

# Comparison between Open Lateral Sphincterotomy and Posterior Midline Sphincterotomy with Fissurectomy in Treatment of Chronic Anal Fissure

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## Abstract

**Background:** Anal fissure is a common condition. Lateral internal sphincterotomy is recommended as the standard procedure for treating chronic anal fissure. Fissure healing can also be achieved by a posterior midline sphincterotomy, which may be associated with prolonged healing, as well as passive anal leakage. **Objectives:** This is to compare the effectiveness and outcome between two methods of treating chronic anal fissure; open lateral internal sphincterotomy with fissurectomy versus posterior midline sphincterotomy with fissurectomy, in terms of post-operative complications; pain, infection, bleeding, bruising, abscess, fistula and incontinence. **Patients and methods:** A Retrospective study including 100 patients presented with chronic anal fissure. The patients were distributed between two equal groups: group-A underwent open lateral sphincterotomy, and group-B underwent posterior midline sphincterotomy. Both groups were evaluated for postoperative complications. The patients were followed after the surgery at least for 9 months, up to 41 months, with mean of (27.69±7.31) months. **Results:** From these 100 patients, 83 were females and 17 were males. The mean age was (33.17±7.06) years. The main symptom was pain, then bleeding and constipation. Most of the fissures were located at 6 o'clock. Postoperative complications found in 27 patients: infections found more in group-B, while bleeding, bruising and incontinence were more in group-A. There was no postoperative abscess or fistula formation, and no recurrence detected. **Conclusion:** We found no differences in surgical treatment for the chronic anal fissure, between open lateral sphincterotomy and posterior midline sphincterotomy in term of symptomatic pain relief, healing rates and the side effect occurrence after operations.

**Keywords:** Chronic anal fissure; Lateral internal sphincterotomy; Posterior internal sphincterotomy with Fissurectomy

## Introduction

Anal fissure (AF) is a linear tear in the anoderm between the dentate line and the anal verge. [1,2] These fissures mainly are primary, where there is no exact pathogenesis of the condition, although trauma from the passing of a hard stool and hypertonicity of the internal anal sphincter (IAS) seems to be a main factor. [3] AF is a common condition, mainly presents with anal pain ± slight bright red bleeding with defecation. [1,4]

Acute AF is determined when the fissure is presented for a period less than 8 weeks, and there is only a simple laceration, whereas a chronic AF has longer duration and associated with one or more signs of chronicity; a hypertrophied anal papilla at the proximal aspect of the fissure, a sentinel tag at the distal aspect of the fissure, and exposed IAS muscle fibers at the base of the fissure. [1,5,6]

AF is mostly located at posterior midline (90%), although it may be located at anterior midline, which is mainly found in females

(25%), and (8%) in males. In (3%) of patients fissures can be located at posterior and anterior positions simultaneously. Fissures that located rather than the midline is considered to be atypical or secondary and needs more evaluation, because of possibility of association with serious diseases, like Crohn's disease and immunodeficiency syndromes. [1,6]

Internal anal sphincterotomy at the lateral position is known to be superior to anal dilatation, and can be performed by both open or closed techniques, which nearly equal effectiveness. [7] Posterior internal Sphincterotomy (PIS) was considered by

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Eisenhammer in 1951 as a midline posterior incision through the fissure.<sup>[8]</sup> The purpose of sphincterotomy was to divide the hypertonic portion of the IAS muscle to reduce anal tone and facilitate healing of the fissure.<sup>[9]</sup>

Unlike Lateral internal sphincterotomy (LIS), the PAS can be managed through the same incision instead of creating a new one<sup>[10]</sup>, but the disadvantage of this procedure was prolonged time of the healing and leakage of faecal material due to keyhole gutter deformity. However PIS may be indicated if there is an associated intersphincteric fistula-in-ano, but it still can be considered as an alternative treatment for the management of chronic AF.<sup>[10]</sup>

LIS is now recommended as the standard procedure for treating chronic AF,<sup>[11]</sup> because it is safe, effective and reproducible technique,<sup>[12,13]</sup> and multiple, well-designed studies have concluded that there are no significant differences in outcomes between properly performed open and closed surgical sphincterotomies.<sup>[6]</sup> In LIS, the IAS is divided away from the fissure itself, either in the right or the left lateral positions, and can be done by using an open or a closed method, under local, regional or general anaesthesia, and with the patient in the lithotomy or prone jack-knife position.<sup>[14]</sup>

