

ORIGINAL ARTICLE

COMPARATIVE STUDY TO OBSERVE EFFECTS OF TOPICAL NIFEDIPINE WITH LIGNOCAINE AND TOPICAL SUCRALFATE WITH LIGNOCAINE IN ACUTE ANAL FISSURE

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ABSTRACT:

Introduction: Acute anal fissure presents with severe disabling anal pain in all individuals of either sex. Anal fissure poses a peculiar problem to the patient and the surgeon due to severe pain and bleeding. It short of self inspection as lesion lies outside field of vision of the patient and allows only gentle inspection with almost no palpation by the surgeon. There are apprehensions in the minds of patients regarding modes of treatment like medical or surgical and of their outcomes. Anal fissures present with intolerable anal pain, spasm due to hypertonicity and hypertrophy Internal Anal Sphincter and bleeding in the form streak along with stools. A sinister cycle of preferring painful act of defecation, hardening of stools and further extending of fissure line deepens crisis. The symptoms are out of proportion to signs limiting or postponing examination by the surgeon and necessitating administration of immediate pharmacotherapy. **Aims and Objectives:** The study evaluated and compared the effects of topical nifedipine-lignocaine combination (Anorelief) with topical sucralfate-lignocaine (Sucralano) combination in patients of acute anal fissure. **Material and Methods:** Fifty patients of acute anal fissure were studied. They were randomly divided into two groups of 25 patients each. In one group, patients undergone treatment with topical nifedipine (0.3%)- lignocaine (1.5%) cream (TNLC) and in second group, topical sucralfate (7%)-lignocaine (4%) cream. The patients were instructed to apply cream locally into the anal canal twice daily for 3 weeks passing stools. The patients were assessed for pain, bleeding, discharge, constipation, fissure healing and any side effect at 1st, 2nd and 3rd weeks of follow up. **Results and Conclusion:** Results were seen more promising with nifedipine- lignocaine cream (Anorelief) as compared to sucralfate - lignocaine cream (Sucralano) in acute anal fissure due to better improvement in pain, bleeding and better fissure healing.

Key Words: Acute anal fissure; Topical Nifedipine –Xylocaine cream (Anorelief); Topical Sulcralfate –Xylocaine cream (Sucralano)

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INTRODUCTION

Anal fissure is notorious for severe pain, short of self inspection due to its location and allows only gentle inspection with almost no palpation by the surgeon. There are apprehensions in the minds of patients regarding modes of treatment medical or surgical and their outcomes.

Anoderm is richly innervated with somatic sensory nerves for light touch and pain.¹ The posterior anal commissure is poorly perfused, while Internal anal sphincter is weakest at this point due to its anatomical configuration.^{1,2} The sphincter fibres form a Y-shaped decussation in the posterior midline that is more anchored to the mucosa. The reduced blood supply to the

lesion is indicated by the absence of granulation tissue at the base of the fissure and a very slow growth of the anoderm even when the traditional conservative treatment eases the trauma due to hard faeces.³ Anterior fissures were identified in a younger and predominantly female group of patients, with maximum squeeze pressure was significantly lower compared with the posterior fissure group. These findings may have important implications for the management of anal fissure⁴

Sucralfate, a basic aluminium salt of sucrose octasulfate act as a mechanical barrier because of a strong electrostatic interaction of the drug with proteins at the ulcer site. Sucralfate has been shown to have

antibacterial activity in solitary rectal ulcer⁵, radiation proctitis.^{6,7} post haemorrhoidectomy⁸, post fistulectomy⁹, post-tonsillectomy¹⁰, non-neoplastic vaginal discharge¹¹, during Radiotherapy (carcinoma breast, head, neck and anorectal area)¹²⁻¹⁴, after second or third degree burns and peristomal dermatoses¹⁵ venous ulcer¹⁶ with claimed success. Sucralfate binds to basic fibroblast growth factor preventing its degradation and thereby promotes healing.¹⁵ Ultra structural analysis demonstrated that the topical use of sucralfate was able to affect neo angiogenesis, increase wound contraction, promote re-epithelialisation of the wound area and diminish the inflammatory reaction.¹⁶

Nifedipine, a calcium channel blocker lowers intracellular concentration of calcium in myocytes, breaks spasm of Internal anal sphincter reduces resting or maximal anal pressure¹⁷, pain and increases blood supply by an independent mechanism and promotes healing of acute anal fissure.

