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International Research Journal of Ayurveda & Yoga
An International Peer Reviewed Journal for Ayurveda & Yoga

Nimba Ksharsutra Application And Open Lateral Internal Sphincterotomy In The Management Of *Parikartik*a W.S.R To Chronic Fissure In Ano

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ICV-70.44- ISRA-1.318
VOLUME 4 ISSUE 2 FEBRUARY2021

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Article received on 25th Dec 2021 Article Accepted 18th Feb2021 Article published 28th Feb2021

ABSTRACT: -

Introduction: *Parikartika* resembles fissure-in-ano. The literal meaning of the term *Parikartika* i.e. *Kartanavat Vedana* (Cutting type of pain) and *Guda vidara* i.e *Vidarana* in *guda pradesha* (Ulceration in Anal canal) are supportive to this comparison which is very common among all anorectal disorders. *Ksharasutra* (medicated caustic thread) was proved successful in the management of fistula-in-ano, piles and there is need to try its efficacy in *Parikartika.*

Aim: To compare the efficacy of *Nimba Ksharasutra* (medicated caustic thread) and open lateral internal sphincterotomy (OLIS) in the management of *Parikartika* w.s.r to chronic fissure-in-ano.

Materials and Methods: Total 30 patients having signs and symptoms of *Parikartika* (chronic fissure-in-ano) were selected and randomly divided into two groups. In Group A (n = 15), *Ksharasutra* (medicated caustic thread) ligation after anal stretching was carried out while in Group B (n = 15), OLIS with excision of skin tag was carried out under local anesthesia or spinal anesthesia. Relief in postoperative symptoms and complications if any was recorded for 4 weeks and follow-up was done for the period of 1 month.

Results: In both the groups, significant results were obtained, but the difference among groups was statistically insignificant. Duration required for relief in postoperative symptoms like pain, bleeding, swelling, and wound healing was found to be more in Group A (*Ksharasutra*) than Group B (OLIS).

Conclusion: OLIS provided better results compared to *Ksharasutra* (medicated caustic thread) ligation in the management of *Parikartika* w.s.r to chronic fissure-in-ano.

Keywords: Fissure-in-ano, *Ksharasutra*, open lateral internal sphincterotomy, *Parikartika*

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How to cite this article: -. Sudesh Gupta, Kour Sarabjeet, Poonam, Sharma Rini, *Nimba Ksharsutra* Application And Open Lateral Internal Sphincterotomy In The Management Of *Parikartika* W.S.R To Chronic Fissure In Ano, IRJAY, February: 2021, Vol-4, Issue-2; 11-23
DOI:https://doi.org/10.47223/IRJAY.2021.4220

INTRODUCTION

In the present era, as we know that changes in life style like more work load and prolonged sitting, continuous travelling, improper food habits have made much of the population suffers from ano rectal problems and among them fissure-in-ano is most common. Since it is not life threatening but is one of the most painful condition which hampers the daily activities of the person.

Acharya Sushruta has described *Parikartika* as a *kartanvat vedana* (sharp cutting pain), *daha* (burning sensation) and *anila sanga* (impaired activity of *Vata dosha*) in *guda* (anal), as a complication of *heen-mithyadi yog* (impaired formulation) of *Vaman-Virechan vyapata* (complications), *Bastikarma* (medicated enema) which exerts pressure on the mucous wall of *guda* and *gudanalika* (rectum or anal canal) results into *'Shool* (pain)*'*. It is also a sequel of *Vatika Pakwa Atisara* (Diarrhea), *Vatika Jwara*(fever), *Garbhini vyapada* (complications of pregnancy) etc. *Acharya Vaghbhata* has enumerated it under complication of *Vataj atisara* (Diarrhea). *Acharya Kashyapa* has mentioned that the condition *Parikartika* (fissure in ano) is seen in gravid women and has three types pertaining to the predominance of the *doshas* and their treatment has to be done accordingly.

Sushruta has described a number of surgical and para-surgical procedures such as *Ksharakarma* (chemical cauterization), *Agnikarma* (thermal cauterization), and *Raktamokshana* (therapeutic bloodletting). *Ksharakarma* (medicated caustic thread) has multi therapeutic uses and has pharmacological and surgico-medicament action.

