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ORIGINAL ARTICLE

Comparative Study Between Medical and Surgical Management of Chronic Anal Fissure

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Abstract

Background: **A longitudinal rupture in the anoderm below the dentate line, called an anal fissure, is most often seen posteriorly in the midline. One of the most prevalent benign disorders of the aorta. The American Society of Colon and Rectal Surgeons advises choosing conservative therapy as the first course of action, which includes a high-fiber diet, warm sitz baths, and stool softeners. However, a substantial portion of patients do not benefit from this cautious approach. Surgical interventions are considered the second choice, however, commonly associated with the risk of a transient incontinence.**

Patients and methods: **This was Randomized Prospective research carried out in General Surgery Department in Al-Hussein University Hospital and Damanhour National Medical Institute, including 80 patients having chronic anal fissure. patients were randomly split into 2 groups, Group A: 40 patients managed by Medications for 6 weeks and Group B: 40 patients managed surgically by Tailored lateral internal sphincterotomy and fissurectomy.**

Results: **There was a substantial variation between the two studied groups as regard pain relief, timing, recurrence rate and satisfaction. Postoperative complications were only present in the surgical group and no complications in the medical group.**

Conclusion: **Based on our result, we conclude that: conservative and medical treatment are having a rule in treatment of chronic anal fissure, especially when surgical treatment can not be given. Surgical treatment has more cure rate and less recurrent rate and may be the only available effective method when conservative and medical treatment failed.**

Keywords: Chronic anal fissure, Fissurectomy, Sphincterotomy

1. Introduction

Anal fissure is a linear ulceration of the mucosal lining of the distal anal canal. An anal fissure is said to be chronic if persisted for more than 6−8 weeks.[1] The most common cause of anal fissure is constipation leading to trauma to the anal mucosa by the passage of hard stools.[2]

Anorectal cancer, Crohn's disease, immunodeficiency disorders such acquired immunodeficiency syndrome, TB, and a number of sexually transmitted infections are other uncommon causes.[3]

A posterior midline location accounts for around 90% of anal fissures, which may be related to the region's weakest anal canal blood supply and greatest strain-induced pressures. Minor rips that first develop spontaneously heal might become chronic if they don't. An anterior midline fissure accounts for 10% of anal fissures. These usually presented in women after vaginal delivery.[4] Anal fissures commonly cause painful defecation, vivid red rectal bleeding, and frequently bloody stools.[5]

The primary aim of management of chronic anal fissures is to reduce the sphincter hypertonia. This secondarily improves the blood flow via distal rectal arteries and help in ulcer healing. Various treatment modalities were proposed ranging from stool softeners to pharmacological agents and finally surgery. Pharmacological agents include drugs like nitrates, calcium channel blockers and even botulinum toxin.

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Surgery varies from manual anal dilatation to lateral anal sphincterotomy (gold standard) and other surgical techniques like fissurectomy, VY advancement flaps.[1]

In this research, the impact of surgical therapy versus medicinal treatment for chronic anal fissure was compared.

2. Patients and methods

This was a Randomized Prospective study carried out in General Surgery Department in Al-Hussein University Hospital and Damanhour National Medical Institute including 80 patients having chronic anal fissure. Patients with anal fissure associated with other disorders (i.e., inflammatory bowel diseases, HIV infection, hemorrhoids, peri-anal fistula, anal abscess, anal or peri anal cancer) were excluded.

All patients had thorough history-taking, as well as a general and local examination. There were two groups of patients. Group A were treated by Medications As Topical application of Muscle Relaxant, Stool softener, Local and Systemic Analgesia, Anti itching، for 4–6 weeks if they show satisfactory improvement during the first 7–10 days.

Group B were treated by Tailored lateral internal sphincterotomy and fissurectomy under appropriate anesthesia and/or analgesia in Lithotomy position. A lateral circumferential incision about 1 cm was made over the lower edge of the internal anal sphincter just outside the cutaneous margin of the anal canal at 3 O'clock position. The skin of the anal canal was dissected from the inner surface of the internal anal sphincter. The inter-sphincteric plane was opened by scissor or forceps. A part of the internal anal sphincter was divided equal to the length of the fissure, not exceeding up above the dentate line. This was guided by the index finger in the anal canal (tailored Lateral internal sphincterotomy). Fissurectomy was done. Hemostasis was made and the wound left opened for drainage, and anal sponge was inserted for 6 h.

Both groups were followed up weekly for 4–6 weeks, then monthly for 4 months at the outpatient clinic to assess time of healing, pain relief, adverse effects for medication and postoperative complications and recurrence.

Utilizing SPSS version 20, data input, processing, and statistical analysis were completed (Statistical Package for the Social Sciences).

3. Results

Table 1.

The demographic information and comorbidities of the two study groups did not significantly vary from one another (Table 2).

Table 1. Demographic data and Comorbidities distribution of the two study groups.

