Original Research Article

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Closed versus open lateral internal anal sphincterotomy in a chronic anal fissure

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ABSTRACT

Background: Anal fissure is a common proctological problem, which presents with pain in the anal region during and after defecation. The aim of the study was to determine the best technique for surgical treatment of chronic anal fissure patients.

Methods: The study was designed as a prospective randomized study. The study was conducted in surgical unit, K.R. Hospital, MMCRI, Mysore, India from January 2015 to June 2016. A total of 100 patients undergoing surgery were divided into two groups. In group A there were 50 patients who were treated by closed lateral internal anal sphincterotomy, and in group B there were 50 patients who were managed by open lateral internal anal sphincterotomy method. Patients were followed up for 6 months following surgery to observe for pain, bleeding, infection, incontinence, and recurrence. The exclusion criteria were patients who had in addition haemorrhoids or any other anorectal diseases.

Results: There was acceptable difference in postoperative acute complications between the two methods of internal anal sphincterotomy. However, in group A, three patients (6%) versus 10 (20%) were complicated with incontinence postoperatively, whereas the recurrence rate was 4 versus 4% in group A versus group B, respectively (P = 0.015).

Conclusions: There was significant difference between closed and open methods of lateral internal sphincterotomy in recurrence rate, healing rate, and other complications. Closed lateral internal sphincterotomy is treatment of choice for chronic anal fissure and can be done effectively and safely with acceptable rate of complications. Our recommendations are that closed technique should be adopted by experienced surgeons and Trainee should be initially trained by open technique then be shifted to closed technique.

Keywords: Anal fissure, Postoperative complications, Sphincterotomy

INTRODUCTION

Anal fissure is a common proctological problem, which presents with pain in the anal region during and after defecation. Anal fissure is a linear tear at the anal verge. It is more in female than male; it can be seen either in the anterior or the posterior midline just distal to the dentate line. In female 90% of fissures occur posterior and only 10% of the fissures are seen in the anterior midline.

While in male 98% of fissures are posterior and 2% is anterior.1-4 The pathogenesis of this condition is still not fully explained, but it appears to be related to the passage of hard stool or prolonged diarrhoea with stretching of the anal canal resulting in a split in the anoderm.⁴

The explanation for this phenomenon is both anatomic and functional. The posterior commissure of the anoderm is less well perfused than other anodermal regions. Chronic fissures are characterized by a sentinel tag, hypertrophic anal papillae, anal spasm, or fibrosis of the internal sphincter muscle. Most common surgical procedure performed for chronic anal fissure is lateral internal anal sphincterotomy, which may be performed by open or closed method. The main objective was to divide the lower third to half of the internal sphincter, thus reducing the internal sphincter spasm and increasing local anoderm blood flow.

METHODS

This prospective clinical trial was conducted in the Department of General Surgery in K. R. Hospital, Mysore, Karnataka, India between January 2015 and June 2016.One-hundred patients with chronic anal fissure were included; the patients age ranges between 20-50 years in both sexes. All patients were admitted to surgical ward in K.R hospital and full history and physical examination were done, the patient is positioned in the lithotomy, lateral (side) or jack-knife positions, by local inspection of the anal region to see the sites of anal fissure, indurations (acute, chronic), skin tag, bleeding, digital palpation (PR) of the anus is done. Investigations (HB, WBCs, GUE, FBS, CXR, ECG,) were done. In our study, only the patients with chronic anal fissure were included, all those patients undergoing surgery were divided into two groups. Group-A included all patients undergoing surgery by closed method and group-B included all patients undergoing surgery with open method; Lateral internal sphincterotomy was done in 50 (50%) of patients by closed method (group A) and 50 (50%) patients by open method (group B).

Closed method is minimally invasive method for division of the internal sphincter, the case sheet of the patients checked by anaesthesiologist for all investigations then give him spinal anaesthesia, patients were positioned in the lithotomy position, aseptic precaution anal region sterilization done by povidone Iodine, insertion of a bivalve type of anal speculum, the tight distal internal sphincter is palpable as a tight band within the canal. The intersphincteric groove, which marks the distal end of the internal sphincter, is easily palpable. A vongraefe knife is introduced through the perianal skin at the left lateral aspect of the canal sandwiched parallel between the anoderm and the internal sphincter.

When the tip reaches the dentate line, the blade is turned outwards and the internal sphincter muscle divided with the blade. Operator can easily be determined when the sphincterotomy is completed because of the "give" when these fibres' have been divided. The blade is removed, and gentle pressure is applied to control bleeding the skin tag should be removed the number of male patients 30 (60%) and number of female patients 20 (40%) were included in this method. In open method, patients were positioned in the lithotomy position, sterilization of anal region, insertion of a bivalve type of anal speculum to place the internal sphincter on a slight stretch to assist in

its identification. A radial incision is made laterally at the lower border of the internal sphincter into the intersphincter groove. The distal internal sphincter is grasped with Allis forceps and bluntly freed. The lower one third to one half is divided with scissors, the skin should removed, the number of male patients 38 (76%) and number of female patients 12 (24%) were included in this method.

