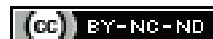


# Management of Acute Anal Fissure at a Tertiary Care Hospital in West Bengal, India- A Longitudinal Study

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## ABSTRACT

**Introduction:** Anal fissure is a tear in the lining of the anus and is a common problem throughout the world. It is one of the most common painful and benign conditions of the anal region, which leads to morbidity and decrease in quality of life.

**Aim:** To prospectively observe the outcomes of management of acute anal fissure, both surgically and conservative modalities of treatment.

**Materials and Methods:** This longitudinal study constituted 102 patients clinically presenting with features of acute anal fissure such as pain, bleeding, constipation attending Out Patient Department (OPD) in College of Medicine and JNM Hospital, West Bengal, India, from January 2020 to June 2021. Patients were grouped according to modalities of treatment given (surgical/conservative), after that regular follow-up was done at regular intervals to find out outcome of treatment, with respect to relief of pain, bleeding, healing rate, fissure relapse and incontinence. Chi-square test was used to compare the proportions and independent t-test was used to compare means. The p-value of <0.05 was considered to be statistically significant. All the analysis was done in IBM Statistical Package for the Social Sciences (SPSS) version 22.0.

**Results:** In the current study, 9 (8.8%) patients had anterior anal fissure and 93 (91.2%) patients had posterior anal fissure. Fifty one patients (50.0%) underwent medical management {(nifedipine 2% gel locally, diltiazem (2%) locally)} and 51 patients (50.0%) were treated with surgical management (lateral internal sphincterectomy). Significant difference was noted at 15<sup>th</sup>, and 30<sup>th</sup> and 45<sup>th</sup> days post-treatment when surgically managed patients were compared with medically managed patients p-value <0.05\*. Four patients in the medically managed group, had bleeding during the entire period. Association of bleeding at 15<sup>th</sup> day, 30<sup>th</sup> day, 45<sup>th</sup> day and 6<sup>th</sup> month with mode of management was statistically significant (p<0.05\*) healing was achieved for 90 patients (88.2%) at the end of 6<sup>th</sup> month follow-up. In medical management, 9 (17.6%) patients had fissure relapse. In surgical management, 3 (5.9%) patients had fissure relapse p>0.05.

**Conclusion:** In the present study, though patients in both surgical and medical groups had pain relief, those who underwent surgery had better result. Majority of the patients in the study achieved remission, at the end of sixth month follow-up, irrespective of the type of management. Relapse of the disease was slightly more in medically managed group, compared to those, who underwent surgical management.

**Keywords:** Acute pain, Anal sphincter, Faecal incontinence, Posterior anal fissure, Recurrence

## INTRODUCTION

Anal fissure is a linear ulcer of the anoderm, distal to the dentate line, generally located in the posterior midline [1]. Anal fissure is the commonest malady of anorectal disease spectrum. Incidence rate of anal fissure is very high, nearly one in every 350 adults [2]. They occur commonly and nearly equally in both males and females aged between 15-50 years. Acute anal fissure prevalence is 18% in anorectal diseases [3]. There will be spasm of internal anal sphincter after development of fissure. This spasm causes more progression of tear causing constriction of blood flow to the fissure, thus impairing healing [1,4].

Generally, patient with acute anal fissure presents with history of acute severe pain in anus along with history of constipation and bleeding per rectum. Pain with constipation is the most complaining symptom. Anal fissures are characterised by anorectal pain upon defaecation which is severe and can last several minutes to hours; it may cause people to avoid having a bowel movement leading to chronic constipation. Also, patients may complain of bleeding, and anal sphincter spasms [5,6]. Patient with acute anal fissure commonly presents with history of constipation. Passage of hard stool leads to erosion of anoderm. Constipation is not uncommon because patient avoids defaecation due to severe pain. Fissures result from passage of hard stool, childbirth, explosive diarrhoea, foreign body insertion, Crohn's disease. The goal of management is to break the cycle of anal spasm which improves blood flow to the fissure area, so that healing can occur.