Sphincterotomy may be performed with fissurectomy, which involves excision of the fibrotic fissure to make a fresh surgical wound to allow a stable wound healing.<sup>[10]</sup> Different procedures are used in treating AF; a meta-analysis study found that more data are needed to assess the effectiveness of these different procedures.<sup>[15]</sup>

Early complications of sphincterotomy include bleeding, haematoma, bruising, perianal abscess and fistula, and the most important complication is incontinence, which may be of a variable degree and severity, which may affect up to 30% of patients, especially in women, who have weaker, shorter sphincter complexes and in whom there may already compromise sphincter caused by childbirth.<sup>[14]</sup>

### Aim of this study

This to compare the effectiveness and outcome between two surgical methods in treating chronic AF, in terms of post-operative complications; pain, infection, bleeding, bruising, abscess, fistula, incontinence, and recurrence rate.

### Patients and Methods

A Retrospective study that was started on 1st of September 2015 and end on 5th of November 2017; in Sulaimani teaching hospital and Ranya General Hospital. The study was conducted on 100 patients with chronic anal fissure. Chronicity was defined by a history of pain lasting more than 2 months and was physically confirmed by the presence of a sentinel pile at the distal margin of the fissure. Demographic data (age, gender, and residency) and body mass index (BMI) were recorded.

Patients with co-morbid diseases, multiple and secondary fissures and fissures with associated local pathologies such as haemorrhoids were excluded from the study. The patients were operated by two teams. The operations were performed under

spinal anesthesia technique with the patient in the Lithotomy position, using the conventional diathermy, in the coagulation mode. Patients were discharged within 6 hours later, after ensuring that there was no urine retention. Paracetamol ampule 600 mg intravenous injections were given before discharge on patient demand. Postoperatively the patients covered with antibiotics; a combination of Ciprofloxacin 500 mg and Ornidazole 500 mg, for (5- 7 days).

The patients were followed up in the outpatient clinic at the end of the first, second, and fourth postoperative weeks. Furthermore, patients followed up subsequently at least for 6-9 months by telephone for the following: relief of pain, fissure healing, complication, and recurrence.

### The procedures

**Group-A:** Included 50 patients who were subjected to open LIS with fissurectomy. Five mm incision was done starting from the left side of the anal canal into the perianal skin through the intersphincteric groove. The lateral side of the IAS was dissected and a segment was withdrawn to outside using artery forces, and then divided completely with electro diathermy. The wound was left open, then the fissure and the sentinel piles were excised. The area was pressed for approximately 5 minutes, gauze lubricated with medicated petrolatum gel and lignocaine ointment was placed over the cut area and a perianal pad was applied.

**Group-B:** Included 50 patients who were subjected to PIS. Excision of the fissure was done with sentinel skin tags with electro diathermy. A segment of the posterior part of IAS was withdrawn to outside using artery forces and then divided completely with electro diathermy, then the wound closed using 3/0 vicryle suture material, and then a perianal pad was applied.

### Statistical analysis

The data were entered into excel sheet then after cleaning of the data were transferred to Statistical Package of Social Sciences (SPSS) program version 21 for analysis. frequencies and descriptive of data were calculated. We used Chi - Square to determine association between qualitative variables. P- value equal or less than 0.05 were regarded statistically significant.

### Results

One hundred patients with chronic AF were studied. There were 83 females and 17 males. The mean age and standard deviations were (33.17±7.06) years, ranging from 18 to 54 years. Most of the female patients (69) were multipara (83%), and most of them (56) had a history of previous caesarian section (67.46%).

The main symptom was pain which was found in all patients, then bleeding in 91 patients, then constipation in 81 patients Table 1. In 78 patients the fissures located at 6 o'clock, in 18 patients located at both 6 and 12 o'clock, while only 4 patients had fissures at 12 o'clock only [Table 2]. Postoperative complications found in 27 patients: infection: 20, bleeding: 7, bruising: 6 and incontinence of faeces: 1. Abscess, fistula, and recurrence were not found.

In general, there were no significant differences in percentages

of the complications related to the parity or BMI, as shown in Table 3.

In comparison between the 2 groups; postoperative infections found more in group-B (PIS) with significant P-value (0.012), while bleeding, bruising and incontinence were more in group-A (LIS) with significant P-value of bleeding (0.006) and bruising (0.013) Table 4.