Variable	Medical ($n = 40$)	Surgical ($n = 40$)	t/χ^2	*P*
Age (years) Mean ± SD	43.38 ± 9.26	44.15 ± 9.76	0.362	0.718
Sex				
Male	24 (60%)	26 (65%)	0.213	0.644
Female	16 (40%)	14 (35%)		
BMI (kg/m^2) Mean ± SD	27.38 ± 3.79	26.49 ± 2.11	1.29	0.198
Hypertension	4 (10%)	3 (7.5%)	0.157	0.692
DM	7 (17.5%)	9 (22.5%)	0.313	0.576
Smoking	17 (42.5%)	19 (47.5%)	0.202	0.653
IHD	2 (5%)	1 (2.5%)	0.346	0.556

Table 2. Clinical characters of the two study groups.

	Medical ($n = 40$)	Surgical ($n = 40$)	χ^2	*P*
Pain	21 (52.5%)	22 (55%)	0.051	0.823
Pain during defecation				
Severe	11 (27.5%)	12 (30%)	0.337	0.953
Moderate	8 (20%)	7 (17.5%)		
Mild	2 (5%)	3 (7.5%)		
Constipation	32 (80%)	34 (85%)	0.346	0.556
Bleeding	22 (55%)	20 (50%)	0.201	0.654
Pruritus	9 (22.5%)	12 (30%)	0.581	0.446
Discharge	4 (10%)	5 (12.5%)	0.125	0.724
Complaint duration (months) Mean ± SD	8.72 ± 2.71	8.36 ± 2.21	0.651	0.517
Fissure location				
Posteriorly	34 (85%)	36 (90%)	0.457	0.499
Anteriorly	6 (15%)	4 (10%)		

There is no substantial variation between the two studied groups as regard clinical presentation, complaint duration and location of the fissure. However, most of manifestations were slightly more prevalent in the surgical group except for bleeding that was higher in the medical group. Constipation was the most prevalent presentation in both groups (Table 3).

Complete healing was substantially greater in surgical group (92.5%) compared to medical group

Table 3. Healing incidence and pain relief of the two studied groups.

	Medical ($n = 40$) *N* (%)	Surgical ($n = 40$) *N* (%)	χ^2	*P*
Healing				
Complete healing	29 (72.5)	37 (92.5)	**6.57**	**0.037**
Asymptomatic non-healing	7 (17.5)	3 (7.5)		
Symptomatic non-healing	4 (10)	0 (–)		
Pain relief				
At 1st month	19 (47.5)	31 (77.5)	**9.84**	**0.008**
At 2 nd month	16 (40)	9 (22.5)		
At 3rd month	5 (12.5)	0 (–)		

Table 4. Bleeding and recurrence rate of the two studied groups.

	Medical ($n = 40$) N (%)	Surgical ($n = 40$) N (%)	χ^2	P
Bleeding				
Mild bleeding	0 (–)	5 (12.5%)	**5.33**	**0.021**
Infection	0 (–)	4 (10%)	**4.21**	**0.040**
Hypotension	2 (5%)	0 (–)	2.05	0.152
Headache	17 (42.5%)	2 (5%)	**16**	**<0.001**
Incontinence flatus	0 (–)	5 (12.5%)	**5.33**	**0.021**
Incontinence stool	0 (–)	0 (–)	–	1
Recurrence				
Yes	8 (20)	1 (2.5)	**6.14**	**0.013**
No	32 (80)	39 (97.5)		

Table 5. Satisfaction of the two study groups.

	Medical ($n = 40$) N (%)	Surgical ($n = 40$) N (%)	χ^2	P
Satisfied	18 (45)	36 (90)	**12**	**.0005**
Unsatisfied	22 (55)	4 (10)		

(72.5%). However, asymptomatic, and symptomatic nonhealing were substantially lower in the surgical group (17.5%, 10%) compared to medical group (7.5%, 0%). Pain relief at 1st month was substantially greater in the surgical group (77.5%) compared to the medical group (47.5%) (Table 4).

Mild bleeding, infection, and incontinence of flatus were present in the surgical group only compared to no complications in the medical group. While headache was significantly more frequent in the surgical group compared to in medical group. Recurrence rate was substantially reduced incidence in surgical group (2.5%) compared to the medical group (20%) (Table 5).

There was substantial variation between the two studied groups as regard satisfaction. That 90% of the surgical group were satisfied compared to 45% in the medical group.

4. Discussion

A longitudinal rupture in the anoderm below the dentate line, called an anal fissure, is most often seen posteriorly in the midline. One of the most prevalent benign illnesses of the anorectal region, it may also reduce people's quality of life because to the excruciating pain they experience while urinating and the mental stress it produces. The etiology is still unclear. However, it is considered to be associated with the significant increase in sphincter pressure (even at rest) with the passage of hard stool.[1]

While chronic anal fissures take longer to heal (8–12 weeks), they also come with a sentinel tubercle, a hypertrophic papilla, and exposed sphincter muscle fibers at the base of the rupture. Acute anal fissures often heal within 1–2 weeks[2]

In essence, physical or pharmacological means of sphincter pressure reduction are often used to treat anal fissures. Medical and surgical treatments for persistent anal fissures have been the subject of studies. There is no consensus on the best treatment for persistent anal fissures.[3]

This was Randomized Prospective research carried out in General Surgery Department in Al-Hussein University Hospital and Damanhour National Medical Institute, including 80 patients having chronic anal fissure split into 2 groups, group An underwent medical treatment and group B underwent surgical treatment.

