

# LATERAL SUBCUTANEOUS INTERNAL SPHINCTEROTOMY IN CHRONIC ANAL FISSURE: OUR EXPERIENCE

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## ABSTRACT

**Objective:** To clinically evaluate the outcome of lateral subcutaneous internal sphincterotomy (Closed Internal Sphincterotomy) in chronic anal fissure in terms of hematoma/bleeding, pain, healing rate and incontinence.

**Study Design:** Case series study with prospective data collection

**Setting & Duration:** Surgical Unit II & III, Civil Hospital, Karachi from October 2005 to July 2008.

**Methodology:** All patients with chronic anal fissure were included in the study. Atypical fissures, previous Sphincterotomy, anal dilation and suspicion of malignant fissure or ulcer were excluded from the study. Patients were mostly operated under Regional (Spinal) anaesthesia. All patients underwent lateral subcutaneous internal sphincterotomy (Closed Internal Sphincterotomy). Out patient follow-up was done for 24 weeks.

**Results:** A series of 146 lateral closed total sphincterotomies were performed. One hundred forty two patients were followed at 2nd, 6th, and 24th week. The overall fissure healing rate in this study was 97.5%. Pain was significantly reduced in all patients at first postoperative hours, while symptoms such as bleeding and irritation were reduced in most patients the next day. Complications of surgery comprised a small local hematoma (the 1st postoperative day) in 1.3%, postoperative pain lasted for 5 days in 0.68% postoperative bleeding in 0.68% and transitory incontinence in 4.1% of the patients.

**Conclusion:** Closed lateral internal sphincterotomy for treatment of chronic anal fissures remains the method of choice, as it is a safe and effective procedure that leads to quick symptomatic improvement.

**KEY WORD:** Anal Fissure, Closed Internal Sphincterotomy, Lateral Subcutaneous Internal Sphincterotomy, Chronic Anal Fissure

## INTRODUCTION

An anal fissure is a split in the skin of the distal anal canal. Majority of young adults of both sexes are affected. Patients mainly present with anal pain commonly during defecation and/or rectal bleeding.<sup>1</sup> The exact etiology is not known but certain causes include chronic constipation incorrectly performed operation for

haemorrhoids, tuberculosis, Crohn's disease and sexually transmitted diseases.

Anal fissure management includes conservative and operative. The conservative treatment consists of avoidance of constipation, use of local anaesthetic ointments, chemical Sphincterotomy using topical glyceryl trinitrate and Diltiazim and use of anal dilators.

Various operative options were used for chronic anal fissure which include manual anal dilatation, botulinum toxin injection, Sphincterotomy and fissurectomy.<sup>2</sup> Since the introduction of posterior internal sphincterotomy by Eisenhammer in 1951,<sup>3</sup> the procedure has been used with increasing frequency and is now considered the treatment of choice for anal fissure.<sup>1</sup> Notaras<sup>5</sup> in 1969 is credited for promoting the technique of more safe lateral subcutaneous internal sphincterotomy. Hoffman and Goligher modified this technique by

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passing the blade between the internal and external sphincters and cutting medially.<sup>4</sup>

Both the subcutaneous and open techniques seem equally efficacious with regards to extent of division and effect on anal pressures.<sup>8</sup> Surgical Sphincterotomy results in quick healing of chronic fissure (94.7%-96% of fissures heal at six weeks postoperatively)<sup>6,7</sup> and has a low recurrence rate;<sup>7</sup> two large studies have demonstrated a 2.3-3% failure rate at five years.<sup>4,11</sup> Subcutaneous Lateral Internal Sphincterotomy however has been associated with an overall risk of incontinence of about 10% in a systematic review of randomized surgical trials.<sup>9</sup> Drugs that effectively cause a chemical Sphincterotomy and heal fissures were developed to avoid such side effects, such as nitroglycerin ointment, injection of botulinum toxin and calcium channel blockers reducing the sphincter pressure only until the fissure is healed.<sup>10</sup>

This study aims to determine the haematoma/bleeding, pain, healing rate and incontinence in chronic fissures after subcutaneous lateral internal sphincterotomy under general or spinal anaesthesia.

