ORIGINAL ARTICLE

Frequency of Persistent Postoperative Incontinence in Closed Lateral Internal Sphincterotomy for Chronic Anal Fissure

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ABSTRACT

Objectives: The objective of this study is:
To determine frequency of persistent postoperative incontinence in closed lateral internal sphincterotomy for chronic anal fissure.
Study design: Descriptive study (Case series).
Place and duration: The study was undertaken at the department of the General Surgery, Nishtar Hospital Multan from Nov5,2008 to May 5, 2009.
Material and methods: One hundred and ten (110) consecutive patients of chronic anal fissure were admitted from Nov 5,2008 to May 5,2009 and underwent closed lateral internal anal sphincterotomy. Patients were followed at one-weekly interval for three weeks for persistent postoperative incontinence.
Results: One hundred and ten patients with chronic anal fissure were chosen who underwent Closed lateral internal anal sphincterotomy and followed for three weeks post operatively for persistent postoperative incontinence, mean age was 35.15 years, there were 90(81.8%) males and 20(18.18%) females. On postoperative follow up for three weeks only 4(3.6%) shows incontinence. In this study it was observed that the outcome of Close Lateral Internal Anal Sphincterotomy with Von-Greaves (cataract) knife in terms of continence has good patient's acceptance.
Conclusions: Closed lateral internal anal sphincterotomy should be adopted as procedure of choice for chronic anal fissure.
Key Words: Fissure in ano, internal sphincterotomy.

INTRODUCTION

Anal fissure remains one of the most common proctologic problems manifesting as pain on defecation[1]. Chronic anal fissure, a painful tear in the anal mucosa that fails to heal after 6 to 8 weeks of conservative management[2]. Anal fissure commonly affect young and otherwise healthy individuals[4,5].

Physical trauma by hard faeces leads to tearing of anoderm. The resultant tear is mostly in posterior midline 80- 90%[2,3]. Repeated passage of hard faeces result in hypertonea of internal sphincter. Combined effect of hypertonea and trauma cause non healing of fissure[2,3]. Anteriorly located fissure are more common in women. These fissures mostly occur during labour. Multiple fissures may be found in patient with Crohn's disease, Ulcerative colitis and Tuberculosis. The commonest coexistent pathology with anal fissure is haemorroids[4]. Excruciating pain is the main presenting feature followed by fresh bleeding per rectum and pruritis[3].

Conservative management is the first line of treatment that should include high fiber diet, stool softener and sitz bath because it is safe and effective up to 50% of the time[2,5]. Recent non surgical alternatives in the management of anal fissure includes administration of topical nitrates (Glyceral Trinitrate or Isosorbide Dinitrate) or botulinum toxin(Botox) injections targeted to relax the internal anal sphincter.[4,7] Glyceryl trinitrate (GTN) ointment has been used for the treatment of chronic anal fissure based on the assumed pathophysiology that the fissure is due to internal anal sphincter hypertonia and that GTN causes relaxation. Glyceryl trinitrate ointment acts as a dilator of the internal anal sphincter[8]. Pharmacological treatment using topical GTN has been shown to be effective for over two thirds of patients with chronic anal fissures. It has also confirmed that healing is associated with a sustained reduction in maximum resting anal pressure.

There is now good evidence that nitric oxide (NO) is one of the most important inhibitory neurotransmitters in the internal anal sphincter. A number of studies have shown that topical application of glyceryl trinitrate (GTN), a NO donor, to the anus, can cause reversible relaxation of the internal sphincter in man, and heal fissures. However, an acquired tolerance to GTN with continual usage has been reported, and this may account for some treatment failures. Nitrate tachyphylaxis is well

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recognised by cardiologists treating angina pectoris with GTN. A recent randomised controlled trial showed that over two thirds of chronic anal fissures can be healed with 0.2% GTN within eight weeks compared with less than 10% with placebo. However, the most effective dosage regimen of GTN for fissures has not been determined and the long term results of treatment are not known[9].