Between the two study groups, there were no substantial demographic variations.

In accordance with our results, study of **Acar *et al.*,**[6] as they reported that in a period of 7 years (2010–2017), 550 patients (310 male) were followed. There is no statistically substantial variation between groups as regard gender and age distribution.

The present study showed that there was no substantial variation between the two studied groups regarding comorbidities. There was no substantial variation between the two studied groups regarding clinical presentation.

Our results were supported by study of **Kuiri *et al.*,**[7] as they reported that among all the patients presented 29% of the patients had pain during defecation with constipation, 22% had hemorrhage per rectum and 49% patients had pain during defecation with no statistically substantial variation between both groups.

Also, in the study of **Kujur *et al.*,**[8] Pain ($n = 90$, 100%), the most prevalent clinical characteristic, was present in every patient. It was a scorching, excruciating pain. It began during the feces and persisted for a while thereafter. Up terms of prevalence, constipation came in as number two ($n = 86$, 96%). 48 participants (53.33%) had bleeding, but only 14 (15.56%) patients had pruritus.

Furthermore, **Motie & Hashemi,**[9] demonstrated that most complaints of patients were first pain and then anal hemorrhage. The average period of complaints was at least 9 months [in 80%].

The current study showed that there was no substantial variation between the two study groups as regard complaint duration and location of the fissure.

In the study of **Motie & Hashemi,**[9] fissures were situated 85% posteriorly and 15% anteriorly. There was no substantial variation between the two study groups as regard location of the fissure.

Kujur *et al.*,[8] revealed that In a study of 90 instances, 10 individuals (11.11%) and 79 patients (87.78%) each had an anterior and a posterior fissure. One patient (1.11%) had an anterior and posterior fissure. 51 (56.67%) patients had Sentinel Piles.

Moreover, **Rashad *et al.*,**[10] observed that the posterior midline (posterior commissure) was the most frequent site for fissure followed by the anterior midline site.

The current investigation revealed a substantial variation in pain alleviation and timeliness between the two analyzed groups.

In accordance with our results, study of **Motie & Hashemi,**[9] reported that regarding pain response, there was a substantial variation between the two groups of surgical and medical treatment ($P < 0.05$). According to their 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 like those of other investigations held by **Tauro *et al.*,**[11] **and Latif *et al.*,.**[12]

According to **Rashad *et al.*,**[10] a relief of pain was maximum (80%) after the first month from LIS group, and 20% of patients from this group were relieved at the second month. The same report was recorded in BTX group, but with maximum incidence of pain relief at the end of first month (70%).

Furthermore, **Kader *et al.*,**[13] demonstrated that patients who were treated conservatively had immediate pain relief as result of the effect of local and systemic analgesia, compared to anal dilatation and lateral sphincterotomy.

However, **Giridhar *et al.*,**[14] reported that no complications were reported in either group.

Where in **Motie & Hashemi,**[9] Patients were randomly split into 3 equal groups each group consist of 25 patients: 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, revealed that 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.

Our findings demonstrated a considerable variation in satisfaction between the two study groups. Regarding the recurrence rate, there was a substantial variation between the two study groups.

In accordance with our results, study of **Acar *et al.*,**[6] as they reported that 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.

Also, **Kader *et al.*,**[13] revealed that recurrence was observed more with conservative management and anal dilatation. After sphincterotomy, functional outcomes in terms of reduced flatus control and underwear soiling were much improved.

While in the study of **Bansal *et al.*,**[15] At the end of 6 weeks, only 18 (out of 25) patients in group A had repaired fissures. Recurrence was thus only seen in these cases. At the third month of follow-up, two of these 18 patients (11.1%) had a recurrence of the fissure at the same location. At the end of six weeks, all 25 patients in group B had healed fissures. However, 2 patients from this group (8%) had recurrence at the end of the three months. The incidence of recurrence between the two groups did not vary statistically significantly from one another, however ($P = 0.729$).

In the study of **Rashad *et al.*,**[10] overall, 90% of patients in the LIS group had shown complete satisfaction of the results but only 40% in BTX group had shown complete satisfaction. six (20%) patients of the BTX group had recurrence, nine (30%) patients had nonhealing fissure, and three (10%) patient was not satisfied by the technique itself, so 60% from BTX group were not satisfied by BTX injection treatment.

4.1. Conclusion

The findings of this research support the use of LIS as the go-to therapy for chronic anal fissures when doctors want to prevent recurrence and provide the most effective pain management. Also, there is a rule in medical treatment especially if surgery Can't be done for any reason.

Conflicts of interest

The authors declared that there were NO conflicts of Interest.

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