
CLOSED VERSUS OPEN LATERAL INTERNAL SPHINCTEROTOMY IN TREATMENT OF CHRONIC ANAL FISSURE; A COMPARATIVE STUDY OF POSTOPERATIVE COMPLICATIONS & OUTCOME**Akeel A kataa* & Mazin H Al-Hawaz@**

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Abstract

Anal fissure is a common and painful disorder. Its relation to hypertonic anal sphincter is controversial. The most common surgical treatment of chronic anal fissure is lateral internal sphincterotomy either open or closed methods, associated with a risk of pain, bleeding, recurrence and incontinence.

The study was designed to compare the results of open and closed technique of lateral internal sphincterotomy and to find postoperative complications.

This prospective clinical trial conducted in the Department of surgery in Basrah General Hospital between January 2006 and October 2008, one-hundred patients were randomly assigned to open or closed internal sphincterotomy. Standardized questionnaires assessing patients were administered preoperatively and at 1st, 2nd weeks and 1-6 month postoperatively.

Out of the 100 patients included in the study, 50 patients underwent open lateral internal sphincterotomy and the other 50 were subjected to closed lateral internal sphincterotomy. There was no significant difference in postoperative acute complications. However, incontinence in terms of soiling and passage of flatus was 14% in open method and 10% in closed method. There was no difference in terms of recurrence rate being 4% both in open and closed methods.

In conclusion, there was no significant difference between open and closed methods of lateral internal sphincterotomy in regard recurrence rate, healing rate, hospital stay and other complications, but in view of these findings, closed method of treatment is recommended if the surgeon is experienced.

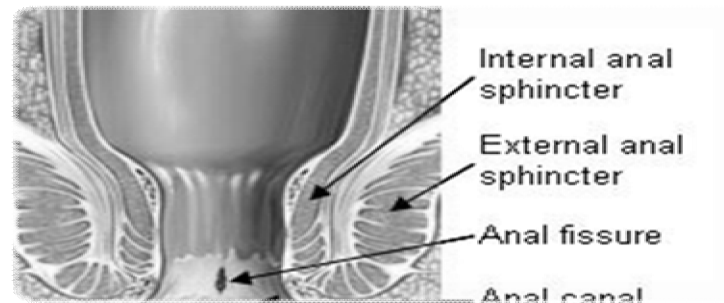
Introduction

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 89% of fissures occur posteriorly and only 10% of the fissures are seen in the anterior midline. While in male 98% of fissures are posterior and 1% is anterior. Less than 1% of patients have a fissure in lateral position in both sex¹⁻⁴.

The pathogenesis of this condition is still not fully explained, but it appears to be related to the passage of hard stool or prolonged diarrhea with stretching of the anal canal resulting in a split in the anoderm⁴. The explanation for this phenomenon is both anatomic and functional. The posterior commissure of the anoderm is less well perfused than other anodermal regions.

Furthermore, before the branches of the inferior rectal artery reach the anoderm, they course perpendicularly through septa of the internal anal sphincter. Thus, flow through these arterioles is threatened by elevated intramuscular pressure of the internal anal sphincter, exceeding the intra-luminal pressure of arterioles^{5,6}. Therefore, increased tone compromises perfusion of the anoderm, particularly at the posterior midline by compressing arterioles of the inferior rectal artery result in increased anodermal ischemia that prevents small mechanical tears from healing in a timely fashion; the tears then progress to clinically significant anal fissures⁷⁻⁹. Also the anal spasm is a defense mechanism to prevent further stretching of the anal canal and worsening of the tear. A vicious cycle ensues whereby the anal spasm exacerbates the ischemia and prevents the fissure from healing, which in turn sustains the anal spasm to prevent further tearing. Once this cycle sets in, the likelihood of spontaneous healing decreases and the edges of the fissures become more fibrosed leading to a chronic fissure^{10,11} (Figure 1).

Fig.1



The presenting symptoms of this condition include tearing pain on defecation, which may last for a variable period after defecation and anal bleeding, which appears as a bright streak on the side of stool. Pain and irritation results in spasm of the internal anal sphincter muscle which, then, fails to relax during defecation thus further aggravating the condition^{3,7,9,10,12}.

History and clinical examination is always diagnostic. Digital palpation of the anus is usually not possible as it causes severe pain. If at all possible, it reveals not only the fissure but also the characteristic spasm of the internal anal sphincter muscle^{1,5,8,10}.