The condition Fissure-in-ano, commonly encountered in surgical practice has similar location, pathology and predominant features of *Parikartika* like excruciating pain, constipation, stool streaked with blood. Thus it is evident that *Parikartika* can be correlated with Fissure- in- ano mentioned in modern science. In the modern science, fissure-in-ano (fissure in ano) has been classified into two viz. Acute and chronic. Acute anal fissure is deep tear through the skin of the anal margin extending into the anal canal. There is accompanying spasm of anal sphincter muscle with little inflammatory indurations. In acute fissure-in-ano treatment is painkiller, stool softener, soothing ointment etc. Chronic anal fissures are those present for more than 6 weeks often have a sentinel tag at the distal aspect caused by inflammation. In chronic condition, the spasm of anal sphincters stops the fissure from healing. Hence in such cases anal dilatation (sphincter stretching) is required as advocated by Lords. Other procedures like sphincterotomy, fissurectomy etc. can be done.

The contemporary surgical treatments such as Lord's anal dilatation, fissurectomy, and sphincterotomy for the anal fissure are available with their own advantages and disadvantages like recurrence, incontinence or hemorrhage. These disadvantages can be overcomed by Ayurveda with the help of para surgical measures like *Ksharasutra*, which is well established in the management of fistula[(1)], piles[(2)] and chronic fissure in ano[(3)].At present, open lateral internal sphincterotomy (OLIS) is considered the gold standard treatment for chronic fissure-in-ano.[(4)] Hence, in this study, evaluation of the *Ksharasutra* application as an important para-surgical tool by transfixation technique for surgical management of *Parikartika* (chronic fissure-in-ano) was planned. *Ksharasutra* application was compared with modern surgical process of OLIS in the management of *Parikartika*. OLIS is outpatient

department (OPD) procedure with minimum complication. Hence, this intervention has been taken as control group. This study was planned with an aim to evaluate and compare the role of *Ksharasutra* ligation and OLIS in the management of *Parikartika* (chronic fissure-in-ano).

MATERIALS AND METHODS

Selection of patients

In this clinical study, 30 patients suffering from *Parikartika* (fissure in ano) were randomly selected from OPD and IPD of Jammu institute of Ayurveda and Research Hospital and Shri Sain charitable trust Hospital, Janipur Jammu.

Patients of *Parikartika* (chronic fissure-in-ano) having signs and symptoms like, pain in ano, bleeding per rectum and constipation were selected irrespective of gender, occupation and religion. The registered patients were randomly allocated into two groups.

Selection of Drug

After screening all the previous works done in case of fistula in ano, and a previous work done on *Nimba ksharasutra* in the management of fistula in ano, we have decided to do work on Nimba ksharasutra.

Diagnostic criteria

The patients were diagnosed on the basis of signs and symptoms like burning pain after defecation, bleeding after defecation, swelling at anal region.

Examination

On local examination chronic fissure with skin tag and on per rectum digital examination spasm of sphincter was noted. Proctoscopy examination was done after giving suitable anesthesia at the time of operation to exclude other anorectal pathologies such as piles, polyp, and any other growth.

Inclusion criteria

Patients of *Parikartika* (chronic fissure-in-ano) having chronicity more than 6 months and age between 18 years and 60 years were selected. Patients of *Parikartika* (fissure in ano) associated with *Arsha* (piles) and *Bhagandara* (fistula-in-ano) were also included in this study.

Exclusion criteria

Fissure-in-ano having chronicity of <6 months and patient suffering from malignancy of any organs were excluded. The patients who were suffering from acute fissure-in-ano, congenital anal stricture or carcinoma of ano-rectum were excluded from study. Positive cases of human immunodeficiency virus (HIV), venereal disease research laboratory (VDRL) and hepatitis-B were excluded. In this trial, uncontrolled cases of diabetes mellitus, uncontrolled hypertension and patients of tuberculosis were also excluded.