## METHODOLOGY

This study was undertaken on 146 patients (mean age 38 years). All patients were operated by lateral (subcutaneous internal) closed sphincterotomy for chronic anal fissure (anal fissure with > 6 weeks symptoms duration) from October 2005 to July 2008 at Surgical Unit II and III of Civil Hospital Karachi, Dow University of Health Sciences. Atypical fissures, previous sphincterotomy, anal dilation and suspicion of malignant fissure or ulcer were excluded from the study.

All data was collected on a pre-designed questionnaire for patients, including specifications of the patient, pre- and post-operative symptoms, and post-operative complications and Relief of symptoms such as pain, bleeding, irritation, time to fissure healing and Post-operative stay were assessed. First, those items related to pre-operative time were recorded in the questionnaire.

All patients were evaluated for symptoms and had appropriate investigations done. Main complaint reported by all patients were persistent pain with defecation and rectal bleeding, and conservative treatment had failed on all of them. Patients were seen in the pre-anaesthesia clinic and bowel preparation was done night before surgery. Metronidazole were used as prophylactic antibiotic, the first dose was administered at the time of induction of anaesthesia and a second dose eight hours post-operatively.

Lateral (subcutaneous internal) closed sphincterotomy was done in all cases (20 patients under general anaesthesia and 126 patients under spinal anaesthesia using a short stab incision and blind division of the internal sphincter guided by the surgeon's finger.

All operations were performed by consultant or senior residents under consultant supervision. Analgesia was provided on patients required need (PRN) in the form of intramuscular Diclofenac Sodium followed by oral analgesia, stool softener and locally applying 5% xylocaine jelly.

In this series, 142 patients were seen at second, sixth and 24th weeks postoperatively in out-patient department and ward follow-up and post operative symptoms were assessed.

The record was duplicated on the computer in the SPSS Version 10 and frequency percentages and calculated.

## RESULTS

A series of 146 closed lateral sphincterotomies were performed and patients were followed out of which, 58 patients were between 20-30 years, 66 patients were between 31-40 years and 22 patients were between 41-50 years of age. Average age of patients was being 35 years. There were 112(76.7%) male patients and 34 (23.3%) female patients.

In 116(79.5%) patients main post-operative complaint was bleeding per rectum. The bleeding was usually of small volume and occurred following defecation, usually as a streak of blood over the stool and these patients also complained of some degree of anal pain 26(17.8%). Only four (2.7%) patients presented with pruritis ani due to discharge.

One hundred forty two patients returned for their post-operative visits at 2, 6, and 24 weeks, four patients were lost to follow-up. Fissure healing was assessed by physical examination during follow-ups in ward and out-patients department. The exact time of healing of the fissure was set at the intervals.

One hundred forty patients in this study had completed healing of fissure by 3 months; in 124 patients fissure healed by 6 weeks, in 12 patients it healed by 7 weeks and in 4 patients fissure healed by 3 months. In two patients the fissure remained open and unhealed, although painless, at 3 months time. The overall fissure healing rate in this study was 97.5%.

During defecation and for 24 hours postoperatively, all

patients experienced minimal episodic pain. While pain was associated with streak of bleeding in 84 patients for first post-operative day. Pain was significantly reduced in all patients in the first 24 hours, while symptoms such as bleeding and irritation were reduced in most patients the next day.

Post-operative pain lasted for 5 days in one patient (0.68%), local haematoma (the 1st postoperative day) in two (1.3%) patients which was subside conservatively. One (0.68%) patient had a brisk reactionary haemorrhage from the sphincterotomy stab wound two hours after operation and was satisfactorily controlled by direct pressure and no blood transfusion was needed. Six patients (4.1%) experienced transitory flatus incontinence.