Medical treatment of the fissure relies on application of local anaesthetics and stool softeners and the addition of high

fibre diet, nitroglycerine paste, botulinum toxin. Many fissures heal this way, especially the acute anal fissure. When a fissure become chronic, surgery is recommended. It consists of manual dilatation of the anus (lord's dilatation), internal

sphincterotomy. Lateral internal sphincterectomy was described by Eisenhammer in 1951 and 1959, which is done by both the open and closed method^{1,2,4,5,8,9,11-14}.

Both open and closed sphincterotomy can usually performed under general anesthesia, but it can be carried out under local anesthesia in the outpatient department¹⁵⁻²¹.

This study was designed to compare the results of open and closed techniques of lateral internal sphincterotomy and to find postoperative complications.

Patients and methods

This prospective clinical trial was conducted in the Department of Surgery in Basrah General Hospital between January 2006 and October 2008.

One-hundred patients with chronic anal fissure were included; the age of patients was ranged between 20–50 years in both sexes.

All patients were admitted to surgical ward in Basrah General 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, induration (acute, chronic), skin tag, bleeding, digital palpation (PR) of the anus is usually not 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; At surgical room randomly each patient given 2 card ,one of them written closed method and another open method and patients asked to select one of them. 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 anesthesiologist for all investigations then give him GA with out muscle relaxant, patients were positioned in the lithotomy position, sterilization of anal region by povidone Iodine, insertion of a bivalved 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 narrow blade scalpel (No.11) 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 sphinterotomy is completed because of the “give” when these fibers have been divided. The blade is removed, and gentle pressure is applied to control bleeding some time 2/0 chromic cat gut suturing were used when bleeding not stoped (figure 2), the skin tag should be removed ,the No. of male patients 40 (80%) and No. of female patients 10 (20%) were included in this method .

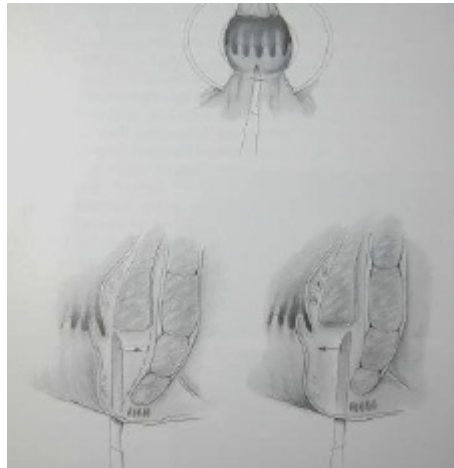
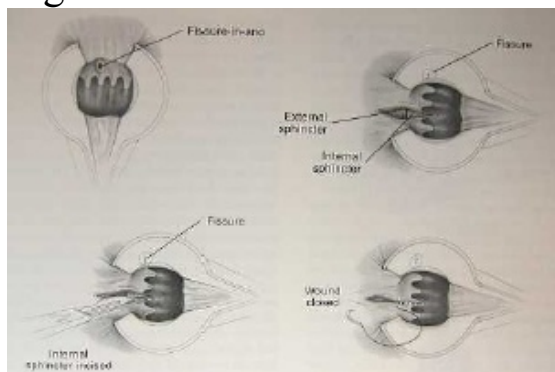


Fig.2

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 wound heal secondarily or closed with chromic catgut 2/0 suture. (figure 3), the skin should removed, the No. of male patients 36 (72%) and No. of female patients 14 (28%) were included in this method .

Fig.3



Postoperatively, patients were given antibiotics (metronidazol 500 mg orally/tid, cephalosporin 3rd generation 500mg orally/bid and diclofenac sodium 50mg orally/bid). postoperatively patients were examined for pain or bleeding.

In the 1st postoperative day, local examination of the wound for any hematoma, 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 (fecal, flatus) and recurrence.

RESULTS

One hundred patients with chronic anal fissure were chosen for this study from those who were presented in surgical out patient department of Basrah General hospital between January 2006 and October 2008.

Table1, showed that 20 patients (20%) were between 20–30 years, 46 patients(46%) were between 31–40 years and 34 patients(34%) were between 41–50 years of age. Average age was being 35 years.

Table I: Age distribution

Age(years)	No.patients	Percentage (%)
20-30	20	20%
31-40	46	46%
41-50	34	34%
Total no. of patients	100	100%

There were 76 male patients(76%) and 24 female patients(24%) with ratio of 3.1:1 respectively (Table II).