Laboratory investigations

Routine hemogram such as Hb%, total leukocyte count, differential leukocyte

Count, bleeding time, clotting time and erythrocyte sedimentation rate were done. Biochemical investigations such as fasting blood sugar, postprandial blood sugar, kidney function test (blood urea and serum creatinine) and liver function test (total serum bilirubin, serum glutamic oxaloacetic transaminase and serum glutamic pyruvic transaminase) were performed in all registered patients. Human immunodeficiency virus (HIV), Venereal Disease Research Laboratory (VDRL) and hepatitis-B (hbsag), urine analysis for albumin, sugar, and microscopy was also performed. Stool examination for routine and microscopic was also done. These investigations were done only before treatment for fitness of patients for anesthesia and surgery point of view.

Methods

Group A: *Nimba Ksharasutra* application with trans fixation of sentinel tag was done under suitable anesthesia.

Group B: OLIS followed by excision of sentinel tag was done under suitable anesthesia.

Operative procedure

Common preoperative procedures adopted for both the groups

Written informed consent for operation was taken. Laboratory tests and physical examination of all patients were done. Injection tetanus toxoid, 0.5 ml intramuscular (IM), was given before surgery. Intradermal injection of xylocaine 2% sensitivity

test was done before surgery. The patient was kept nil per orally at least 6 h before surgery. Preparation of parts, i.e., shaving of perineal area, was done. Soap water enema at 10 pm at the day before surgery and other at 7 am on the day of operation was given.

Procedure of Ksharasutra* (medicated caustic thread) *transfixation in Group A

The patient was taken in the lithotomy position. Painting and draping of perianal region was done. Injection xylocaine 2% with adrenaline was given for the purpose of local anesthesia. With two fingers, anal sphincters were dilated in controlled manner. The whole fissure bed including of fibrous tissue was incised by tissue cutting scissor and fibers of internal anal sphincter were separated by blunt dissection by gauze piece from fissure bed till anoderm. After that trans fixation of sentinel tag was done by *Ksharasutra* (medicated caustic thread) with the help of round body curved needle. After achieving hemostasis, 'T' bandage was applied and the patient was shifted to the ward in stable condition.

Procedure of open lateral internal sphincterotomy

The patient was taken in lithotomy position. Painting and draping was done. Local anesthesia was given with injection xylocaine 2% with adrenaline. Anal dilatation was done as mentioned in Group A. Inter sphincteric groove was palpated with the index finger and 1 cm incision was taken at 5 o'clock at perianal skin through the intersphincteric groove. The lateral side of internal anal sphincter was dissected and a segment of it was withdrawn outside using curved artery forceps and then divided completely with electric cautery. Pressure packing was done for 5 min to reduce the chances of hematoma. The wound was left open to heal by secondary intension. The whole fissure bed including fibrous tissue and sentinel tag was excised with the help of scissor. Sterilized dressing was carried out. After hemostasis, 'T' bandage was applied and the patient was shifted to the ward in stable condition.

Postoperative procedures

The same procedure was adopted in both the groups. After surgery low head position was given till the complete recovery from the anesthesia. Appropriate intravenous (IV) fluids were used as per the need. Suitable antibiotic coverage was given for 5 days. Suitable analgesics were used as per the requirement. From next day of surgery onward, sitz bath with *Panchawalkala* decoction mixed with warm water was advised two times a day. *Triphala* powder 5 g two times before meal with lukewarm water was prescribed to soften the stool. 10 ml of *Matra Basti* (enema with oil) with *Jatyadi* oil was given once daily after sitz bath. 1 g (500mgx2) of *Triphala Guggulu Vati* three times a day with warm water after meal was prescribed in all patients.