Anal fissures present with intolerable anal pain, spasm due to hypertonicity and hypertrophy Internal Anal Sphincter or bleeding in the form of streak along with stools. A sinister cycle of deferring painful act of defecation, hardening of stools and further extending of fissure line deepens crisis. The symptoms are out of proportion to signs limiting or postponing examination by the surgeon and necessitating administration of immediate pharmacotherapy.

MATERIAL AND METHODS

The present study was undertaken from July, 2013 to Nov.2015 on patients presenting to the Department of Surgery, Guru Nanak Dev Hospital, Govt. Medical College Amritsar after taking approval from Institutional thesis and ethics committee. The study group was of 50 patients of acute anal fissures divided into two groups of

25 each and recruited into the study after taking the informed consent. The diagnosis of acute anal fissure was established on the basis of history and clinical examination of the patient.

Inclusion Criteria: Patient of either sex, age 18-60 years.

Exclusion Criteria: Patient with known hypersensitivity to lignocaine, in whom nifedipine is contraindicated, elderly patients on antihypertensive drugs or beta blockers, having chronic anal fissure, anal fissure due to other diseases like inflammatory bowel disease., tuberculosis, malignancy, sexually transmitted diseases, associated hemorrhoids, fistula, pregnant/lactating women and- with significant cardiovascular conditions were excluded. The selected patients were randomly assigned to two groups.

Group A: Patients undergoing treatment with cream Nifedipine (0.3%) -lignocaine (1.5%) combination (Anorelief).

Group B: Patients undergoing treatment with cream Sucralfate (7%) – lignocaine (4%) combination (Sucralano).

In Both groups patients were instructed to apply cream locally into the anal canal twice daily for 3 weeks after defecation. The effects of both combinations were evaluated and compared. The patients were assessed for symptoms like pain, bleeding, discharge, constipation, fissure healing and any side effect at 1st, 2nd and 3rd weeks of follow up.

Pain was assessed according to visual analogue scale and was classified as mild, moderate and severe. Symptomatic relief in terms of pain and bleeding was assessed on follow up. Healing of fissure was assessed visually and results were compiled as very good, good and poor as per subjective perceptions of patients.

All results were statistically analysed.

Table 1: Mean VAS score after treatment in group A and B

Time interval	Group A(TNLC)		Group B(TSLC)		'p' value	Significance
	Mean	± SD	Mean	± SD		
1 st week	5.12	0.88	5.40	0.64	0.12	>0.05 (NS)
2 nd week	3.44	0.96	3.96	0.67	0.05	<0.05 (S)
3 rd week	2.02	1.04	2.99	0.95	0.04	<0.02 (S)

NS = Not Significant; S = Significant

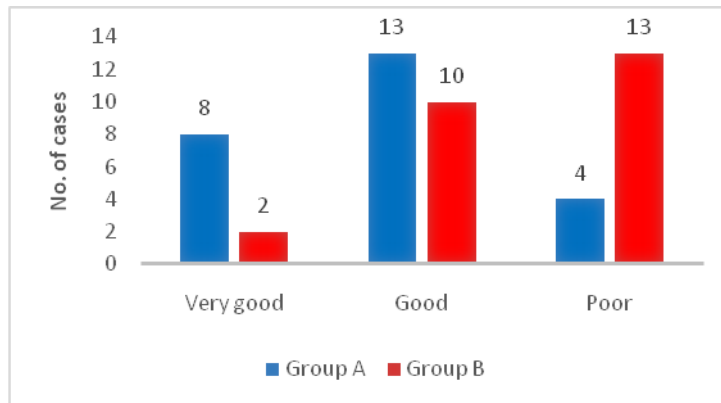
Table 2: Distribution of cases according to bleeding after treatment in group A and B