Postoperatively, patients were given antibiotics and patients were examined for pain or bleeding. In the 1st postoperative day, local examination of the wound for any haematoma, bleeding, seroma, bruises, if there is no findings the patient was discharged and covered with antibiotics for 7 days and follow up for 2 weeks, and 1-6 months to check any discharge, infection, incontinence (faecal, flatus) and recurrence.

RESULTS

One hundred patients with chronic anal fissure were chosen for this study from those who were presented in surgical out patients department of K.R. hospital between January 2015 and June 2016.

Table 1: Age distribution of patients.

Age in years	Number of patients	Percentage
20-30	25	25%
31-40	40	40%
41-50	35	35%
Total	100	100%

25 patients (25%) were between 20 - 30 years, 40 patients (40%) were between 31 - 40 years and 35 patients (35%) were between 41 - 50 years of age.

Table 2: Sex distributions.

Sex	Number of patients	Percentage
Male	68	68%
Female	32	32%
Total	100	100%

There were 68 male patients (68%) and 32 female patients (32%) with ratio of 2.1:1 respectively.

Table 3: Site of fissure.

Site of fissure	Number of patients	Percentage
Posterior	90	90%
Anterior	10	10%
Others	00	00%
Total	100	100%

In all 100 patients included in the study, the position of anal fissure was noted. Ninety patients (90%) were having posterior midline fissure and 10 patients (10%) were having anterior fissure (Table 3).

Table 4: Mode of presentation.

Chief complaint	No. of patients	Percentage
Painful defecation	62	62%
Bleeding PR	35	35%
Perianal swelling	02	02%
Pruritus in Ano	01	01%
Total	100	100%

Table 5: Post-operative discharge.

	Closed	Percentage	Open	Percentage
POD1	35	70%	O5	10%
POD2	10	20%	10	20%
POD3	03	06%	30	60%
POD4	02	04%	5	10%
Total	50	100%	50	100%

The chief complaint of most of patients was pain on defecation. Out of 100 patients, 62 patients (62%) complained of pain during and after defecation thirty-five of patients (35%) had the chief complaint of bleeding per rectum, the bleeding was usually of small amount and occurred at the time of defecation, 2 patients (2%) also presented with perianal swelling and 1 patient (1%) pruritus in ano.

Out of 50 patients 35 patients (70%) discharged on postoperative day 1, ten patients (20%) day 2, three patients (6%) day 3 and two patients (4%) on day 4 respectively in closed methods, where as in open methods day 1 five patients (10%), day 2 ten patients (20%) day 3 thirty patients (60%) and day 4 five patients (10%) respectively.

Table 6: Complications of lateral internal sphincterotomy.

	Closed	Percentage	Open	Percentage
Pain	01	02%	06	12%
Bleeding	02	04%	08	16%
Infection	01	02%	03	06%
Incontinence	03	09%	10	20%
Recurrence	02	04%	02	04%
Total	09	18%	29	58%

Out of 50 patients nine patients (18%) developed complications in closed method and in open method 29 patients (58%) developed complications (Table 6).

DISCUSSION

Most of the fissures were found in middle age group. 40% of the patients were between 31-40 years and mean age in present study was 35 years. Mean age reported in different studies range from 30 - 45 years which is the same of our study. In our study 68% of patients were males, and 32% of patients were females with a sex ratio of 2.1:1 respectively. In the study done by Nahas, 70% were males and 30% were females had chronic anal fissure with a ratio of 2.3:1. 55.2% males and 47.8% females with a ratio of 1.15:1 presented with chronic anal fissure in the study done by Melange. 1-9

The patients suffering from anal fissure complain of pain, bleeding per rectum, discharge and pruritis ani 62% patients presented with pain during or after defecation and 35% patients presented with bleeding, while in the other studies which was very close to the 45.4% and 35.7% respectively reported by Hanel et al. In our study 90 patients (90%) presented with posterior midline fissures and 10 patients (10%) presented with anterior anal fissure. Mazier et al described that (84%) of anal

fissures are more common posterior. Cushieri also described that (88%) most of the fissures are posterior midline. Nahas reported 86.1% posterior midline and 13.9% anterior fissure. This may be due to hypovascularization and hypo perfusion occur in the posterior anal commissure. Combination of these factors with internal anal sphincter hypertonia, causing ischemia, that explain the poor wound healing and the pain is ischemic in nature, occurs only for a certain period after defecation, Patients may try to avoid defecation because of the pain.9 In patients, undergoing closed lateral internal sphincterotomy, 41 (82%) out of 50 patients were free of symptoms while in open lateral internal sphincterotomy, 21 (42%) out of 50 patients were free of symptoms, Matikainen has described the similar results (50%) in case of closed lateral internal sphincterotomy.1