ASSESSMENT CRITERIA

Assessment was carried out on the basis of post-operative status of pain, swelling and oozing by adopting the gradation depicted in [Table - 1]

Table 1: Gradation of post-operative complains

Gradation	Pain	Swelling	Oozing
0	No pain	Absent	Dry gauze
1	Pain at the time of defecation and tolerable pain even without analgesics	Present	Spot of discharge on gauze
2	Pain at the time of defecation and continues which relieves after medication	-	Half gauze wet with discharge

Table 2: Overall assessment was carried out on the basis of post-operative pain, swelling, oozing and wound healing as depicted

Results	Assessment criteria
Cured	Relief in pain, perianal swelling and oozing within 0-7 days and wound healing within 30 days
Improvement	Relief in pain, perianal swelling and oozing within 7-14 days and wound healing within 30 days
Moderate Improvement	Relief in pain, perianal swelling and oozing within 14-21 days and wound healing within 30 days
Mild Improvement	Relief in pain, perianal swelling and oozing within 21-30 days and wound healing within 30 days
No relief	No relief in pain and oozing even after 30 days

Duration of Treatment and follow-up

Patients were assessed on weekly interval up to 4 weeks and thereafter, till 1 month to observe recurrence and effects of the treatment.

Statistical test-For the assessment of result by statistical analysis, the Wilcoxon signed-rank test was applied on subjective criteria like pain, swelling, oozing and wound healing between two groups and the Mann–Whitney rank sum test was used for intergroup comparison.

OBSERVATIONS

Total 30 patients of fissure in ano were registered, among them 15 patients in group A and 15 patients in group B. The maximum patients belonged to 18–30 years (38.71%), male (61.29%), Hindu religion (96.77%) had *Krura Koshtha* (Hard bowel) (54.84%). The maximum patients reported complaint of passing hard stool (96.77%). 45.16% of patients were found to have *Vatakaphaja Prakriti*. The symptoms of *Parikartika* (fissure in ano) observed among the patients of both the groups were pain in ano in 100% (moderate 48.39%), constipation in 96.77% with irregular bowel in 60% and bleeding per rectum in 90.32% of patients (dropping type in 67.86%, mild In 64.29%, after defecation in 50% and occasional in nature in 82.14%). On local examination, 3.23% patients had unhealthy peri-anal skin and 96.77% patients had discharge from anal canal. Maximum patients (51.61%) had chronic fissure with sentinel tag at 6 o'clock position. Sphincter spasm was found in 74.19% and anal papilla was observed in 41.94% of the patients.

RESULTS

In the present study, weekly assessment was done to assess and compare the efficacy of *Nimba Ksharasutra* (medicated caustic thread) and open lateral internal sphincterotomy (OLIS). The assessment was made on the basis of relief in post-operative pain, swelling, oozing and healing of the wound. Assessment was done on the 7th day, 14th day, 21st day and 30th day. Although individual results in both groups were found statistically highly significant ($P < 0.001$) in pain in ano [Table - 3] Assessment was done on the 7th day, 14th day, 21st day and 30th day. Although individual results in both groups were found statistically highly significant ($P < 0.001$) in pain in ano [Table - 3], but on comparing both groups there was statistically insignificant difference (0.281) in number of days required for relief in post-operative pain. Patients of group A required an average of 10.86 days while patients of group B, average 9.73 days were required for relief in post-operative pain, which shows that group B (OLIS) was better than group A (K. S. application).

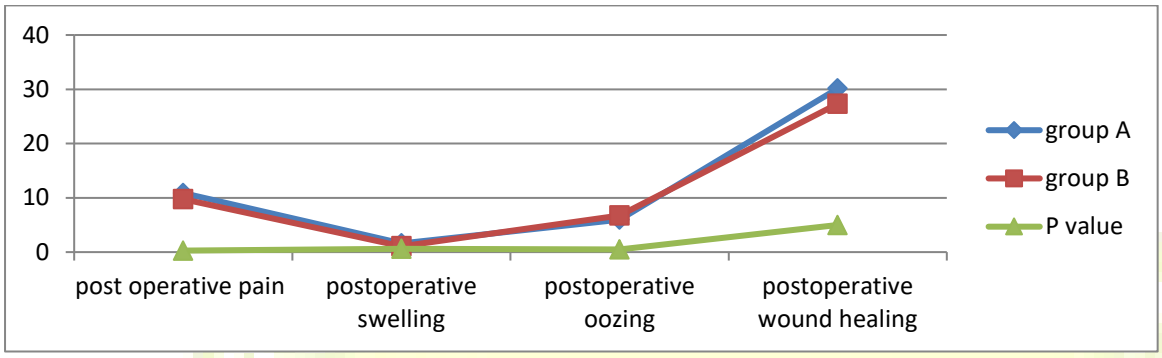
Table 3: Assessment of postoperative pain in ano in Group A and B (*n*=30)