Surgical intervention is indicated in patients with non healing fissure or failure of medical treatment and patient with associated anorectal pathology needing surgical intervention.[1-7] surgical means to treat fissure includes anal dilatation, sphincterotomy and fissurectomy[1-7].

Anal dilatation is abandoned due to uncontrolled sphincter trauma and more chance of incontinence. Subcutaneous lateral internal sphincterotomy had been the treatment of choice for chronic anal fissures. Sphincterotomy can be carried out using an open or a subcutaneous technique and under local or general anesthesia Sphincterotomy whether by open or close technique addresses the problem in much controlled way[10]. The closed (lateral internal subcutaneous) sphincterotomy is usually performed under general anesthesia, but it can be carried out under local anesthesia[11] in the outpatient department. This operation remains the primary form of treatment for chronic anal fissure. The aim of lateral internal sphincterotomy is to divide the distal third to one half of the internal anal sphincter[12] to decrease the resting anal pressure by decreasing the hypertonia of the internal sphincter. Closed lateral internal sphincterotomy is also an effective procedure in treating fissure in children[13].

In open method, internal sphincterotomy can be performed under local or general anesthesia[14]. The patient is positioned in the lithotomy, lateral (side) or jack-knife positions according to the surgeon's preference. It can be performed in the office or in the hospital. It is more time consuming and usually requires suturing.

There are fewer chances of incontinence and bleeding once the operator is well verse with the technique[1,2,4]. It is 24% and 32% in patients underwent closed and open lateral internal anal sphincterotomy respectively[8]. This study aims at to determine persistent postoperative incontinence in closed lateral internal anal sphincterotomy.

METHODOLOGY

One hundred and tem patients with persistent symptoms of chronic anal fissure fulfilling the inclusion criteria were selected, an informed consent obtained from patients for closed lateral internal sphincterotomy admitted through out patient department. The demographic information like name, age, sex, address recorded. Patient operated by a consultant (Assistant professor and above).

Postoperative incontinence for either solid or liquid determined on history, examination during hospital stay and weekly for three weeks to establish persistent incontinence by the observer. The collected information will be entered and analyzed through SPSS version 10. Descriptive statistics used to calculate mean and standard deviation for age. Frequencies and percentages calculated for sex and fecal incontinence (i.e. persistent incontinence which remain through out three weeks follow up, while transient incontinence resolves in two weeks follow up and none means no incontinence during hospital stay and follow up). Stratification undertaken on age, sex, incontinence for solids and liquids to study the effect of variables on the study.

RESULTS

One hundred and ten patients with chronic anal fissure were chosen for the study from those who were presented from 5th Nov 2008 to 5th May 2009 in surgical OPD of Nishtar Hospital, Multan. Following were the results of study:

According to age distribution 32 patients were between 20–30, 56 patients were between 31–40 and 22 patients were between 41–50 years of age. Average age was being 35.15 years (Table 1,2), There were 90 male patients and 20 female patients with ratio of 4.5:1 respectively.

Table1: Age distribution (n=110)

Age (years)	=n	%age
20-30	32	29.09
31-40	56	50.90
41-50	22	20.00

Table 2: Descriptive Statistics
Year 1: Valid N (list wise)

N	Minimum	Maximum	Mean	Std. Deviation
110	20	50	35.15	8.69

In all 110 patients included in the study the position of anal fissure was noted. Most of the patients were having posterior midline fissure. 94 (85.45%) patients were having posterior midline fissure and 14 (11.18%) patients were having anterior fissure. Two patients was having fissure on lateral walls of anal canal (Table 3).

Table 3: Site of fissure (n=110)

Site	=n	%age
Posterior	94	85.45
Anterior	14	11.18
Other	02	01.81

The patients included in the study, presented in OPD of Nishtar Hospital, Multan, with history of pain especially during defecation, bleeding per rectum, pruritis ani and swelling at the level of anal verge. The chief complaint of most of patients was pain on defecation. Out of 110 patients, 101 patients complained of pain during and after defecation. The pain was also associated with bleeding per rectum especially in the form of streak over stool (Table 4).