It can be treated both surgically and medically by open lateral sphincterotomy and using gel 2% nifedipine locally (calcium channel blocker), diltiazem gel (2%, calcium channel blocker), along with other supportive management like sitz bath with betadine, stool softener, analgesics, antibiotics, dietary modifications [4-6]. Also, 0.2% nitroglycerin (GTN) ointment helps to break the cycle of spasm, it is applied twice daily for 6-8 weeks. Headaches and light headedness are a very common side-effect of GTN ointment. However, small proportions of acute fissures do not heal and become chronic fissures, so patients will need to undergo surgical management [5,6]. There are other surgical methods such as Lord's dilatation, open and closed lateral internal sphincterotomy, pneumatic balloon dilation of the anal canal, fissurectomy, papilla resection, sphincterotomy wound closure, anterior levatorplasty, flap coverage of the fissure, posterior midline sphincterotomy, bilateral sphincterotomy, sphincterolysis and controlled anal dilation [7]. The gold standard is lateral internal sphincterotomy [8]. But the same has higher incidence of postoperative problems such as incontinence to flatus, liquid and solid faeces [9]. Also, there are closed and open methods for the sphincterotomy [10]. Anal fissure leads to morbidity and decrease in quality of life.

Patient education and health promotion are important functions of the treatment. After the medical history is obtained, patient is given instructions to increase water intake, intake of high fibre diet, doing sitz bath, maintaining perianal hygiene [7,11].

Because the multilayered squamous epithelium of the anoderm is richly innervated with pain fibres and is affected, anal fissure is very painful. During defaecation, the lesion is stretched with consequent painful symptomatology, which can persist for a certain amount of time and be accompanied by slight bleeding [6]. Such is the intensity of pain in some patients, that it can induce the patient to avoid defaecation with subsequent hardening of the stools and further exacerbation of the problem [1, 11].

If anal fissures have been present for less than six weeks, superficial, having well-demarcated edges, then they are considered to be acute. They are termed chronic, if present for more than six weeks having keratinous edges maybe have a sentinel node and hypertrophied anal papillae and if the fibres of the internal anal sphincter are visible [12,13]. Primary anal fissures have no underlying disease but secondary anal fissures have other diseases, such as human immunodeficiency virus, tuberculosis, chronic inflammatory intestinal diseases and few neoplasms. Primary anal fissures are most frequent in young adults of both sexes [14].

In 80-90% of the cases, anal fissures are located in the posterior midline, and more rarely in the anterior region [13]. Associated pathologies should be deduced, if fissures in other regions than the posterior region are found [1, 15]. Anterior lesions are more frequent found affecting women than men [16].

Anal fissures are fairly uncommon in patients more than 65 years of age, therefore, patients in this age-group must be evaluated for any association with other pathologies [11]. The lifetime incidence is calculated to be 11% [17]. Similar studies have been conducted in the past [8, 11, 18], but the medical treatment regimen or drugs used have been different, and authors observed in the review of literature that, there was a lack of a medical course standardisation.

Therefore, the aim of study was to observe the outcomes of surgical and medical management of acute anal fissures, with respect to relief of pain, healing rate, fissure relapse and incontinence.

## MATERIALS AND METHODS

This longitudinal study constituted 102 patients and was conducted at College of Medicine and JNM Hospital, Kalyani, West Bengal, India, from January 2020 to June 2021, for a duration of 18 months. The study was approved by Institutional Ethics Committee vide letter number Ref. No. F-24/PR/COMJNMH/IEC/19/34. All patients presenting with clinical features leading to clinical diagnosis of anal fissure presenting to Outpatient Department (OPD) of general surgery were included in the study. All patients with both anterior and posterior fissures were included.

**Inclusion criteria:** The inclusion criteria for the study were patients aged between 18 years and 65 years with absence of any co-morbidities such as cardiac anomalies (congestive cardiac failure, coronary artery disease), renal disease (chronic renal failure, nephrotic syndrome), liver diseases (liver cirrhosis, hepatitis).

**Exclusion criteria:** Those already under treatment for anal fissure and those with complicated anal fissure with cicatrices deformation haemorrhoids, suspected malignancy were excluded.