In this study, when the results of closed and open techniques were compared regarding pain (1 vs 6) that mean in closed technique less tissue dissection and in the closed method cause less bleeding than open (2 vs 8) due to less tissue damage, infection (1 vs 3), incontinence (3 vs 10) due to there is partial cutting of internal sphincter in both methods and its minor type (flatus incontinence), and recurrence (2 vs 2). However in other studies like, Pernikoff, Salvati, Eisentat, Kortbeek, Langevin, Khoo had concluded in their study that closed lateral internal

sphincterotomy for chronic anal fissure is effective and may result in significantly less postoperative discomfort, shorter postoperative stay and a less rate of complications compared with the open lateral internal sphincterotomy. 1,7,10,12,14

CONCLUSION

There was significant difference between closed and open methods of lateral internal sphincterotomy in recurrence rate, healing rate, and other complications. Closed lateral internal sphincterotomy is treatment of choice for chronic anal fissure and can be done effectively and safely with acceptable rate of complications. Our recommendations are that closed technique should be adopted by experienced surgeons and Trainee should be initially trained by open technique then be shifted to closed technique.

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REFERENCES

- 1. Ullah S, Nadeem M. Closed versus open lateral internal sphincterotomy in chronic anal fissure: a comparative study of postoperative complications and results. Pakistan J Med Res. 2004;43(1):219-23.
- 2. Gott MD, Peter H. The fresno bee new thearpy coming for anal fissures. Life. 1998:E2.
- American society of colon and rectal surgeons. Anal fissure. Available at http://colorectal.co.nz/wpcontent/uploads/2014/09/Anal-Fissure-moreinformation-FASCRS.pdf. Accessed on 12 July 2008.
- 4. Lund JN, Scholefield JH. Aetiology and treatment of anal fissure. Br J Surg. 1996;83:1335-44.
- 5. Nardi PD, Ortolano E, Radaelli G, Staudacher C. Comparison of glycerine trinitrate and botulinum toxin-a for the treatment of chronic anal fissure: long-term results. Dis Colon Rectum. 2006;49(4):427-32.
- 6. Elie S, Indru K. Pathophysiology of chronic anal fissure, current understanding and clinical applications. Societa Italiana di Chirurgia Colo Rettale. 2007;15:130-5.
- Ram, Edward MD, Alper D, Stein GY, Bramnik Z, Dreznik ZE. Internal anal sphincter function

- following lateral internal sphincterotomy for anal fissure; a long-term manometric study. Annals Surg. 2005;242(2):208-11.
- 8. Aguilar GJ, Belmonte C, Wong WD, Lowry AC, Madoff RD. Open vs. closed sphincterotomy for chronic anal fissure: long-term results. Colon Rectum. 1996;39(4):440-3.
- 9. Seyyed RM, Mehrzad S, Pezhman K. Comparison of the results of fissurectomy versus lateral internal sphincterotomy. Internet J Surgery. 2007;13(1):1528-42.
- 10. Narimantas E, Samalavièius. Lateral sphincterotomy for anal fissure: personal experience. Lithuanian Surg. 2003;1(4):299-303.
- 11. Lateral internal sphincterotomy. Available at http://www.ramsayhealth.co.uk/treatments/internal-sphincterotomy. Accessed on 12 July 2008.
- 12. Arroyo A, Perezfrancisco, Serrano P. Open versus closed lateral sphincterotomy performed as an outpatient procedure under local anaesthesia for chronic anal fissure: prospective randomised study of clinical and manometric longterm results. J Am Surgeons. 2004;199(3):361-7.
- Wiley M, Day P, Rieger N, Stephens J, Moore J. Open vs. closed lateral internal sphincterotomy for idiopathic fissure-in-ano: a prospective, randomized, controlled trial. Dis Colon Rectum. 2004;47(6):847-52.
- 14. Kang GS, Kim BS, Choi PS, Kang DW. Evaluation of healing and complications after lateral internal sphincterotomy for chronic anal fissure: marginal suture of incision vs open left incision: prospective, randomized, controlled study. Disease Colon Rectum. 2008;51(3):329-33.
- 15. Kanellos S. Stapled haemorrhoidpexy for heamorroids in combination with lateral inernal sphincterotomy for fissure in Ano. European Surg Research. 2005;37(5):33-8.
- Garcia AJ, Belmonte C, Wong WD, Lowry AC, Madoff RD. Open vs. closed sphincterotomy for chronic anal fissure: long term result. Diseases Rectum Colon. 1996;39(4):440-3.

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