

Chronic Anal Fissure: A Comparative Study of Medical Treatment Versus Surgical Sphincterotomy

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Abstract- To determine whether the medical Treatment of anal fissure can be an effective alternative for surgery Methods: Retrospectively, we randomly selected 190 Patients being treated for anal fissure between the years 2005-2010 in 3 equal groups: group A: Patients who received medical treatment with topical nitroglycerin, group B: Patient treated with topical diltiazem, and group C: Patients underwent surgery. The results were then correlated with the statistical program SPSS using *chi-square* test. Main complaints of the patients were first anal pain and then bleeding. The response to treatments for relieving pain was: 77% in A, 83% in B, and 98% in group C. Response of treatments for fissure healing, in order of groups A, B and C was: 74%, 83%, and 94%. Despite good response to medical treatment, surgical treatment was more effective and medical treatment of choice in patients who are willing to have surgery.

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Introduction

Anal fissure is a longitudinal wound in the anoderm just below the dentate line, and it is often located at the posterior midline of the anus (1,2). It is one of the most common pathologies of the anorectal region and can change the quality of life as it causes the patient pain and emotional stress while defecation (1,3).

Causes are still unknown, but it may be due to increased sphincter pressure which is significantly higher [even at rest] in patients with an anal fissure, in companion with the passage of stiff fecal material (4,5).

Anal fissure is known as Acute type; mostly relieving in one week and chronic; usually lasting for more than 6 weeks, having a hypertrophic papilla of the fissure and a sentinel tubercle and exposure of sphincter muscle fibers on the floor of the wound (1-6,7).

Based on the probable pathophysiology, treatment of anal fissure usually involves reduction of sphincter pressure whether by physical or chemical means.

Medical treatment of anal fissure has been known quite effective in recent literature, and there has been so beneficial (2-5,8,9). In this article, we are going to compare the efficacy of diltiazem and nitroglycerin topical ointments with surgical lateral internal sphincterotomy.

Materials and Methods

Our study was performed retrospectively on [n=190] patients out of 220 people referring to Imam Reza hospital Surgery clinic for chronic anal fissure between the years 2005-2010. Definitions for being included in the study were: suffering from anal fissure for more than 6 weeks, exposure of sphincter muscle fibers, having sentinel tubercle and having hypertrophied anal papilla of anal fissure to confirm chronicity. People with simultaneous anal abscesses, inflammatory bowel diseases (IBD), heart failure, breast feeder's women and people without cooperation were excluded from the study.

Patients were randomly divided into 3 nearly equal groups: group A) being treated with topical nitroglycerin ointment, group B) patients using topical diltiazem ointment and group C) patient undergone lateral internal sphincterotomy by a general Surgeon.

Medical treatment period was 8 weeks of using sitz bath for 15 minutes followed by using topical agents (0.2% nitroglycerin or 2% diltiazem every 12 hours).

Patients were followed at first, second, fourth and ultimately at eight weeks after intervention. Response to treatments was defined as both pain relief and fissure healing (complete epithelialization of wound with no erythema or inflammation).

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Patients were also followed for probable complications and side effects of either medical or surgical treatment at 3, 6 and 12 months after.

Acquired data were analyzed chi-square test and fisher exact test using SPSS version 18. P .values \leq 0.05 were credited.

Results

In a period of 5 years (2005-2010) 190 patients were followed in three different groups (Table 1).

Table 1. Demographic data

	NGT	Diltiazem	Surgery
Male	35	37	34
Female	28	28	28
Total	63	65	62

Table 1. Age

Treatment	N	Mean	Minimum	Maximum	Std. deviation	P
DIT	65	38.21	16	67	11.717	0.982
NGT	63	37.84	20	60	10.862	
LIS	62	37.95	24	68	10.361	
Total	190	38.01	16	68	10.948	

According to the results of comparison between pain and healing in two groups (A and C or B and C), the P that calculates with Chi2 test and Fisher exact test was less than 0.001. The effect size of the test was 0.282 or 0.239, so the power of sample size respectively was 90% and 97%.

Most complaints of patients were first pain and then anal bleeding. The average period of complaints was at least 9 months [in 80 %].

Fissures were situated 85% posteriorly and 15% anteriorly.

After starting the therapies for each group, patients were followed at first, second, fourth and eighth weeks for assessing response and problems.

Response to therapy in terms of pain reduction in group A and B were not observed, respectively, in 14 and 11 patients at the end of the eighth week. In Group A, seven people did not want to continue medical treatment and underwent surgery. Seven patients who received medical treatment, after three months of follow-up, in four patients the pain disappeared. The pain continued for three people who were treated surgically.

