



COMPARATIVE STUDY OF POST OPERATIVE PAIN SCORE IN OPEN SPINCTEROTOMY AND NON-SCALPEL SPINCTEROTOMY FOR ANAL FISSURE

Dr G. Venkata Naidu

MS Associate Professor of General Surgery

Dr Harika Kondapalli*

Post Graduate *Corresponding Author

ABSTRACT Anal fissure was thought to be due to severe constipation or straining during defecation. The diagnosis is made by the typical history of pain during defecation associated with prior constipation. Chronic anal fissure is accompanied by an external skin tag and hypertrophied anal papilla. Lateral sphincterotomy is regarded as gold standard treatment. This study aimed to compare the open and closed techniques of lateral internal sphincterotomy in terms of post-operative pain.

KEYWORDS : Anal Fissure, Lateral Spincterotomy, No Scalpel, Low Cost, Sustainable

INTRODUCTION

Anal fissure was thought to be due to severe constipation or straining during defecation. Various studies have suggested that both anorectal mechanics and blood supply play a role in anal fissure development. Initial reports from the 1970s and 1980s have implicated internal sphincter hypertonia (ISH) in anal fissure pathogenesis. The posterior commissure is not as well-perfused as other regions of the anal canal; here the inferior rectal artery has a perpendicular course through the septa of the internal anal sphincter. Hence, increased intramuscular pressure compromises the blood flow, which is further aggravated by increased intraluminal pressure. This endodermal ischaemia prevents small mechanical tears from healing in a timely fashion. The diagnosis is made by the typical history of pain during defecation associated with prior constipation. Chronic anal fissure is accompanied by an external skin tag and hypertrophied anal papilla. Anal fissure is very painful, because it affects the multilayer squamous epithelium of the anoderm, which is richly innervated with pain fibres. The basal tone of the IAS is affected by various substances, including Nitric Oxide (NO). In Patients with anal fissures, the synthesis of NO in the IAS is reduced in comparison with the controls. Surgical treatment includes anal dilatation and posterior or lateral internal sphincterotomy. Lateral sphincterotomy has been regarded as the gold standard for the treatment. Surgical internal sphincterotomy is recommended as the first-line treatment in patients with anal hypertonia. This study aimed to compare the open and closed techniques of lateral internal sphincterotomy in terms of post operative pain.

MATERIALS AND METHODS

A comparative study was conducted in the department of General Surgery, King George Hospital, Visakhapatnam from September 2021 to September 2022. Study included 100 patients who underwent elective surgical procedure after being explained regarding the procedure and the study and their need for follow up and proper peri-operative care; of which 50 patients undergone open spincterotomy and 50 patients undergone no scalpel spincterotomy for chronic anal fissure. Post-operative pain score, wound healing and wound care observed in both the groups of patients.

Study Type:

Hospital based prospective comparative study.

Inclusion Criteria :

All patients of both sexes between the ages of 15 -70 years presenting to our outpatient clinic.

Exclusion Criteria :

- I. If they underwent any other anorectal procedure at the time of anal sphincterotomy and if they had a history of previous sphincterotomy or anal dilatation.
- II. Fissures associated with inflammatory bowel disease or malignancy.

Statistical Analysis :

All continuous variables were expressed as mean and number of percentages were used for categorical variables. Chi square test

and students t test and multivariate logistic analysis were used. P<0.05 was considered statistically significant.

Surgical Procedure

Both surgical procedures were carried out in the lithotomy position under regional, or local anaesthesia.

In open sphincterotomy, the anal canal visualized with anoscope, a longitudinal incision made in the anoderm, and the distal half of the internal anal sphincter is divided under direct vision followed by closure of the mucosa.

In closed or no scalpel sphincterotomy, a radial stab incision is given at the anoderm either 3'o clock or 9'o clock position with sharp pointing curved artery forceps laterally in the intersphincteric groove exposing the internal sphincter muscle fibres. The internal sphincter is then lifted using vas hooks and brought out through the wound. Under direct vision the distal 4/5th of the internal sphincter muscle (up to the length of the fissure) is divided using monopolar cautery, Haemostasis is secured with bipolar forceps and wound is dressed. The wound is then left open to heal.