## DISCUSSION

Majority of the patients with fissures presented in the middle age group i.e. 66 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 year.<sup>8,11-16</sup> Except mean age of 48 years reported by Liratzopoulos.<sup>17</sup>

A total of 112 patients were male, and 34 patients were females. In the study done by Nahas<sup>18</sup>, 70% of males and 30% females had chronic anal fissure Melange<sup>19</sup> in his study anal fissure showed 55.2% males and 47.8% females presented with chronic anal fissure. One study conducted in Department of Surgery, University General Hospital, Alexandroupolis, Greece by Liratzopoulos.<sup>17</sup> showed more females (126) than males (120).

In this study 116 patients presented with pain and per rectum bleeding during or after defecation and 26 patients presented with sentineil pile and four patients with pruritus ani these results are closed to the results reported by Hanel<sup>20</sup> and Shafiq.<sup>21</sup>

High rates of anal fissures healing have been achieved with surgery.<sup>22</sup> Anal dilatation results in successful healing of anal fissures, both the internal and external sphincters can be disrupted or fragmented in an irregular manner in 65% of patients.<sup>23</sup> with a significantly higher risk of minor incontinence than sphincterotomy<sup>24</sup> (12.5% to 24.3% after anal stretch vs 4.8% after lateral internal sphincterotomy).<sup>25</sup> Revisiting the trends of treatment of chronic anal fissures, the preferred options are manual dilatation with radio surgery and the subcutaneous lateral anal sphincterotomy.<sup>26</sup>

In this study, all patients with chronic anal fissure were operated by lateral subcutaneous internal sphincterotomy.

Overall fissure healing rate was 97.5% after 24 weeks of follow-up, and results are consistent with the literature (90-100%).<sup>9,26-29</sup>

Several studies reported that there were no significant differences in pain scores between open and closed internal sphincterotomy.<sup>30</sup> In this study all patients were pain free after 2 days and this result was comparable with studies conducted by different authors.<sup>6,24,30</sup>

Minor complications included local hematoma (0.8%) postoperative bleeding (0.4%). And transitory incontinence in six patients which are comparable with the results of<sup>17,16</sup> reported no incontinence in his study.

## CONCLUSION

In conclusion, lateral internal sphincterotomy, especially the closed method for treatment of chronic anal fissures remains the method of choice, is a safe and effective procedure that leads to symptomatic improvement and beneficially affects health-related quality of life.

## REFERENCES

1. McCallion K, Gardiner K R. Progress in the understanding and treatment of chronic anal fissure. *Postgrad Med Journ* 2001; 77: 753-8.
2. Malik M J, Rashid A, Bashir R A. Comparative study of Internal Anal Sphincterotomy and Anal dilatation in acute Anal Fissure. 2004; 54(2): 142-46.
3. Eisenhammer S. The evaluation of the internal anal sphincterotomy operation with special reference to anal fissure. *Surg Gynecol Obstet*. 1959; 109: 583.
4. Hoffmann D C, Goligher J C. Lateral Subcutaneous Internal Sphincterotomy in Treatment of Anal Fissure, *BMJ* 1970; 3: 673-5.
5. Notaras M J. Lateral subcutaneous sphincterotomy for anal fissure - a new technique. *Proc R Soc Med* 1969; 62: 713.
6. 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: 847-52.
7. Hyman N. Incontinence after lateral internal Sphincterotomy: a prospective study and quality of life assessment. *Dis Colon Rectum* 2004; 47: 35-8.

