Global Journal of Medicine & Public Health

Comparative study between medical and surgical management for anal fissure in a rural tertiary care hospital in Karnataka, India

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ABSTRACT

Background

Medical and surgical treatment options are both widely practiced for the management of anal fissure, however the debate over which treatment option is superior remains unanswered. Thus, this study was conducted to assess the efficacy and adverse effects of medical and surgical management in the treatment of anal fissure.

Methods

A cohort study was conducted among patients with anal fissure, in the Department of Surgery of Adichunchanagiri Institute of Medical Sciences, B. G. Nagara, India – a rural tertiary care hospital in the State of Karnataka – from January 2019 to December 2020. A total of 100 cases were included in the study. Among them, 50 cases were included in a medical management group and another 50 cases in a surgical treatment group. Following treatment, all the cases were assessed for pain and other complaints immediately and subsequently during a follow up after the first and second week. Analysis was carried out using IBM Statistical Package for Social Sciences (IBM SPSS) version 20.

Results

Mean pain score after one and two weeks of treatment was found to be statistically significantly lower in the surgical treatment group compared with the medical management group. After one week of treatment, the proportion of cases with pain was significantly lower among the surgical group compared with the medical management group. After two weeks of treatment the proportion of cases with pain and bleeding was significantly lower among the surgical group compared with medical management group.

Conclusion

Surgical management is the better treatment option for anal fissure, with better and quicker pain relief and lesser adverse effects compared with medical management.

Keywords: Medical, Surgical Management, Anal fissure, Lateral internal sphincterotomy

GJMEDPH 2021; Vol. 10, issue 1 | OPEN ACCESS

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Conflict of Interest—none | Funding—none

INTRODUCTION

Anal fissure is one of the most common conditions among young adults reported in general surgery outpatient departments all over the world.[1] It is usually diagnosed with a history of pain, bleeding and discharge, and also by clinical findings. Chronic fissures have been found to be associated with the presence of a sentinel pile. It has been found that 90% of fissures occur in the posterior midline of the anus and about 10-20% of fissures occur in the anterior midline, but that fissures rarely occur on the lateral aspects of the anus.[2,3] Cases of anal fissure typically present with episodic pain, which occurs during defaecation and persists for around one to two hours afterward.[4] This severe episodic pain is suspected to be due to the loss of blood supply and spasm of the internal anal sphincter.[5] Surgical management is not associated with mortality but substantial numbers of cases report post-operative complications including incontinence and constipation.[6,7]

The available treatment modalities include medical management with or without drugs and surgical treatment such as lateral internal sphincterotomy (LIS) and fissurectomy. Though a wide range of treatment options are available, deciding which choice of treatment to go for remains difficult. Surgical management provides better relief in more than 90% of cases but approximately 10% of surgically managed cases result in morbidities such as incontinence.[8] With respect to medical management, a systematic review has reported that a placebo has 35% efficacy in the management of anal fissure. The drugs used in medical management include glycerin trinitrate (GTN) ointment, botulinum toxin injection and calcium channel blockers – these can be used alone or in combination. These drugs have been reported to cause adverse effects however, such as headache, especially the case of nitroglycerin ointment.[8] At times, these adverse effects are severe enough to require the medication to be stopped.[9] Due to these pros and cons, there is unresolved debate over the efficacy of medical management versus surgical management. Hence this study was conducted with the objective to assess the efficacy and adverse effects of medical and surgical management in the treatment of anal fissure.

METHODS AND MATERIALS

A hospital-based cohort study was conducted among patients with anal fissure in the Department of Surgery in Adichunchanagiri Institute of Medical Sciences, B.G. Nagara, Bellur, India, a rural tertiary care hospital, from January 2019 to December 2020. All patients, regardless of age and gender, were included in the study. Cases that had already been operated on for anal fissure and pilonidal sinus, and cases already on treatment with calcium channel blockers, were excluded from the study. A total of 100 cases were included in the study.