Days	Mean BT	Mean AT	Mean DF	Percentage relief	W	SD	SE	P	Significance
Statistical analysis of pain in ano in Group A(n=15)									
7th	2.67	0.93	1.73	65.00	-105	0.884	0.228	<0.001	Highly significant
14th	2.67	0.40	2.27	85.00	-120	0.884	0.228	<0.001	Highly significant
21st	2.67	0.27	2.40	90.00	-120	0.910	0.235	<0.001	Highly significant
30th	2.67	0.13	2.53	95.00	-120	0.743	0.192	<0.001	Highly significant
>30 days	2.67	0.07	2.60	97.50	-120	0.737	0.190	<0.001	Highly significant
Statistical analysis of pain in ano in Group B(n=15)									
7th	2.40	0.60	1.80	75.00	-105	0.775	0.200	<0.001	Highly significant
14th	2.40	0.20	2.20	91.67	-120	0.676	0.175	<0.001	Highly significant
21st	2.40	0.13	2.27	94.44	-120	0.594	0.153	<0.001	Highly significant
30th	2.40	0.13	2.27	94.44	-120	0.594	0.153	<0.001	Highly significant
>30 days	2.40	0.07	2.33	97.22	-120	0.617	0.159	<0.001	Highly significant

Table 4: Average days required to get relief in postoperative symptoms

Symptoms	Group A (days)	Group B (days)	P	Significance
Postoperative pain	10.86	09.73	0.281	Non significant
Postoperative swelling	1.60	1.07	0.614	Non significant
Postoperative oozing	6	6.73	0.499	Non significant
Postoperative wound healing	30.13	27.33	0.217	Non significant

Graph No.1



On 7th post-operative day, patients of group A got 50% relief in post-operative swelling, while in group B, 33.33% relief was observed. In 2nd week, 100% patients got relief in post-operative swelling in both the groups [Table - 5]. There was statistically insignificant difference in number of days required for relief in swelling, but in mean difference, patients of group A required an average of 1.60 days, while in group B, an average of 1.07 days was needed for relief in post-operative swelling [Table - 4].

Table 5: Assessment of postoperative swelling in Group A and B (*n*=30)

Days	Mean BT	Mean AT	Mean DF	Percentage relief	W	SD	SE	P	Significance
Statistical analysis of post operative swelling in ano in Group A(n=15)									
7th	2.27	0.13	0.13	77.77	-3	0.352	0.090	0.500	Non significant
14th	2.27	0.00	0.27	100	-10	0.458	0.118	0.125	Non significant
21st	2.27	0.00	0.27	100	-	-	-	-	-
30th	2.27	0.00	0.27	100	-	-	-	-	-
Statistical analysis of post operative swelling in ano in Group B(n=15)									
7th	2.20	0.13	0.07	33.00	-1	0.258	0.067	1.00	Non significant
14th	2.20	0.00	0.20	100	-6	0.414	0.107	0.250	Non significant
21st	2.20	0.00	0.20	100	-6	0.414	0.107	0.250	Non significant
30th	2.20	0.00	0.20	100	-	-	-	-	-

It was observed that all patients had got 100% relief in post-operative oozing of blood till the end of 1st week in group A and 3rd week in group B [Table - 6]. There was statistically insignificant difference in number of days required to stop post-operative oozing per rectum. Patients of group A required an average of 6 days to stop postoperative oozing, while in group B, an average of 6.73 days was needed.

