

Research Article

Short Term Comparison of Incontinence Rate of Open Vs Closed Internal Sphincterotomy

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Abstract

Objectives: To compare incidence of incontinence in patients with chronic anal fissure undergoing lateral sphincterotomy through open and closed method.

Methodology: A total number of 154 patients with chronic anal fissure were included in the study after meeting the criteria. Patients were divided into Group A (closed lateral sphincterotomy with von-graefe knife) and Group B (open lateral sphincterotomy or Parks procedure) through simple random sampling. Post operatively incontinence was assessed at day 7, at one month follow up, 3 months and then 6 months follow up using the Wexner score.

Results: Out of 154 patients enrolled in the study, only 138 patients were available for analysis and interpretation. Patients in group B had more incidence of incontinence on day 7 when compared to group A (P=0.052). At 1 month follow up this difference of incontinence reduced even further and later there was no significant difference noted at 3 months and 6 months follow up.

Conclusion: There is no significant difference in rate of incontinence between open and closed lateral internal sphincterotomy. Surgeons should choose to perform the type of surgical procedure on the basis of one's expertise, and other pros and cons of individual techniques rather than continence safety only.

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Introduction

Anal fissure is a cumbersome condition that has been researched and studied extensively in the medical literature for last 6-7 decades. Both conservative and surgical treatments have been used to treat this condition with the common aim to decrease the resting internal anal pressures of the canal relieving ischemia and eventually leading to healing.¹ Medical modalities including glyceryl trinitrate (GTN), diltiazem and botulinum toxin all are successful in managing anal fissure but with varying healing rates

ranging from 62-71%.²⁻⁴ Surgical sphincterotomy on the other hand has a documented healing rate of 94-96%^{5,6} but comes at a cost of increased risk of complications namely bleeding, wound problems including infection, abscess and ischemia and incontinence.

Incontinence has been a matter of debate in the literature between the choice of open and closed sphincterotomies. Some researchers have found the closed method to be superior with less incidence of incontinence whereas others have found no signifi-

cant differences.^{7,8} Although extensive work has been carried out in these regards in the developed countries of the western region, but the results might not be applicable to the eastern population as there are various dissimilarities between the two. In our part of the world generally, and especially the people belonging to lower socioeconomic group use the squat seat for their toilet needs which has been associated with an increased incidence of fissure formation;⁹ and may as well affect treatment options, healing and incontinence rates differently. Also keeping in view that the dietary habits (especially meat consumption) is also included in the fissure aetiology, the results of studies carried out on Indian population (because of their vegetarian tradition) cannot be the same as for our people despite other similarities. This comparative study was therefore carried out to assess the incontinence rates after closed and open internal anal sphincterotomies in our native population.

Methodology:

The study was conducted in the General Surgery Department of Creek General Hospital Karachi. During January 2016 to August 2016, 167 patients presented with chronic anal fissure to our clinic. After meeting the inclusion and exclusion criteria only 154 remained eligible for study. Our inclusion criteria encompassed all patients who had physical characteristics of chronicity that included a sentinel pile at the distal margin of the fissure, heaped up edges of the fissure, visible sphincter fibres at the base of the fissure or an inflammatory polyp at the inner margin of the fissure and having symptoms that lasted more than 6 weeks duration of either gender in the age range of 16-80 years. Patients who had anal fissure secondary to Crohn's disease, Ulcerative colitis, Tuberculosis, Malignancies were excluded from the study. Patients with any concomitant peri-anal condition (like anal fistula, or abscess) and those who had incontinence issues in the past were also excluded.

An approval was obtained from institutional research review committee prior to commencement. Written and informed consent was taken from all the patients participating in the study. All patients were admitted one day before surgery and anaesthesia fitness was obtained. Type of sphincterotomy to be performed

was decided by simple random sampling. Group 'A' patients underwent closed lateral internal anal sphincterotomy while Group 'B' patients underwent open internal anal sphincterotomy. All surgeries were performed by a single surgeon with more than 10 years of experience. Open internal anal sphincterotomy was performed as described by Parks, while closed lateral sphincterotomy (Figure – IA- IB) was performed with a Von Graefe knife (Figure –IIA-IIIB) as it is readily available, cost effective and well suited to get the job done due to its small size. Anal packs were removed on first post-operative day and patients were discharged on the second day. Anal incontinence was assessed on 7th post-operative day, and then on one month, 3 months and 6 months at outpatient clinic. Incontinence was assessed using the Wexner score.¹⁰ The recorded parameters were analysed with the statistical software SPSS version 19. Comparison of mean Wexner scores of the two groups at different time intervals was carried out using Mann Whitney U test.

Results:

Out of the 154 patients, 15 lost to follow up and 1 of our patient expired in the early post-operative period because of post-operative myocardial infarction (MI) and hence excluded from the study. Therefore, the analysis was carried out on the remaining 138 patients. Seventy-two patients belonged to group 'A' while group 'B' was left with 66 patients (see Table - 1)

On 7 days follow up, 15 (20.8%) patients in group 'B' had some level of incontinence, while in group 'A' only 6 (9.09%) patients had incontinence symptoms. Mean incontinence scores in group A were 0.50 with range of 0-12, whereas group B had a mean incontinence score of 1.29 (range 0-12) at 1 week. At one month follow up the incontinence scores improved in both groups. Seven patients in group B who had incontinence symptoms at 7 days follow up achieved continence at one month, thus the difference between group A and B became insignificant from this point onwards in time and continued to be non-significant till 6 months follow up as shown in Table – II.