Table 4: Mode of presentation (n=110)

Symptoms	=n	%age
Pain and bleeding	50	45.45
Bleeding and pain	38	35.45
Perianal swelling	12	10.90
Pruritis	10	09.09

Seventy eight patients had the chief complaint of bleeding per rectum. The bleeding was usually of small amount and occurred at the time of defecation. It was also seen as a streak over the stool matter. This number includes those patients also who complained of some degree of anal pain associated with bleeding. 10 patients also presented with perianal swelling. On examination this was sentinel pile. Only one patient presented with pruritis ani due to discharge.

All patients undergoing closed lateral internal anal sphincterotomy were followed for persistent postoperative incontinence for three weeks, these patients were asked simple question of involuntary loss of either solid or liquid per rectally as determined on history and clinical examination by the observer.

Out of 110 patients only 8(7.2%) patients were having incontinence at the end of first week, but at the end of second week only 6(5.4%) patients were incontinent, only 4(3.6%) patients were having incontinence at the end of three weeks which were labeled as having persistent postoperative incontinence shown in table5, while other 4(3.6%) patients were labeled as having transient incontinence shown in (Table5,6,7).

Table 5: Closed lateral internal sphincterotomy (n=110)

Complication	=n	%age
Persistent incontinence	4	3.6%

Table 6: Closed lateral internal sphincterotomy (n=110)

Complication	=n	%age
Transient incontinence	4	3.6%

Table 7: Closed lateral internal sphincterotomy (n=110)

Incontinence	=n	%age
Persistent incontinence	4	3.6%
Transient incontinence	4	3.6%
None	102	92.72%

According to results of age group Incontinence out of 110 patients there is no incontinence in age group between 20 to 30years (0.00%), While 1(0.90%) in age group between 31 to 40years and 7(6.36%) Patients were found to have incontinence in between 41 to 50 years age group shown in (Table 8).

Table 8: Incontinence According to age group (n=110)

Age (years)	Transient Incontinence	Persistent Incontinence	%age
20-30	0	0	0.00
31-40	1	0	0.90
41-50	3	4	6.36

According to sex distribution 1(0.90%) male patient was found to have incontinence while 7(6.36%) female patients were incontinent shown in (Table 9)

According to incontinence for solids and liquid, 2(1.81%) were found to have incontinence only for liquids and 6(5.45%) were having incontinence for both solids and liquids. There was no case of incontinence for only solids as shown in (Table 10).

Table 9: Incontinence According to Sex (n =110)

Sex	Transient Incontinence	Persistent Incontinence
Male	1	0
Female	3	4

Table 10: Incontinence According to Contents (N =110)

Contents	Transient Incontinence	Persistent Incontinence	%age
Solid	0	0	0.00
Liquid	2	0	1.81
Liquid/ Solid	2	4	5.45

DISSCUSSION

Hypertonia of the anal sphincter has been noted for many years in association with anal fissure, and surgical treatment has generally been aimed at overcoming this hypertonia[15]. However, the cause of the hypertonia remains obscure. The majority of studies, using a variety of techniques, have consistently found resting anal pressures to be significantly higher in patients with anal fissure than in normal controls[16]. Once an anal fissure develops, there is usually excessive activity of the IAS with high resting anal pressure, which perpetuates this condition. However, maximum voluntary squeeze pressure in patients with fissure is no different from that in controls, suggesting that the high resting pressure is due to hypertonicity of the IAS[17].

Raised pressure of the IAS associated with anal fissure reduces the perfusion pressure of the mucocutaneous lining to levels equivalent to severe ischaemia. Internal anal sphincterotomy, which lowers the pressure exerted by the IAS, may restore normal perfusion of the anoderm leading to relief of pain and healing of the fissure. Schouten *et*

*al.*demonstrated reduced blood flow at the posterior commissure of the anal canal compared with that in the other three quadrants using laser Doppler flowmetry[18]. Ano dermal blood flow was negatively correlated with resting anal pressure. When resting anal pressure fell under anaesthesia, a rise in ano dermal blood flow was noted.