Time interval	Group A(TNLC)		Group B(TSLC)	
	Absent	Present	Absent	Present
1 st week	21 (84%)	4 (16%)	17 (68%)	8 (32%)
2 nd week	23 (92%)	2 (8%)	22 (88%)	3 (12%)
3 rd week	24 (96%)	1 (4%)	23 (92%)	2 (8%)

Table 3: Distribution of cases according to healing

Time interval	Group A(TNLC)		Group B(TSLC)		'p' value
	Absent	Present	Absent	Present	
1 st week	25 (100%)	-	25 (100%)	-	-
2 nd week	17 (68%)	8 (32%)	23 (92%)	2 (8%)	X ² = 4.59 (p<0.05)
3 rd week	4 (16%)	21 (84%)	13 (52%)	12 (48%)	X ² =8.32 (p<0.05)

Graph 1: After treatment in group A and B: distribution of cases according to results in group A (Anorelief) and B (Sucralano)



RESULTS

In group A and group B the mean age is 31.92 ± 8.84 and 36.96 ± 12.19 years respectively. Males patients are predominant in both groups .The M:F ratio is 3.16 in group A and 3:2 in group B .

Pain during defecation was present in, 23 (92%) of group A, 25 (100%) of group B and pain after defecation in 2(8%) of group A, 3(12%) in group B patients.

Bleeding with stools was present in 22(88%) in group A and 23 (92%) in group B patients.

Per anus mucus discharge was present in 4 (16%) of group A and 2 (8%) of group B patients. Constipation was present in 68% patients in both the groups. Pruritus ani was present in 2 (8%) in group A and 6 (24%) in group B patients.

Posterior midline anal fissure was present in 21 (84%) group A and in 23 (92%) group B patients. Anterior anal fissure was present in 5 (20%) group A and 4 (16%) group B patients. Single fissure, in 96% in group A and 92% in group B cases . Only one patient in group A and two in group B had fissures present both anterior and posterior positions.

At 1st week mean visual analogue scale score was 5.12 ± 0.88 in group A and 5.40 ± 0.64 in group B which was statistically non significant ($p > 0.05$). At 2nd week, in group A mean visual analogue scale score was 3.44 ± 0.96 as compared to 3.96 ± 0.67 in group B, which was statistically significant ($p < 0.05$). At 3rd week, there was more significant difference present in group A 2.01 ± 1.04 as compared to 2.99 ± 0.95 in group B. (**Table 1**)

At 1st week no bleeding present in 21 (84%) patients of group A as compared to 17 (68%) of group B. At 2nd week, 23 (92%) patients were having no bleeding in group A as compared to 22 (88%) in group B. At 3rd week, 24 (96%) patients were having no bleeding in group A as compared to 23 (92%) in group B. (**Table 2**)

At 1st week, no healing was present in both the groups. At 2nd week, 8 (32%) patients in group A and 2 (8%) patients in group B were showed presence of healing. At 3rd week, 21 (84%) patients in group A were showing presence of healing as compared to 12 (48%) patients in group B. (**Table 3**)

In group A 3 (12%) patients developed headache and group B 2 (8%) had constipation. In group A, 8 (32%) patients and in group B, 2 (4%) patients perceived results very good. In group A, 13 (52%) patients and in group B, 10 (40%) patients were having good results. In group A 4 (16%) and group B 13 (52%) patients, labeled the results as poor.

DISCUSSION:

Anal fissure affects all age groups, usually in 30 to 50 yrs of age and is the most common reason of painful bleeding per anus in infants and young children. The patients defer defecation for days with hardening of the stools, which further tears the anoderm during defecation, setting a nasty cycle.^[18] In our study mean age distribution was comparable in both the groups with the overall mean age was 37 ± 11 yrs and male predominance 68% to (52%) International Nuclear Information System (INIS).¹⁹ Majority of the patients were having posterior anal fissure in 44 (88%) comparable to 90% of anal fissures in both men and women were located posterior in the midline.¹⁸