Table 6: Assessment of postoperative oozing per rectal in Group A and B (*n*=30)

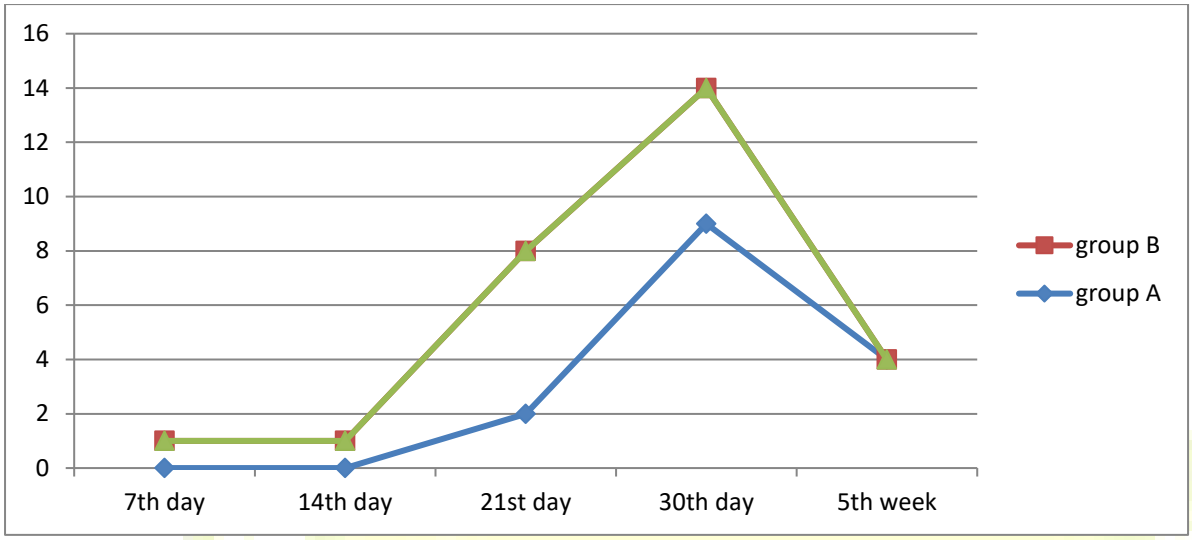
Days	Mean BT	Mean AT	Mean DF	Percentage relief	W	SD	SE	P	Significance
Statistical analysis of per rectal oozing in ano in Group A(n=15)									
7th	2.13	0.40	1.73	81.25	-91	1.033	0.267	<0.001	Highly significant
14th	2.13	0.00	2.73	100	120	0.990	0.256	<0.001	Highly significant
21st	2.13	0.00	2.73	100	-	-	-	-	-
30th	2.13	0.00	2.73	100	-	-	-	-	-
Statistical analysis of per rectal oozing in ano in Group B(n=15)									
7th	1.80	0.27	1.53	85.19	-91	0.834	0.215	<0.001	Highly significant
14th	1.80	0.07	1.73	96.30	-120	0.799	0.206	<0.001	Highly significant
21st	1.80	0.00	1.80	100	-105	0.775	0.200	<0.001	Highly significant
30th	1.80	0.00	1.80	100	-	-	-	-	-

The 46.67% patients found healing of post-operative wound within 30 days [Table - 7]. There was statistically insignificant difference in number of days required for post-operative wound healing, but patients of group A took an average of 30.13 days for post-operative wound healing, while in group B, an average of 27.33 days was required for post-operative wound healing.

Table 7: days required for *Vrana ropan* in Group A and B (*n*=30)

Wound healing	Group A(n=15)	Group B(n=15)	Total
7days	0	0	0(0)
8-14	0	1(6.67)	1(3.33)
15-21	2(13.33)	6(40.00)	8(26.66)
22-30	9(60.00)	5(33.33)	14(46.67)
More than 30days	4(26.67)	3(20.00)	7(23.33)

Graph No.2



Out of 30 patients of *Parikartika* (chronic fissure-in-ano), 50% of patients were cured and 30% of patients had marked improvement. Moderately improved and mild improvement was noted in 6.67% of patients each. 6.67% did not have any relief. Complication was reported in two patients. In group A, complication was reported as skin tag in one patient and in group B subcutaneous fistula in one patient. These patients were treated accordingly, i.e., excision of skin tag and fistulectomy of subcutaneous fistula respectively. No patient reported recurrence of *Parikartika* (chronic fissure-in-ano) in both the groups during1 month of follow-up. Hence, it can be said that both the modalities of treatment are effective for the management of chronic fissure.