There is strong evidence that nitric oxide plays a major role in mediating the relaxation of the IAS. Exogenous organic nitrates are degraded by cellular metabolism releasing nitric oxide. Guillemot *et al.* reported that topical GTN ointment rapidly reduced the resting pressure in the upper anal canal in normal subjects and patients with constipation. Loder *et al.* applied GTN 0.2% ointment to the anoderm of 10 patients presenting for physiological assessment of a variety of anal disorders, including one with anal fissure[19].

Lateral sphincterotomy is now the treatment of choice in anal fissure for many surgeons[20]. It may be performed using an open or a subcutaneous technique and under local or general anaesthesia. Both open and subcutaneous methods produce adequate and equivalent falls in anal pressure[21] the results of lateral sphincterotomy have been reported from many centres. Major complications requiring re operation and minor complications such as pruritis, persistent wound pain, bleeding, abscess, discharge, urgency, impaction, or defect of continence were seen in 36% of patients in large series[22].

However in other studies, the procedure of lateral internal sphincterotomy was associated with a risk of some degree of incontinence in 30% of patients[23]. According to a systematic review of randomized surgical trials the overall risk of postoperative incontinence was about 10% and this was mostly incontinence to flatus, while there are no reports delineating the duration of this problem (if it is permanent or transitory)[24,25]. Nevertheless, it is still controversial if minor degrees of incontinence could be a symptom of chronic anal fissure or the sequel of lateral internal sphincterotomy[26].

In present study, 110 patients were treated by closed lateral internal anal sphincterotomy. The main aim of the study was to know the persistent postoperative incontinence during first three weeks follow up. Most of the fissures were found in middle age group. 50.90% of the patients were between 31-40 years and mean age in present study was 35.15 years. Mean age reported in different studies range from 30 – 45 years[27,28,29,30,31].

81.8% of patients were male, and 18.18% of patients were females with a sex ratio of 4.5:1 respectively. In the study done by Nahas[27], 70% of males and 30% 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[32] Oh C[30] reported 50.3% males and 49.6% females had chronic anal fissure. The ratio of male to female for chronic anal fissure in the present study is close to the study conducted by Badar, Qamaruddin and Hafizullah in which 80.9% male and 19% female patients presented with chronic anal fissure with the ratio of 4.2:1 respectively.

The patients suffering from anal fissure complain of pain, bleeding, discharge and pruritis ani. 91.8% patients presented with pain during or after defecation and 70.9% patients presented with bleeding with or without pain which was very close to the 90.80% and 71.4% respectively reported by Hanel and Gorden[29].

In the present study 110 patients (85.45%) presented with posterior midline fissures and 14 patients (11.18%) presented with anterior anal fissure and 2 patients (2%) with lateral fissure. Mazier and Levien described that anal fissures are more common posteriorly. Cushieri[33] also described that most of the fissures are posteriorly midline. Nahas[65] reported 86.1% posterior midline and 13.9% anterior fissure.The study shows 4(3.6%) patients have persistent incontinence at end of third week, while 4(3.6%) show minor degree of incontinence in older age group females as compared to males, the results are comparable with different studies.

As Matikainen[34] has described the similar results in case closed lateral internal sphincterotomy. Pernikoff, Salvati, Eisentat[35] has also reported that complication rate is relatively higher in open lateral internal sphinctrotomy than closed lateral sphincterotomy. Kortbeek, Langevin, Khoo[36] 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.

CONCLUSION

Closed lateral internal sphincterotomy is treatment of choice for chronic anal fissure and can be done effectively and safely with acceptable rate of complication. It is safer in young patients as compared to old ones, with increased risk of incontinence in females as compared to males, so Our recommendations are that closed technique should be adopted as procedure of choice in young male patients by experienced surgeons.

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