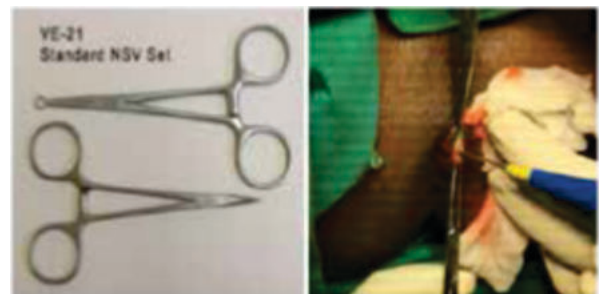


Figure 1: Instruments used in No Scalpel Spincterotomy.

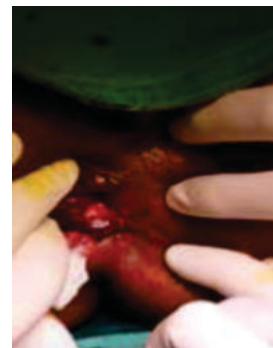


Figure 2: The No Scalpel Technique

Post Operative Management

The wound and perianal area were inspected for bruising or hematoma within 12 hours after the surgery. Prophylactic antibiotics in the form

of metronidazole and a second generation cephalosporin were administered orally to all patients for 1 week postoperatively.

The patients resumed eating a high fiber diet on the day of the surgery. Laxatives or stool softeners are given for 2-3 weeks.

Patients were followed to assess any complications of these procedures (pain, infection or abscess formation, incontinence, soiling, and recurrence) and to determine the mean duration of stay in hospital in the groups with open or closed sphincterotomy.

Pain was measured using a visual analog scale representing an intensity of pain from 0 (no pain) to 10 (worst imaginable pain) and was assessed at 12 and 24 hours after the operation. Patients were followed up once a week for 2 weeks and then every 2 weeks for another 6 weeks to monitor fissure healing.

RESULTS

In 100 patients, 50 underwent open anal sphincterotomy and 50 underwent closed/no scalpel sphincterotomy. In open group 22 were males and 28 were females; in closed group 24 were males and 26 were females. The difference was not significant according to Chi square test ($p=0.0016$).

The maximum number of patients was in the 56-70 year age group. The mean age of patients was comparable in the two groups ($p=0.482$). The ages of patients who underwent open and closed sphincterotomy were 39.38 ± 12.96 years and 40.88 ± 11.80 years, respectively.

Pain during defecation was the pre-dominant symptom seen in 27 (54%) patients in the closed sphincterotomy group and 20 (40%) patients in open sphincterotomy group. Induration was present in one (2%) patient in each of the closed sphincterotomy and open sphincterotomy groups.

The mean score on the visual analog scale for the measurement of pain 12 hours after the operation was 5.62 ± 0.81 in the closed sphincterotomy group and 6.13 ± 0.75 in the open sphincterotomy group ($p < 0.001$).

The mean score on the visual analog scale 24 hours after the operation was 2.10 ± 0.35 in the closed sphincterotomy group and 2.35 ± 0.59 in the open sphincterotomy group ($p=0.003$).

Postoperative incontinence or soiling was not seen in any patient. Most of the patients underwent rapid healing and resolution of their symptoms, with no recurrence noted in either group.

Delayed healing was seen in 4.4% ($p=0.08$) of the open sphincterotomy patients, none of the patients in the closed sphincterotomy group had either delayed wound healing or an absence of wound healing postoperatively.

	Closed sphincterotomy	Open sphincterotomy	p
Visual analog scale score 12 h after operation	5.62 ± 0.81	6.13 ± 0.75	<0.001
Visual analog scale score 24 h after operation	2.10 ± 0.35	2.35 ± 0.59	0.003

Figure 3 : Post Operative Pain Scores

DISCUSSION

Surgical lateral internal sphincterotomy remains the gold standard.

The treatment of anal fissures by sphincterotomy was first suggested in 1818 by Boyer. Since the introduction of lateral internal sphincterotomy by Eisen-hammer in 1951, this procedure has been used with increasing frequency and is now considered the treatment of choice for CAFs.

Patients presented most often with pain during defecation, followed by associated bleeding from the rectum. A few patients with constipation associated with bleeding from the rectum were also noted in this series.

Most of the patients (89%) presented with posterior midline anal fissures. Other positions seen were anterior midline (8%), i.e. at the 12 o'clock position, and at multiple positions in two patients.