At 3 months follow up it was noted that in group A two patients (3.0%) didn't achieve fissure healing

whereas in group B one patient (1.4%) didn't achieve healing. The patients who had non-healing fissures were not those who had incontinence. At 3 and 6 months follow up the difference in incontinence rates and Wexner scores decreased even further between the two groups except for one patient in group B who suffered from significant incontinence. This was a 68 years old gentleman who complained of complete incontinence to flatus while occasional incontinence to liquid stools with a Wexner score of 9.

Table 1: Patient Characteristics of our Study

	Group 'A' (n=72)	Group 'B' (n=66)
Gender ratio (Female:Male)	47:25	42:24
Age (Mean \pm SD) in years	39.9 \pm 16.6	41 \pm 15.8
Symptoms		
Pain	72 (100%)	66 (100%)
Bleeding	45 (62.5%)	40 (60.6%)
Constipation	65 (90.2%)	61 (92.4%)
Duration in months (Mean + Range)	8.3 (2-18) months	8.86 (1.5-16)

Table 2: Outcome Analysis at Various Interval Follow up

	Group A (n=66)	Group B (n=72)	P- value*
7th day follow up			
Patients with incontinence	6 (9.1%)	15 (20.8%)	
Mean Wexner score (Range)	0.50 (0-12)	1.29 (0-12)	0.052
1 month follow up			
Patients with incontinence	5 (7.5%)	8 (11.1%)	
Mean Wexner score (Range)	0.48 (0-12)	0.88 (0-12)	0.449
3 months follow up			
Patients with incontinence	4 (6.1%)	7 (9.7%)	
Mean Wexner score (Range)	0.45 (0-7)	0.71 (0-9)	0.462
6 months follow up			
Patients with incontinence	4 (6.1%)	7 (9.7%)	
Mean Wexner score (Range)	0.45 (0-6)	0.64 (0-9)	0.459

* = Mann Whitney U



Figure – IA : Lateral Anal Sphincterotomy With Von Graefe Knife



Figure – IB: Lateral Anal Sphincterotomy With Von Graefe Knife



Figure – IIA : Von Graefe Knife



Figure – IIB : Von Graefe Knife

Discussion

Ischemia of anal mucosa due to rise in anal pressures is now a well-documented cause of chronic anal fissure.¹ Although the gold standard for treatment of chronic anal fissure, the surgical sphincterotomy is associated with high incontinence rates. Garg P. et al conducted a systematic review of 22 studies with minimum 2 years follow up and revealed an incontinence rate of 14%.¹¹ This has been a difficult complication to accept; both for the treating surgeon, and the treated patient. Therefore even with documented healing rates of only 70% with non-operative treatment⁽⁷⁾, these are still offered frequently in medical practice to patients with anal fissure. Mostly the first line of treatment is Nitroglycerine applied topically and has been found to be effective in only 50% of cases.¹² Diltiazem has 71% success rate.⁴ Botulinum toxin also showed successful results in 70% of cases but with higher recurrences⁽¹³⁾. Botulinum application has also been found to cause some continence problems but these are almost always transient in nature. Various researchers have even found transcutaneous electrical stimulation (TCES) of posterior tibial nerve to be helpful in healing anal fissures but again with limited success.¹⁴

Literature review tells that the incontinence rates of open versus closed lateral sphincterotomy are still variable from study to study. A review article by Beaty JS described no significant difference between open and closed sphincterotomy, with respect to both incontinence and healing rates.⁷ A randomized controlled trial by Ghayas N et al demonstrated that closed method had lower incontinence rates as compared to open method,⁸ however the follow up was only limited to 5 days. In our study we found that in the first post-operative week, the incontinence rates were high for open sphincterotomy as compared to closed. This difference steeply declined to a negligible value at one-month time interval. The cause of this early high incontinence in open procedure could be the larger surgical trauma and pain that one might suffer in the first week, but this is only a hypothesis at this point in time with no supporting evidence. Wiley M. et al also demonstrated similar results in their study with incontinence in 10 patients at 1 week follow up who underwent open sphincterotomy (compared to 2 in closed group), but this gradually declined and there was no difference at 52 weeks

follow up. Pain scores were similar in both open and closed sphincterotomy groups in their study.⁶

Gupta V. et al performed a randomized trial on 136 patients with anal fissures and had no incontinence in any of the patients after open/closed sphincterotomy.¹⁵ He observed delayed post-operative healing in few of his patients that underwent open procedure, whereas closed procedure had less pain and reduced hospital stay.

Arroyo A. and colleagues also demonstrated no difference in incontinence and healing rates when comparing open and closed sphincterotomies.¹⁶ They performed both procedures under local anaesthesia as day care surgeries; an appealing option for the socioeconomically burdened population such as the South Asian region. A randomized study by Elsebae MM clearly showed that the extent of sphincterotomy is also an important factor to consider with respect to incontinence.¹⁷ Significant increase in incontinence was observed when the sphincterotomy was performed up to the dentate line.

Even with such a high success rate, new surgical and non-surgical treatments are still emerging for chronic anal fissure in order to avoid the complications associated with lateral sphincterotomy. In a review article Poh A. et al have highlighted many of these newer options,¹⁸ such as Gonyautoxin, fissurotomy, fissurectomy, flap coverage of fissure, controlled balloon dilatation of sphincter and sphincterolysis. Although few of the above mentioned techniques appear very promising, extensive controlled trials must be carried out before opting them as a standard treatment.

Conclusion

Lateral anal sphincterotomy is still the treatment of choice for chronic anal fissure. Open method of sphincterotomy had higher incontinence rate in early phase but later was comparable to closed method. Patients undergoing sphincterotomy must be counselled beforehand regarding this complication and its possible transient nature. Surgeons should opt for one procedure over the other on the basis of their own surgical skill, patient comfort, and other associated complications rather than only continence safety.

Ethical Approval: Given

Conflict of Interest: None

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