Table II: Sex distribution

Sex	No.patients	Percentage (%)
Male	76	76%
Female	24	24%
Total no. of patients	100	100%

In all 100 patients included in the study, the position of anal fissure was noted. Eighty nine patients (89%) were having posterior midline fissure (13.3% patients of them are females) and 10 patients (10%) were having anterior fissure(0.9% of them are females). 1patient (1%) was having fissure on lateral walls of anal canal in both (Table III).

Table III: Site of the fissure

Site of fissure	No. patients	Percentage (%)
Posterior	89	89%
Anterior	10	10%
Others	1	1%
Total no. of patients	100	100%

The chief complaint of most of patients was pain on defecation. Out of 100 patients, 54 patients (54%) complained of pain during and after defecation it associated with bleeding per rectum especially in the form of a streak over the stool. 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, 6 patients(6%) also presented

with perianal swelling. On examination, this was sentinel pile. Only 5 patients (5%) presented with pruritis ani due to discharge (Table IV).

Table IV: mode of presentation

Chief complaint	No.patients	Percentage(%)
Pain	54	54%
Bleeding	35	35%
Perianal swelling	6	6%
Pruritis ani	5	5%
Total no. of patients	100	100%

Postoperatively only few patients showed complications. Five patients (10%) complain of pain in closed method while 3 patients (6%) in Open method. Bleeding was in 2 patients (4%) in closed method, 4 patients (8%) in Open method. Infection was in 3 patients (6%) in each methods. No faecal incontinence only flatus incontinence in closed method i.e. 10 patients (20%) while 14 patients (28%) in Open method. Recurrence was in 4 patients (8%) in Closed method and 4 patients(8%) in Open method (Table V).

Table V: Complications of lateral internal sphincterotomy

operation complications	Closed method	Percentage (%)	Open method	Percentage (%)
Pain	5	10%	3	6%
Bleeding	2	4%	4	8%
Infection	3	6%	3	6%
Incontinence	10	20%	14	28%
Recurrence	4	8%	4	8%
Total no. of patients	24	48%	28	56%

DISCUSSION

Most of the fissures were found in middle age group. 46% 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 years¹⁻⁷ which is the same of our study.

In our study 76% of patients were males, and 24% of patients were females with a sex ratio of 3.1:1 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^{1,13}.

The patients suffering from anal fissure complain of pain, bleeding, discharge and pruritis ani. 54% 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 and Gorden.

In the present study 89 patients (89%) presented with posterior midline fissures and 10 patients (10%) presented with anterior anal fissure and 1 patient (1%) with lateral fissure. Mazier and Levien described that (84%) of anal fissures are more common posteriorly. Cushieri also described that (88%) most of the fissures are posteriorly midline. Nahas reported 86.1% posterior midline and 13.9% anterior fissure¹. This may be due to hypovascularization and hypoperfusion 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 pain¹³.

Surgery is a highly effective treatment for a fissure and consists of a small operation to cut a portion of the internal anal sphincter muscle this helps the fissure heal and decreases pain and spasm.

In patients, undergoing closed lateral internal sphincterotomy, 26 (52%) out of 50 patients were free of symptoms while in open lateral internal sphincterotomy, 22 (44%) out of 50 patients were free of symptoms, Matikainen has described the similar results(50%) in case of closed lateral internal sphincterotomy¹.

In this study, when the results of open and closed techniques were compared regarding pain (3 vs 5 per cent) that mean in open technique less tissue dissection and in the open method cause more bleeding than closed (4 vs 2 per cent) due to more tissue damage, infection (3 vs 3 per cent), incontinence (14 vs 10 percent) due to there is partial cutting of internal sphincter in both methods and its minor type (flatus incontinence), and recurrence (4 vs 4 percent). however in other studies like, Pernikoff, Salvati, Eisentat^{1,7-10,16}, Kortbeek, Langevin, Khoo¹⁸⁻²¹ 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 length of stay and a comparable rate of complications compared with the open lateral internal sphincterotomy.

In conclusion, there was no significant difference between open and closed methods of lateral internal sphincterotomy in regard 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 persons who are not so much experienced or trained, should adopt open technique for treatment of chronic anal fissure. Trainee should be initially trained by open technique then be shifted to closed technique.

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