The study was registered with and approved by the Institutional Human Ethical Committee. Written informed consent was obtained from the participants before conducting the study. Fifty participants (n=50) were enrolled in a medical management group, and treated using 0.2% glycerine trinitrate (GTN), botulinum toxin A (BTA) injection and/or calcium channel blockers (either nifedipine or diltiazem). An additional 50 (n=50) were enrolled in a surgical treatment group, undergoing either a lateral internal sphincterotomy or fissurectomy. Based on computer generated random numbers, cases were allotted to the medical or surgical treatment groups. Following treatment, all the cases were assessed for pain and other complaints immediately and subsequently during follow up after the first and second weeks. Pain was assessed using a visual analogue scale using scores from 0– 100. This was also assessed initially at the time of presentation and during the follow up visits after one and two weeks of treatment.

Analysis was carried out using IBM Statistical Package for Social Sciences (SPSS) version 20. Results were presented in mean and proportions. Independent sample t test and z tests were used appropriately. $p < 0.05$ was considered significant.

RESULTS

In the medical treatment group 12% were under 30 years of age, 36% were 31-40 years old, 38% were 41-50 years old, and 14% were 51-60 years old. In the surgical treatment group 16% were under 30, 32% were aged 31-40, 44% were aged 41-50 and 8% of the participants were 51-60 years old.

The medical management group was 56% male, 44% female and the surgical treatment group was 68% male and 32% female. In the medical management group, 52% of cases had posterior fissure and 44% had anterior fissure. In the surgical treatment group, 62% of cases had posterior fissure, and 36% of cases had anterior fissure. Both posterior and anterior fissures were present in 4% of the medical management group and 2% of the surgical management group. Of the surgically managed cases, 2% had lateral fissures. (Table 1). Regarding the presenting complaints, in the medical management group 46% of participants had bleeding from the rectum, 38% of participants had pain in the anal region, 10% of participants had constipation and 6% of participants complained of itching. In the surgical treatment group, 42% of participants had bleeding from the rectum, 44% of participants presented with pain, 12% of participants had constipation and 2% of participants complained of itching (Table 2). The mean score for pain at the time of initial presentation was 62.5 ± 23.3 in the medical treatment group and 65.8 ± 26.1 in the surgical treatment group. The difference between the two groups regarding mean pain at the time of presentation was not statistically significant. The mean pain score post treatment after one week was found to be 36.4 ±11.4 in the medical management group and 21.5 ± 8.2 in the surgical treatment group. This was found to be statistically significant (p <0.0001). The mean difference in pain after two weeks of treatment was also statistically significant (p <0.0001). The difference in mean pain score in the medical management group and surgical treatment group after return to normal activities was, again, found to be statistically significant (p value <0.0001) (Table 3). After one week of treatment, the difference in prevalence of cases with pain was found to be statistically significant (p=0.0093), while the difference in bleeding and constipation was not found to be statistically significant between the medical and surgical treatment groups. Incontinence was reported in 4% of cases who underwent surgical management. After two weeks of treatment, statistically significant difference was found in scores for pain (p=0.0078) and bleeding (p=0.0423) between the two groups but not for constipation (p= 0.5597). Incontinence was again reported in 4% of cases who underwent surgical management (Table 4).

Table 1 Characteristics of patients in both groups

Variables	Medical management	Surgical treatment
Age group		
≤ 30 years	06 (12%)	08 (16%)
31- 40 years	18(36%)	16 (32%)
41-50 years	19 (38%)	22(44%)
51-60 years	07(14%)	04 (8%)
Sex		
Male	28 (56%)	34 (68%)
Female	22 (44%)	16 (32%)
Fissure position		
Posterior	26(52%)	31(62%)
Anterior	22(44%)	18(36%)
Both	02(4%)	01 (2%)

Table 2 Complaints presented by study participants

Presenting Complaints	Medical management	Surgical treatment
Bleeding from the rectum	23 (46%)	21 (42%)
Pain	19 (38%)	22 (44%)
Constipation	05 (10%)	06 (12%)
Itching	03 (6%)	01 (2%)

