and the Mean ±SD of Group C is 0.9±0.32. Burning was improved in Group C 47.66% from Group A and 25% from Group B. Both were the highly significant changes. Post ligation burning sensation on 5th day after operation is of mild degree in almost all the patients of all groups. The mean ±SD of group A is 1.0 ±0.333, the Mean ±SD of Group B is 0.9±0.32and the Mean ±SD of Group C is 0.9±0.32. Comparison of Group A-B shows 10.00% improvement in Group B which is not significant. Comparison of Group B-C shows 0% improvement in Group B. Comparison of Group A-C shows 10.00% improvement in Group B which not significant. Post ligation burning sensation on 6th day after operation is of mild degree in almost all the patients of all groups. The Mean ±SD of Group A is 0.5 ±0.5345, the Mean ±SD of Group B is 0.67±0.5796 and the Mean ±SD of Group C is 0.33±0.6442. Comparison of Group A-B shows -33.33% improvement in Group B which is

not significant. Comparison of Group B-C shows 15.00% improvement in Group B. Comparison of Group A-C shows 20.00% improvement in Group B which is not significant. Group C shows highly significant improvement in post ligation burning sensation in case of hemorrhoid on 2nd, 3rd, and 4th day after operation without any change in efficacy of treatment.

CONCLUSION

All the Groups shows almost same level of improvement in relation to main clinical features (changes were in-significant).

1. Group C shows better results then Group B and Group A in relation to post ligation burning sensation which was highly significant on 2nd, 3rd and 4th day and in significant on 1st, 5th and 6th day.
2. Group B shows better results then Group A in relation to post ligation burning sensation which was highly significant on 2nd, 3rd and 4th day and in significant on 1st, 5th and 6th day.
3. *Rakta-Chandana Kshar-Sutra* is better option for *Kshar-Sutra* ligation in haemorrhoids then classical *Kshar-sutra* and *Shweta Chandana Kshar-Sutra*.
4. *Shweta-Chandana Kshar-Sutra* is better then classical *Kshar-Sutra* for the same purpose.

   The present work is first of its kind in this faculty which evaluates a new type of *Kshar-Sutra*, out of classics, containing *Rakta-Chandana*, and *Shweta Chandana* well established *Daha-Shamak* herbal drugs. The results are very encouraging concerning to less painful treatment of the hemorrhoids. It is suggested for the future that this study can further be conducted on more number of patients to verify the facts in the more appropriate statistical analysis. We sincerely hope and wish that the present study shall always be pioneer as an ideal research work for coming generation.