8. Boulos P B, Araujo J G. Adequate internal sphincterotomy for chronic anal fissure: subcutaneous or open technique. *Br Journ Surg* 1984; 71: 360-2.
9. Nelson R. Treatment of anal fissure. *BMJ* 2003; 327(8): 354-355.
10. VanKemseke C, Belaiche J. Medical treatment of chronic anal fissure. Where do we stand on reversible chemical Sphincterotomy? *Acta Gastroenterol Belg* 2004; 67: 265-71.
11. Nahas S C, Sobrado Junior C W, Araujo S E, Aisaka A A, Habar Gama A, Pinotti H W. Chronic anal fissure: results of the treatment of 220 patients. *Rev Hosp Clin Fac Med Sao Paulo* 1997; 52: 246-9.
12. Leong A F, Seow choen F. Lateral sphincterotomy compared with an advancement flap for chronic fissure. *Dis Colon Rectum* 1995; 38: 69-71.
13. Hanaanel N, Gordon P G. Laternal internal sphincterotomy for fissure in ano. *Dis Colon Rectum* 1997; 40: 597-602.
14. Oh C, Divino C M, Steinhagen R N. Anal fissure. 20 years experience. *Dis Colon Rectum* 1995; 38: 378-82.
15. Hasse C, Brune M, Bachmann S, Lorenz W, Rothmund M, Sitter H. Lateral, partial sphincter myotomy as therapy of Chronic anal fissure. Long-term outcome of an epidemiological cohort study. *Der Chirurg* 2004; 75: 160-7.
16. Mousavi S R, Sharifi M, Mehdikhah Z. A comparison between the results of fissurectomy and lateral internal sphincterotomy in the surgical management of chronic anal fissure. *J Gastrointest Surg* 2009; 13(7): 1279-82.
17. Liratzopoulos N, Efremidou E I, Papageorgiou M S, Kouklakis G, Moschos J, Manolas K J, Minopoulos G J. Lateral subcutaneous internal sphincterotomy in the treatment of chronic anal fissure: our experience. *J Gastrointest Liver Dis* 2006; 15(2): 143-7.
18. Nahas S C, Sobrado Junior C W, Araujo S E, Aisaka A A, Habar Gama A, Pinotti H W. Chronic anal fissure: results of the treatment of 220 patients. *Rev Hosp Clin Fac Med Sao Paulo* 1997; 52: 246-9.
19. Melange M, Colin J F, Van Wynersch T, Van Heuwerzwyn R. Anal fissure: correlation between symptoms and manometry before and after surgery. *Int Journ Colorectal Dis* 1992; 7: 108-11.
20. Hananel N, Gordon P H. Re-examination of clinical manifestations and response to therapy of fissure in ano. *Dis Colon Rectum* 1997; 40: 229-33.
21. Shafiq U, Muhammad N. Closed versus open lateral internal sphincterotomy in chronic anal fissure: a comparative study of postoperative complications and results. *Pak Journ Med Res* 2004; 43(1): 1-4.
22. Lindsey I, Jones O M, Cunningham C, Mortensen N J. Chronic anal fissure. *Br Journ Surg* 2004; 91: 270-9.
23. Nielsen M B, Rasmussen O O, Pedersen J F, Christiansen J. Risk of sphincter damage and anal incontinence after anal dilatation for fissure-in-ano. An endosonographic study. *Dis Colon Rectum* 1993; 36: 677-80.
24. Nelson R, Mehrabian E. Meta-analysis of operative techniques for fissure-in-ano. *Dis Colon Rectum* 1999; 42: 1424-8.
25. Saad A M, Omer A. Surgical treatment of chronic fissure-inano: a prospective randomized study. *East Afr Med Journ* 1992; 69: 613-5.
26. Nelson R. Operative procedures for fissure-in-ano. *Cochrane Database Syst Rev* 2002; (3): CD002199.
27. Nelson R. A systematic review of medical therapy for anal fissure. *Dis Colon Rec* 2004; 47: 422-431.
28. Gupta P J. Closed anal sphincter manipulation technique for chronic anal fissure. *Rev Gastroenterol Mex.* 2008; 73(1): 29-32.
29. Gupta J P. Current trends of management for fissure in ano. *Rom Journ Gastroenterol* 2002; 11: 25-7.
30. Griffin N, Acheson A G, Tung P, Sheard C, Glazebrook C, Scholefield J H. Quality of life in patients with chronic anal fissure. *Colorectal Disease* 2004; 6: 39-44.