Eleven individuals in Group B continued medical treatment. At the end of the third month of treatment, four patients underwent surgery.

One patient in group C had pain while being followed up at the end of 4th week. But the pain turned out to be because of an anal abscess and after drainage of the abscess, pain relieved.

Response to treatment (both pain relief and fissure healing) was not seen in 16 patients of group A (2 because of remaining fissure and 14 because of both pain and fissure) seven people did not want to continue medical treatment and underwent surgery. Nine patients who received medical treatment, after three months follow up, in six patients the pain disappeared. The pain continued for three people who were treated surgically. In group B, there were 11 patients without response until 3 months of follow up, of whom 7 people had pain relief finally and other 4 underwent surgery voluntarily. All people in group C had complete pain relief, but fissure healing was not completed in 4 people until the month 3 (Tables 2,3).

Table 2. Results of pain relief

Total Person	Person-1st week	Person-2nd week	Person-4th week	Person-8th week
Group A	25(40 %)	30(48%)	39(63%)	49(77%)
Group B	26(40%)	34(52%)	43(65%)	54(83%)
Group C	50(80%)	57(93%)	62(100%)	62(100%)
P.Value (A with B)	0.886	0.479	0.430	0.211
P.Value (A with C)	<0.001	<0.001	<0.001	<0.001
P.Value (B with C)	<0.001	<0.001	<0.001	0.003

Table 3. Results of fissure healing

	Person-1st week	Person-2nd week	Person-4th week	Person-8th week
Group A	0(0%)	0(0%)	2(3%)	47(74%)
Group B	0(0%)	0(0%)	15(25%)	54(83%)
Group C	0(0%)	19(30%)	43(70%)	58(94%)
P.Value (A with B)	0	.	<0.001	<0.001
P.Value (A with C)	0	<0.001	<0.001	<0.001
P.Value (B with C)	0	<0.001	<0.001	<0.001

Side effects and complications

In group A, 17 people suffered from headaches. These headaches were reported to sever in 3 of the patients.

No side effects were seen in group B.

In group C, 2 people reported gas incontinence early after surgery which had relieved until fourth week visit.

Recurrence after one year of therapy was as following: 11 patients in group A, 6 patients in group B, and group C had no case of recurrence.

Discussion

There have been many changes in the treatment of anal fissure since last decade (1). Medical treatment, as not injuring the anal sphincter, and being non-invasive, is presumed as the first option (3,5,8-10). But surgical sphincterotomy remains the gold standard for treatment of anal fissure (6,7,11). Mostly used medications are diltiazem, nitric oxide derivatives, and botulinum toxin injections

The response of pain to medications (GTN and diltiazem) in our study was similar to that of previous studies (9,12,13).

Results of our study in comparison with those of Gagliardi *et al.*, who utilized 6 weeks of medical treatment (12), were more satisfactory. Perhaps, it may be explained by completing the treatment course over the time ($P<0.05$).

Regarding pain response, there was a significant difference between the two groups of surgical and medical treatment ($P<0.05$). According to our study, although the result of medical treatment for pain response was satisfactory at the end of the eighth week (A=78%, B=83%), because of safety of this treatment and in patients who do not have consent to surgery it can be used as a primary step in patients treatment. The results of this study are similar to those of other studies (14-17). Fissure healing in medical group was seen rather later than in surgical group (74% in group A, 83% in group B at the end of the week 8). Even

optimistically, it can be said at the end of the week 8, the results of group B and those of group C was significantly different ($P<0.05$).

The response of GTN in our study was a bit different from previous studies [our results were better], and it may be because of longer therapy period (12,18,19).

Results of diltiazem group (B) are somehow similar to other studies (5,20).

In our study, surgical treatment accelerated wound healing process. This result is similar to those of other studies (14-17).

According to our study, the treatments side effects were similar to other studies (5,9,20). Topical diltiazem had no side effects. In group A the only adverse effect was a headache in 26% of patients and caused 3 patients to stop using medication. GTN side effects are almost similar (23%) to those in report of Gagliardi *et al.*, (12).

Gas and liquid incontinence were seen in 3% of group C in first week of study, but it resolved without any intervention after 4 weeks. It was similar to the results of McCallion *et al.*, study (7).

To discuss recurrence of anal fissure, in our surgically treated group, there was no case to be reported after one year of follow up. In Group treated with GTN, the recurrence rate was 17%, compared to 5.24% of Seliri *et al.*, (15).

In group B, our recurrence rate was 9%, compared to 13% in Aurajo and 0% in Jonas Study (9,13).

It seems that despite good response to medical treatment, surgical treatment is more effective. Medical treatment especially treatment with diltiazem due to lack of side effects, is of choice in patients who are not willing to undergo surgery.

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