DISCUSSION

Between 18-30 years age group 38.71% patients were noted. As per the classics, more prevalence of fissure in ano is mentioned in this age group.[5] The male-to-female ratio was 19:12. Fissure-in-ano can occur irrespective of the gender equally as reported by other study.[6]But in this study, male patients were more, may be due to less sample size. This study showed that 100% of the patients were suffering from burning pain in ano, which is a cardinal symptom of *Parikartika* (chronic fissure-in-ano).[7]Constipation is a main causative factor of *Parikartika* (chronic fissure-in-ano) and it was reported in 96.77% of patients.[8]Moreover, 90.32% of patients noted bleeding per ano. The position of fissure-in-ano at 6 o'clock position was found in 42.11% and 58.33% in male and female patients respectively. This might be due to direct pressure of stool during defecation and less muscular support at 6 o'clock position.[9]The usual site for anal fissure is midline posterior; however, lateral fissures are seen in diseases such as Crohn's disease, ulcerative colitis, tuberculosis, and syphilis.[10]All (100%) patients had developed sentinel tag; among them, sentinel tag was at 6 o'clock position in 51.61% patients, sentinel tag was at 12 o'clock position in 12.90% patients, and sentinel tag was both at 6 o'clock and 12 o'clock position in 35.48% of the patients. Females have more chances to develop sentinel tag at 12 o'clock, whereas male patients have more chances to develop sentinel tag at 6 o'clock position.[11]The sentinel tag develops externally and papilla internally in chronic fissure after 6 months of chronicity [12] Spasmodic anal sphincter was observed in 74.19% of the patients. In chronic fissure-in-ano, sphincters become spasmodic due to increased intra-rectal pressure and causes delay in healing of fissure bed.[13] In 41.94% of the patients, anal papilla was found during PR digital examination which is one of sign in chronic nature of fissure-in-ano. It is a general observation

that in cases of chronic fissure-in-ano, either a sentinel tag or anal papilla is developed.

Anal pain was relieved early in group B (OLIS) as compared to group A (KSL). In group A, *Nimba Ksharasutra* (medicated caustic thread) was *in situ* during 1st week and penetration of *Kshara* causes burning pain, so less number of patients got relief in pain than group B. During 2nd week, *Ksharasutra* (medicated caustic thread) was slough out with skin tag and created fresh wound so patients got relieved from pain as compared to 1st week. While in group B, fresh wound occurred at the time of operation which can be correlated as *Shuddha Vrana* (disinfected wound) and in *Shuddha Vrana* (disinfected wound), pain is less or absent.[14] Hence, the patients of group B got relief from pain earlier than in patients of group A.

Perianal swelling at operated site is due to tissue injury and it varies from patient to operated patient. The perianal swelling was found in only 7 patients. Hence, insignificant result was found due to less number of sample.

There was statistically insignificant difference in the number of days required for healing of postoperative wound ($P > 0.217$). In group A, slough out of *Ksharasutra* (medicated caustic thread) applied at the base of tag and wound was healed by secondary intention. In Group B, excision of sentinel tag leads to fresh wound; this was also healed by secondary intention. It might be due to the occurrence of fresh wound after sloughing out of *Ksharasutra* (medicated caustic thread) in group A, which was healed later than group B where wound was created immediate after excision of tag. Therefore, wound healing started 6–7 days late in group A as compared to group B. The mean time required to relieve all the post-operative complaints was found minimal in OLIS-treated group in comparison to *Ksharasutra* (medicated caustic thread) - treated group, which may indicate better efficacy and applicability of OLIS as operative procedure for the management of *Parikartika* (chronic fissure-in-ano)