Table 3: Comparison of different operative variables between the two groups

Variables	Medical management	Surgical treatment	P value
Pain at the time of initial presentation	62.5 ± 23.3	65.8 ± 26.1	0.5064
Pain scores – Post treatment			
One Week	36.4 ±11.4	21.5 ± 8.2	<0.0001*
Two Weeks	21.5 ± 9.5	7.3 ± 3.7	<0.0001*
Return to normal activities (days)	12.8 ± 3.1	10.3 ± 2.2	<0.0001*

statistically significant

Table 4: Proportion of patients with compliance in both groups

Complaints	Conservative treatment	Surgical treatment	P value
After one week of treatment			
Pain	17(34%)	06(12%)	0.0093*
Bleeding	09(18%)	03(06%)	0.0662
Constipation	08(16%)	05(10%)	0.3748
Headache	02 (04%)	00(00%)	0.1552
Incontinence	00(00%)	02(04%)	0.1552
After two weeks of treatment			
Pain	11(22%)	02(04%)	0.0078*
Bleeding	04(08%)	00(00%)	0.0423*
Constipation	02(04%)	01(02%)	0.5597
Headache	01 (02%)	00(00%)	0.3173
Incontinence	00(00%)	02(04%)	0.1552

statistically significant

DISCUSSION

In this study, mean pain score after one and two weeks of treatment was found to be statistically significantly lower in the surgically treatment group compared with the medical management group. After one week of treatment, the proportion of cases with pain was significantly lower among the surgical group compared with the medical management group. After two weeks of treatment, the proportion of cases with pain and bleeding was significantly lower among the surgical treatment group compared with the medical management group.

The results of this study are consistent with the findings of several previous studies. Aslam et al[10] conducted a study among cases with chronic anal fissures to assess the outcome of lateral anal sphincterotomy and nitroglycerin ointment in the management of the condition. All their study participants had anal pain; 71.7% of cases had pain with constipation and 51.7% had bleeding from the rectum. Those who were treated with medical management experienced a success rate of only 50%, compared with 93% in the surgical treatment group. In the surgical management group, 6.6% of cases reported faecal incontinence. Thus, these studies concluded that surgical management is superior to medical management.

Sajith et al[11] assessed the efficacy of medical management among the cases with acute anal fissure. The majority of their study participants were young adults, with more females than males. They found that 73.9% of cases had complete relief from symptoms within two weeks of medical management and 97.6% of cases had complete relief of symptoms after six weeks of medical management. Motie et al[12] reported that 77%, 83% and 98% of cases had pain relief with use of nitroglycerine, diltiazem and surgical

management, respectively. On assessing the response of treatments in the healing of fissures it was found that 74%, 83%, and 94% of cases treated with nitroglycerine, diltiazem and surgical treatment respectively had complete healing of fissures.

In another study, Sileri et al[13] reported that with the use of nitroglycerin ointment and lateral internal sphincterotomy, the healing rates were found to be 64.6% and 94% respectively. They concluded that lateral internal sphincterotomy is more effective than medical management in the treatment of cases with anal fissures. Antropoli et al[14] compared nifedipine and lidocaine in the management of anal fissure and reported that nifedipine is comparatively better than lidocaine in terms of reducing the resting anal pressure and squeeze pressure.

In a systematic review, Nelson et al[15] reported that lateral internal sphincterotomy (LIS) is superior to other medical management modalities such as of GTN and calcium channel blockers. Abdul Kader et al[16] reported that cases who were managed medically had immediate pain relief but later recurrence was high. The cases treated with medical management were also more prone to headache and perianal itching. They concluded that lateral sphincterotomy is superior to medical management and anal dilatation in the treatment of anal fissure. Acar et al[17] reported that LIS is the gold standard for the management of chronic anal fissure since it results in lower recurrence, and better and quicker pain relief. Arthur et al[18] reported that combination of fissurectomy along with chemical sphincterotomy resulted in high fissure healing rates and that fissurectomy followed by use of topical diltiazem for 8 weeks provides better results than fissurectomy with botulinum toxin A injection for the treatment of chronic anal fissure. In contrast to the above, however, Giridhar et al[19] reported that topical diltiazem can be used as first line treatment in chronic anal fissure, but LIS should be reserved for cases with relapse and therapeutic failure to prior medical treatment. There is a clear case, however, for more extensive research into the efficacy of the various treatments available.

CONCLUSION

From the findings of the present study, we conclude that surgical management is the better treatment option for anal fissure, with better and quicker pain relief and fewer adverse effects compared with the medical management options, including glycerine trinitrate, botulinum toxin A injection and calcium channel blockers.

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