ORIGINAL ARTICLE

Lateral Internal Sphincterotomy in Comparison with Conservative Management with Glyceryl Trinitrate

TARIQ SAEED, MALEEHA HUSSAIN, RABIA AKRAM, PERWEEN KHAN
[1]Assistant Professor of Surgery, Shalamar Medical and Dental College,[2,4]Gynaecologist, [3]Consultant Gynaecologist, Fauji Foundation Hospital
Corresponding author: Dr Tariq Saeed, Consultant Classified Surgeon, Fauji Foundation Hospital Lahore Assistant Professor of Surgery, Shalamar Medical and Dental College Lahore. Mobile: 0321 587 1036, E- mail: surgeontariq@ yahoo.com

ABSTRACT
Objective: To assess the Role of lateral internal sphincterotomy versus conservative management with glyceryl trinitrate in anal fissure in relieving the symptoms
Study Design: It is an experimental study.
Place & Duration of Study: This study was carried out in surgical unit of Fuji Foundation Hospital Lahore from September 2014-November, 2016.
Methods: A Total of 100 patients were included in this study reported with pain in the perianal area with or without bleeding per rectum with no co-morbidities or other systemic illness. Their age ranges between 20 to 60 years. Patients were examined and divided into two equal groups (A and B) containing 50 patients each. Group A underwent conservative management (glyceryl trinitrate) while group B underwent lateral internal sphincterotomy.
Results: A total of 100 patients were included in this study, including 87% females and 13%e males. The highest prevalence of anal fissure was seen in the 40–59 years of age group and it was more prevalent in female patients. The ratio of female to male was 4:1. In Group B, 74% patients showed immediate response after the surgery and their symptoms improved while passing stools. Glyceryl trinitrate is not effective in younger age group at the same time lateral internal sphincterotomy is not a procedure of choice in older age group as 2% of patients developed flatus incontinence. Similarly, patients of younger age group did not respond to glyceryl trinitrate at all, rather they requested sphincterotomy to be undertaken.
Conclusion: Lateral internal sphincteroyomy is superior method for relieving symptoms of painful defecation for longer period of time as compared to other non-interventional methods.
Keywords: Fissure, sphincterotomy, Glyceryl trinitrate, chemical sphicterotomy, fissurectomy

INTRODUCTION
An anal fissure is a split in the skin of the distal anal canal. Young adults of both sexes are affected equally. Patients present with anal pain commonly during defaecation and or rectal bleeding[1]. Whilst acute fissures heal spontaneously or with simple therapeutic measures, a proportion progress to form a chronic linear ulcer[2]. Chronicity of a fissure relates to duration of greater than 6 weeks with fibres of the internal anal sphincter visible at the base of the fissure[3]. Associated pathology may include a sentinel 'pile' distally and a fibro-epithelial polyp at the apex. Most anal fissures are idiopathic with no identifiable underlying disease process[4]. There is no simple and unified theory to explain their genesis though constipation and lack of dietry fibre are implicated. Most fissures occur in the posterior midline; this may be anatomically related as there is a lack of tissue support posteriorly within the anal canal[5]. Fissures associated with pregnancy commonly are located anteriorly and are often associated with low anal canal pressures[6]. Other causes of fissures include Crohn's disease, syphilis, human immuno-deficiency virus (HIV) or tuberculosis[7]. These are secondary fissures and are most appropriately treated by addressing the underlying disease process[8]. Early advocates of sphincterotomy recommended a generous division of the Internal Anal Sphinctor muscle and, in some cases, total division extending to the circular muscle of the rectum[9]. By 1959, the 'standard internal sphincterotomy' comprised division of only half of the Internal Anal Sphinctor to the dentate line in its lateral or posterolateral part[10]. Posterior sphincterotomy results in a 'keyhole deformity' that can cause mucous leakage in approximately a third of patients and should no longer be performed[11]. Notaras is credited for promoting the technique of lateral subcutaneous internal

sphincterotomy. In this technique, the lower part of the internal sphincter is divided by introducing the knife blade at the anal verge between the anal canal mucosa and the Internal Anal Sphinctor, then directing the cutting edge laterally towards the Internal Anal Sphinctor[12]. Hoffman and Goligher modified this technique by passing the blade between the internal and external sphincters and cutting medially. Both the subcutaneous and open techniques seem equally efficacious with regards to extent of division and effect on anal pressures[13]. There are certain principles that should be noted: The sphincterotomy should be away from the fissure site so that intact mucosal bridges fill the gap between divided muscle fibres to allow rapid healing. The entire thickness of the lower internal sphincter must be divided, at any remaining intact fibres go into intense spasm to compensate for the divided fibres. The mucosa over the sphincterotomy site should not be breached as this would predispose to infection. The length of the sphincterotomy should be 'tailored' to the length of the anal fissure.