Mode of Action of *Nimba Ksharasutra*

Ksharasutra (medicated caustic thread) was prepared by adopting standard method described in Ayurvedic Pharmacopeia of India.[15]The *Nimba* (*Azadirachta Indica*) *Kshara* (medicated caustic thread), the main ingredient of *Ksharasutra* (medicated caustic thread), has the properties Antioxidant, Antimalarial, wound healing, antimicrobial, antifungal, antiviral, anti-inflammatory, anti-arthritic, anti-pyretic, anti-tumor activities, hypoglycemic (nimbidin) actions. It also helped to remove unhealthy fibrous tissue and debris by action of *Ksharana* and make the wound *Shuddha* (healthy) by virtue of *Shodhana* properties (Purification).[16]The antiseptic property of latex of *Snuhi (Euphorbia nerifolia* L.*)* Helps to check secondary infection.[17]*Haridra* powder (*Curcuma longa* Linn.) Has anti-inflammatory as well as antibacterial properties and hence it made the wound clean, healthy, and promoted uneventful healing. [18]

Mode of action of open lateral internal Sphincterotomy

In chronic fissure-in-ano, internal sphincter muscle (continuation of circular muscle of rectal wall) becomes fibrotic due to recurrence ulcer. The fibrosis of internal sphincter creates symptoms such as pain and nonhealing of fissure. After sphincterotomy (OLIS), internal sphincter divided so sphincter spasm as well as pain relieved which helps to heal fissure bed.

Mode of action of *triphala kashaya*

Sitz bath with ***Triphala kashaya*** was advised. It exhibited *Vrana Shodhana* (disinfected wound) and *Vrana Ropana* (wound healing) properties. Researchers have shown *Triphala* to possess free radical scavenging, antioxidant, anti-inflammatory, anti-pyretic, anti-bacterial, would healing effects.

Mode of action of *Avipattikara powder*

Avipattikara powder was given 5 g, two times a day, with plain warm water before meal daily to all patients of both the groups in post-operative days. The main ingredient of this formulation is *Trivrita* (*Operculina turprthum* L.), which has

mild purgative action and thus helped to relieve constipation in post-operative patients. It also helps to soften the stool.

Mode of action of *Yashtimadhu taila*

Glycyrrhiza glabra Linn. has various pharmacological activities like antibacterial activity, antithrombotic effect, hepatoprotective effect, anticonvulsant effects, cryoprotective effect, Anti-dyslipidemia activity, memory enhancing activity, antioxidant potential activity, hair growth promoting activity etc. **(19)**

Mode of action of *Triphala Guggulu*

1 g (500mgx2) of *Triphala Guggulu Vati* three times a day with warm water after meal was prescribed in all the patients. *Triphala* is well known for its wound healing properties. **(20)***Guggulu* is also one of the best known anti-inflammatory drug.**(21)**

Thus, directly or indirectly, good healing effect was achieved by the actions of all three adjuvant medicines, i.e., *Triphala* decoction(22), *Yashtimadhu* oil and *Triphala Guggulu* used along with surgical and para-surgical procedure in this study.

CONCLUSION

Open lateral internal sphincterotomy with skin tag excision is more effective procedure than *Ksharasutra* (medicated caustic thread) application with anal dilatation in the management of *Parikartika* (chronic fissure-in-ano) effective for the management of chronic fissure.

Acknowledgement

It is an inexplicable pleasure to offer my sincere and respectful regards to Mrs. Suman Sharma, Chairperson, Shri Sain Charitable Trust for higher Education and Research, Jammu who has been kind enough to provide me an opportunity to study in this esteemed institution. We are grateful to Former Director Prof. Kulwant Singh,(Ex. VC-IPGT&R Jamnagar, Gujarat) and Dr. Raghuvir Singh Director Academic affairs and Principal, Prof. Dr Paramvir Singh J.I.A.R. & Vice Principal Dr. Nitin Mahajan, Vice-Principal, J.I.A.R. We are also thankful to, Dr. K. Sreedhar EX-HOD and Staff for helping me and who has devoted much of his time in guiding me and providing necessary facilities whenever sought far. This timely help and explicit way of explaining the subject made this article a possible task.

Financial Assistant- None

Conflict of Interest- None

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