On comparison of the complication rates of the open and closed sphincterotomy techniques, we found both methods to be effective in the treatment of fissures. No case of delayed or absent healing was noted in the closed group, whereas three cases of non healing were noted in the open group.

In a long-term study, Garcia-Aguilar et al concluded that closed lateral sphincterotomy is preferable to open lateral sphincterotomy as it carries a similar rate of cure with less impairment of control. Nelson concluded that both techniques are equally effective. Cohen and Dehn are in favour of closed lateral sphincterotomy. Arroyo et al also reported that closed lateral sphincterotomy is effective in the management of CAF, with fewer post-operative complications.

The mean pain score on the visual analog scale 24 hours after the operation was significantly lower in the closed sphincterotomy group than in the open sphincterotomy group.

There was a statistically significant difference between the duration of hospital stay in the two groups.

CONCLUSIONS

The open and closed sphincterotomy techniques are not significantly different in terms of the occurrence of post-operative complications such as incontinence or soiling, recurrence, and healing rates in patients with CAF.

Post-operative pain was less in the closed sphincterotomy technique than in the open sphincterotomy technique. Healing was better with a shorter mean duration of stay in the closed sphincterotomy group than in the open sphincterotomy group, along with a reduced overall cost burden.

There was statistically significant difference between the mean pain score on the visual analog scale at 12 hours and 24 hours after the operation and the duration of hospital stay in two groups.

Closed sphincterotomy is the treatment of choice for CAF and it can be performed effectively and safely with a low rate of complications and a reduced cost burden for the patient.

REFERENCES:

- Dykes SL, Madoff RD, Benign anorectal : anal fissure .In: Wolff BG, Fleshman JW , Beck DE, Pemberton JH, Wexner SD ,eds. The ASCRS Textbook of colon and rectal surgery. New York: Springer. 2007 : 178-191
- Sauper T, Lanthaler M, Bieble M, Weiss H, Nehoda H. Impaired anal sphincter function in professional cyclists. Wien Klin Wochenschr 2007; 119:170-173
- Brown CJ , Dubreuil D , Santoro L, Liu M, O'connor BI, McLeod RS, Lateral internal sphincterotomy is superior to topical nitroglycerin for healing chronic anal fissure and does not compromise long-term fecal 202 X INDIAN JOURNAL OF APPLIED RESEARCH ORIGINAL Rese Volume : 6 | Issue : 10 | October 2016 | ISSN - 2249-555X | IF : 3.919 | IC Value : 74.50 arch Paper continence: Six-years follow up of multicenter, randomized, controlled trial. Dis Colon Rectum 2007; 50:442-448.
- Elia Gueden M, Gracia Solanas JA, Royo Dachary P, Ramirez Rodriguez JM , Aguilera Diago Y, Martinez Diez M. Prevalence of anal diseases after Scopinaro's bilipancratic bypass for superobesepatients. Cir Esp 2008; 84:132-137
- Garg P. Water steam in a bidet -toilet as a cause of anterior fissure-in-ano: a preliminary report. Colorectal Dis 2010; 12:601-602
- Mentes BB, Guner MK, Leventoglu S, Akyurek N, Fine-tuning of the extent of the lateral internal sphincterotomy : spasm-controlled vs. up to the fissure apex , Dis colon Rectum 2008; 51:128-33
- Wollina U. Pharmacological sphincterotomy for chronic anal fissures by botulinum toxin a. J Cutan Aesthet Surg. 2008 Jul; 1(2):58-63.
- Aivaz O, Rayhanabad J , Nguyen V, Haigh PI, Abbas M. Botulinum toxin A with Fissurectomy is a viable alternative to lateral internal sphincterotomy for chronic anal fissure. Am Surg 2009; 75:925-928
- Garcia-Granero E, Sanahuja A, Garci-Botello SA, Faiz O, Escalapez P, Espi A, FlorB, Minquez M, Lledo S. The Ideal lateral internal Sphincterotomy: clinical and endosonographic evaluation following open and closed internal anal sphincterotomy. Colorectal Dis. 2009; 11:502-7
- Eisenhammer S. The Evaluation of the internal anal sphincterotomy operation with special reference to anal fissure. Surg Gynecol Obstet 1959;