The patients were followed after the surgery at least for 9 months, up to 41 months, with mean of (27.69±7.31) months. There was no postoperative abscess or fistula formation, and no recurrence detected in both groups during the period of the follow-up.

**Table 1: Distribution of the presentation symptoms.**

Presentation	Frequency	Percent
Pain & Bleeding	19	19
Pain & Constipation	9	9
Pain with Bleeding & Constipation	72	72
Total	100	100

**Table 2: Distribution of locations of the anal fissures.**

Site of the fissure	Frequency	Percent
6 O'clock	78	78.0
12 O'clock	4	4.0
6 + 12 O'clock	18	18.0
Total	100	100.0

**Table 3: Distribution of association between postoperative complications with parity and BMI.**

Parity	Post-operative Complication		Total	P- value
	No	Yes		
Monopara	7	3	10	0.974
	70.0%	30.0%	100.0%	
Multipara	48	21	69	
	69.6%	30.4%	100.0%	
Nullipara	3	1	4	
	75.0%	25.0%	100.0%	
Total	58	25	83	
	69.9%	30.1%	100.0%	
Underweight	1	1	2	
	50.0%	50.0%	100.0%	
Normal Weight	27	8	35	
	77.1%	22.9%	100.0%	
Over Weight	35	15	50	
	70.0%	30.0%	100.0%	
Obese	10	3	13	
	76.9%	23.1%	100.0%	
Total	73	27	100	
	73%	27%	100%	

**Table 4: Distribution of comparison of post-operative complications between the 2 groups.**

	Infection	Bleeding	Bruising	Incontinence
Group-A LIS	5 10%	7 14%	6 12%	1 2%
Group-B PIS	15 30%	0 0%	0 0%	0 %
P-value	0.012	0.006	0.013	0.315

## Discussion

AF is a common painful anal problem worldwide; causing pain during and after defecation, and associated with bleeding per rectum. [16] AF is affects young-middle aged peoples. In our study, AF was more in females; with female to male ratio (4:1). This goes with the study done by Anandaravi and Ramaswami, who found female to male ratio of (2:1). [17] The mean age of our patients was (33.17±7.06) years, and it corresponds well with other study done by Abdul Sattar Memon and his colleagues in India that report a mean age ranging from 30 to 45 years. [10] Most of the female patients were multipara (83%), which prove the effect of childbirth trauma on IAS. [18]

In this study, 78% of the patients had midline posterior located AF, this is not against most often observed AF at the posterior part of the anal canal, although in case of females an anteriorly placed fissure is also common. [19]

For PIS, in our study we didn't report any case of incontinence, although fissurectomy and PIS in other studies showed that a few patients developed transient postoperative incontinence. [10]

In our study we found that postoperative bleeding and bruising were more in LIS, with significant P-value (0.006) and (0.013) respectively, this might be due to the fact that in the group with PIS we sutured the wound, while in LIS we left the wounds open. Postoperative wound infection found more in PIS group, with significant P-value of (0.012).

No recurrence found in both groups in our study, in spite of follow up for more than two years. This go with the study done by Sunesh Kumar after LIS [20] and in the study by Bapat and Desai, where they treated AF by LIS with follow up to 6 months, [21] and also in the study done by A. Popa and others, [22] and Saravanaperumaal for AF treated by LIS, also for 6 months follow up, [23] but it was 2% in the study done in India, [17] and it was 6.25% in study done in Goa in India, [24] both with follow up for 6 months, while in PIS; the recurrent rate was 0.7% in a study done in Jamshoro [10] and the patients were followed up for 18 months.

In this study we had one patient developed incontinence of flatus in group-A (LIS), this was somewhat similar to a study done in Egypt where continence disturbances occurred after posterolateral internal Sphincterotomy (PLIS) less frequently than LIS; however, no significant differences between the two techniques were noted. [25]

## Conclusion

- Anal fissure is a disease of young adults, they are more common in females than males, and pain is the most common presentations.
- Surgical treatment can be considered a safe procedure with excellent results in patients for the chronic anal fissure.
- There are no differences between PIS and LIS in term of symptomatic pain relief, healing rates and the side effect occurrence after operations.

## Ethical Considerations

The study approved by the Ethical Committee of College of Medicine of University of Sulaimani. Informed consent was obtained from all patients.

## Competing Interest

The authors declare that they have no competing interests.

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