Sphincterotomy induces a sustained reduction of maximum resting anal pressure[14]. The largest review of the sequelae of internal sphincterotomy for chronic fissure in ano showed rates of flatus incontinence in patients, occurring 'sometimes' to 'infrequently' in 35.7%, faecal urgency in 4.9% and soiling in 21.2%[15]. Incontinence may be minimized by a 'tailored sphincterotomy' where the sphincter is divided to the length of the fissure; this does not appear to compromise the healing rate[16].

Fissurectomy has a role in midline fissures complicated by underlying fistula. Though, further work by Bode *et al.*, Gingold and Di Castro *et al.* demonstrated fissurectomy as a viable treatment option, its use has remained sporadic. The recent use with pharmacological agents such as topical isosorbide dinitrate to treat fissures has led to its reintroduction[17].

This is indicated for patients with primary or recurrent fissures and for women with a complicated obstetric history with low resting anal canal pressure. In order to aid selection of suitable cases, prior manometry and endosonography was employed. This operation avoids further disruption to the internal sphincter and avoids factors that might otherwise jeopardise continence. Skin flaps can either be triangular (Y-V), a square-shaped sliding graft or a C-anoplasty[18]. Glyceryl trinitrate (GTN) and isosorbide dinitrate act as nitric oxide donors and probably aid healing through an increase in local blood flow secondary to a reduction in intra-anal pressure and perhaps also by vasodilatation of the vessels supplying the anal musculature. Early studies with Glyceryl Trinitrate focused on optimal dose schedules, healing rates and side effects. These were validated by numerous trials. Whilst Glyceryl Trinitrate was advocated as first-line treatment for chronic anal fissures with encouraging results, concerns about its effectiveness in clinical practice outside clinical trials emerged[21–23]. There was also evidence that the duration of topical GTN was limited[24] and that GTN was possibly ineffective altogether[25]. Furthermore, data from randomised, controlled trials have shown that GTN is not superior to lateral sphincterotomy[26,27]. It would seem that those fissures present for greater than 6 months and those with an associated sentinel pile are more likely to fail treatment[28]. Alternative modes such as nitroglycerin patches have shown promise but have not been established as common practice[29].

PATIENTS AND METHODS

This analytical study was carried out between September 2014 to November 2016 at Fauji Foundation Hospital and at Mohsin Medical Complex Peer colony Walton Lahore. The patients reporting at surgical and gynae outdoor department with complaints of pain during and after defecation with or without bleeding per rectum. A total of 100 patients were included in this study and all of these patients presented with pain during defecation and a feeling of burning pain in the perianal area with or without bleeding per rectum. All the patients were examined clinically and as well as examination of perianal area performed to confirm the diagnosis of anal fissure. The patients were explained about the study under trial and their co-operation was sought as far as their feedback and follow up was concerned. Two groups were made Group A (50 patients) included those patients who were subjects to conservative management using glyceryl trinitrate and Group B (50 patients) who underwent lateral internal sphincterotomy. A questionnaire was designed to collect the feedback of the patient regarding his symptoms and his satisfaction regarding treatment modality.

SAMPLE COLLECTION: Patients were included reporting at Mohsin medical complex, a medical

centre at walton and also main bulk of patients were collected from Fauji Foundation Hospital.

I**nclusion Criteria:** Patients between 20-60 years of age both male and females

Exclusion Criteria: Patients less than 20 years of age and patients with systemic illness and not fit for surgery. Patients with inflammatory bowel disease or any skin lesions around the perianal area were also excluded from the study.

RESULTS

A total of 100 patients aged 20-60 years and older were included in this study. Table1 shows age distribution of the patients. Among them, 87 were females and 13 were males. Their average age was 44.7 years (52.6 years for men and 43.2 years for women). In Group A, 19 patients (38%) who were offered glyceryl trinitrate creme needed two times/day. These patients showed painful defecation and almost did not show any marked improvements in symptoms even after the administration of mild laxatives and stool bulkar in regime. Five patients (10%) did not show any response to the treatment while, 01 patient (2%) developed severe headache and refused to go along with the treatment after 02 weeks. Out of 50 patients, 43 patients (86%) showed no improvement in symptoms and requested for change in treatment regime after 6 months of therapy.