In our study pain during defecation was recorded in 48 (96%) and bleeding with stools in 45 (90%) patients. Majority of the patients 34 (68%) had constipation. In our study, mean visual analogue scale score for pain was 5.12 ± 0.88 in group A (Anorelief) and 5.40 ± 0.64 in group B (Sucral ano) at 1st week of treatment which was non-significant ($p > 0.05$). At 2nd week mean visual analogue scale score was 3.44 ± 0.96 in group A as compared to 3.96 ± 0.67 in group B which was statistically significant ($p < 0.05$). At 3rd week of treatment there was more significant difference present in group A 2.02 ± 1.04 as compared to 2.99 ± 0.95 in group B as depicted in [**Table 1**]. Tranquip1 et al reported 92% of patients having no pain or only mild occasional painful bowel movements.²⁰ Pasquale Perrotti et al showed that topical nifedipine with lidocaine may provide a slight significant difference in favor of combination group at 6 hours and at day 7 after surgery than 1.5% lidocaine ointment alone in diminishing post hemorrhoidectomy pain²¹ Sucralfate has also been reported to have antibacterial activity²², decreasing pain and improving healing after hemorrhoidectomy²³, in peristomal and perineal

dermatoses. It induces the proliferation of dermal fibroblasts and keratinocytes in vitro, and inhibits the release of interleukin-2 and interferon- γ from injured skin cells²⁴. Limiting the inflammation might diminish fibrosis, stricture development, expression of EGF (epithelial growth factor) and the other factors implicated in tissue repair processes.²⁵ Stimulating effects on vascular factors, such as angiogenesis, which play important roles in tissue repair, have been shown by sucralfate.^{26,27} Sucralfate does not have any adverse effect. Gupta PJ1, et al in their study found that topical sucralfate reduces post hemorrhoidectomy pain and improves healing in Grades III or IV haemorrhoids ranked significantly better than in controls ($P < 0.02$) placebo.⁸ AlaSI, et al studied the efficacy of 10% sucralfate ointment and found sucralfate group had significantly less pain than the placebo group at 24th hr and the 48th hr after hemorrhoidectomy (4 ± 1.14 vs 5.08 ± 0.97 ; $P = 0.001$ and 3 ± 0.72 vs 4.41 ± 0.8 ; $P < 0.001$, respectively).²⁸ In our study the bleeding control earlier and slightly better in group A (Anorelief) than group B (Sucralano) as depicted in [Table 2]

In our study, there was no healing at 1st week follow up in both the groups. At 2nd week, healing was present in 8 (32%) patients in group A as compared to 2 (8%) patients in group B. At 3rd week, healing was present in 21 (84%) patients in group A as compared to 12 (48%) patients in group B as depicted in [Table 3]. These findings are consistent with findings of Panagiotis et al showed the efficacy of topical application of 0.5% nifedipine ointment in healing acute anal fissure, (85.2%) of patients achieved a complete remission indicated by healing of fissure at 8th week of treatment course.²⁹ Perrotti et al showed that healing of chronic anal fissure was achieved after 6 weeks of therapy in 94.5 percent of the nifedipine-treated patients ($P < 0.001$) as compared to 16.4 percent of the controls.¹⁷ Farzaneh Golfam, et al showed that healing had occurred in 70% of patients in the nifedipine group.³⁰ Gupta PJ1, et al found topical sucralfate is safe and effective for promoting mucosal healing and providing analgesia in post anal fistulotomy wound treatment.⁹

In our study 3 (12%) patients in group A had developed headache and 2 (8%) patients in group B had developed constipation. Panagiotis et al reported 7.4% patients at 8-wk with moderate headache as a side effect of nifedipine.¹²⁹ and Farzaneh Golfam, et al reported that mild headache occurred in 4 patients (6.6%) of the nifedipine group.³⁰ In our study, higher % of patients have healed fissures of Group A than Group B at 3wks perceived results as very good and good as shown in [Graph 1].

CONCLUSION:

The above study reveals that results are seen more promising with application of topical nifedipine with lignocaine cream (Anorelief) as compared to sucralfate with lignocaine cream (Sucralano) in acute anal fissure because of superior improvement in pain, bleeding control and better fissure healing.

Limitation of study – Small sized study group, short period of study. We need more studies with large study groups and longer periods of study.

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