In Group B, 37 (74%) patients showed immediate response soon after the surgery and their symptoms improved while passing stools. Nine patients (18%) expressed a feeling of more pain during the defecation. Therefore, they were offered local application of lidocaine gel and soon they were stable and painless after 03 weeks. Four (8%) patients showed a bit heavy bleeding in the post-operative period (within 24 hours). These were the patients who were taken to the operation theatre for re-examination and for heamostasis using cautery and good anal pack.

Table 1: Age distribution of patients.

Age group (Years)	Frequency (%)
20-30	23 (23)
31-45	39 (39)
46-60	38 (38)

Out of total 50 patient, 47 patients (96%) showed remarkable response to lateral internal sphincterotomy and having no complaints, such as bleeding or pain during or after defecation. Two patients (4%) after Lateral internal sphincterotomy showed mild incontinence for flatus and feeling mild weak feacal control and these were the patients in older age group. These patients did not show further improvement in flatus control even after 10 months after surgery.

DISCUSSION

Majority of the patients with fissures presented in the middle age group i.e. 66 patients were between 31-40 years Mean age reported in different studies range from 30-45 years except mean age of 48 years has also been reported. In the study, 70% of male and 30% of females had chronic anal fissures. In this study, 55.2% males and 47.8% females presented with chronic anal fissure. In this study, 16 patients presented with pain and per-rectum bleeding during or after defecation and 26 patients presented with sentinal pile and 4 patients with pruritus ani. These results are close to the results reported by Hanal and Shafi.

High rates of anal fissure healing have been achieved with surgery. Anal dilataton 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 with a significantly higher risk of minor incontinence then sphinctoroctomy (12.5%-24.3% after anal stretch versus 4.8% after lateral internal spchinctoroctomy revisiting the trends of treatment of chronic anal fissures the preffered options are manual dilatation with radio surgery and the subcutanious lateral anal spchinctoroctomy. In this study, all patients with chronic anal fissures were operated by lateral subcutanious internal sphinctoroctomy. Minor complications included local haematoma (0.8%) post-operative bleeding (0.4%) and transitory incontinence in 6 patients which are comparable with the results of reported studies. Most surgeons and published expert opinions describe Anal Fissure as ‘common’, but systematically collected incidence data on the condition is not available. Extrapolation of the incidence rates in this cohort to the 2010 United States census population (292.7 million aged ≥6 years), with adjustment by age and sex, indicates that there are approximately 342,000 new anal fissure cases diagnosed in the United States each year.

This is similar to the annual incidence of appendectomies in the United States (approximately 280,000 cases per year, or 0.7 to 1.7 cases per 1000 person-years depending on age) and in Ontario, Canada (approximately 0.75 appendectomies per thousand person-years)[21-25]. The overall incidence of per 1000 person-years translates to an average lifetime risk of 7.8%, and thus Anal Fissure is indeed a common problem. This study reveals some important details about the variation in anal fissure incidence by age and sex. Women had a higher overall incidence (1.14 cases per thousand person-years), than men (1.04 cases per thousand person-years), but the difference did not reach statistical significance. Among women the peak incidence occurred during adolescence and young adulthood, but among men the incidence was highest during middle age. We had anticipated that women of child-bearing age would have a higher incidence of Anal Fissure based on previously published studies among pregnant women, but we found that in this health system pregnancy-related fissures were more likely to be diagnosed and coded as anal tears. This is probably a reasonable distinction since most delivery related tears are anterior and a result of perineal injury from childbirth, while most anal fissure are posterior and thought to be due to relative insufficiency in blood flow. Because this is a retrospective survey we can only speculate about the reasons for the fluctuations in incidence by age and gender. However, the case–control analysis confirms a strong association between constipation and anal fissure, and between other conditions associated with constipation (e.g. hypothyroidism, obesity etc.). The variation in anal fissure incidence by age and sex also tends to follow changes in constipation incidence by age and sex.

CONCLUSION

In conclusion, lateral internal spchinctoroctomy especially the closed method for the treatment of chronic anal fissures remains the method of choice is a safe and effective procedure that leads to symptomatic improvement and beneficially effects health related quality of life. This study demonstrated that anal fissure is a problem that many persons of all ages suffer from, and something that most surgeons and many primary care providers will be asked to diagnose and treat. The fluctuations in incidence and the associated risk factors suggest areas that could be further investigated for better understanding its pathogenesis and prevention. There are also some aspects of anal fissure treatment that could also be improved. As new products for anal fissure treatment become available, it can be anticipated that education and investigations into clinical management will increase, and hopefully more physicians will be able to effectively diagnose and manage the patients.

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