**Sample size calculation:** Calculation of sample size was calculated as follows:

$$n \geq \frac{Z_{(1-\alpha/2)}^2 P(1-P)}{d^2}$$

where,

n: sample size

P: Prevalence of disease=18%=0.18 [3]

d: Estimated error=8%=0.08

$\alpha$ : Significance level

$Z_{(1-\alpha/2)}$ : 1.96

By calculating, sample size of population came to 89, hence, 102 cases were taken as sample size.

## Study Procedure

Patients attending the general surgery OPD with features of acute anal fissure such as pain, bleeding, constipation satisfying the inclusion criteria were taken as sample population and grouped according to modalities of treatment given (surgeon's choice based on the disease condition and patient's compliance for it).

The two modalities of treatment used were (surgical management-lateral internal sphincterotomy and medical management-nifedipine (2%) locally/diltiazem (2%) locally along with sitz bath with betadine lotion, antispasmodic drugs, stool softener) [13].

Data on presence of pain, per rectal bleeding, constipation were recorded preoperatively.

After that, regular follow-up of patients was done on 15<sup>th</sup>, 30<sup>th</sup> day, 3<sup>rd</sup> month and 6<sup>th</sup> month, respectively with respect to:

- Relief of pain (as per Wong Baker faces pain rating scale with score ranging from 0 to 10) [19].
- Bleeding.
- Healing rate.
- Incontinence (as per Cleveland clinical faecal incontinence score) [20].
  - Mild-incontinence to flatus/mucous
  - Moderate-incontinence to liquid stool
  - Severe-incontinence to solid stool

Any fissure relapse was noted during the course of six months follow-up period. The relief of pain was charted by a single staff member to avoid observer bias. Although the aetiology of acute anterior versus posterior fissures is theorised to be different [21], there were no differences in their management in the literature. Hence, this variable was not taken into account for the calculation of results.

## STATISTICAL ANALYSIS

The data collected will be entered in Microsoft excel 2016. Qualitative data was summarised as frequency and percentage and quantitative data is summarised as mean and standard deviation. Chi-square test was used to compare the proportions and Independent t-test is used to compare means. The p-value of <0.05 is considered to be statistically significant. All the analysis was done in IBM SPSS version 22.0.

## RESULTS

In the present study, 31 (30.4%) patients were 21-30-year-old, 35 (34.3%) patients were 31-40-year-old, 24 (23.5%) patients were 41-50-year-old and 12 (11.8%) patients were 51-60-year-old. The mean age (mean±SD) of patients in study was 36.3333±10.1828, with a median of 34.0000 [Table/Fig-1]. A total of 42 (41.2%) patients were females, and 60 (58.8%) patients were males. In the study, 9 (8.8%) patients had anterior anal fissure and 93 (91.2%) patients had posterior anal fissure. All selected patients who underwent either medical {51} or surgical management {51}, all had pain [Table/Fig-2] distribution of mean pain rating scale at intervals in

Age in group (in years)	Frequency	Percentage
21-30	31	30.4
31-40	35	34.3
41-50	24	23.5
51-60	12	11.8
Total	102	100

**[Table/Fig-1]:** Distribution of age in group.

study group. Pain rating scale day 0 had a mean of 8.1765 with SD 0.6953 and by 6<sup>th</sup> month, it was 0.4510 and 1.2557, respectively.

Rating scale	Mean	SD	Minimum	Maximum	Median
Pain rating scale day 0 (Day of treatment initiation)	8.1765	0.6953	6.00	10.00	8.00
Pain rating scale 15 <sup>th</sup> day	5.3627	1.3185	4.00	8.00	6.00
Pain rating scale 30 <sup>th</sup> day	3.7647	1.2362	2.00	6.00	4.00
Pain rating scale 45 <sup>th</sup> day	1.0392	1.4820	0	6.00	0
Pain rating scale 6 <sup>th</sup> month	0.4510	1.2557	0	4.00	0

**[Table/Fig-2]:** Distribution of mean pain rating scale at day 0, 15<sup>th</sup> day, 30<sup>th</sup> day, 45<sup>th</sup> day and 6<sup>th</sup> month (For all patients n=102).

Pain rating scale day 0 had a mean±SD of 8.1961±0.7217 for medically managed patients and 8.1569±0.6745 for surgically managed patients. At 6<sup>th</sup> month, it was 0.6667±1.4787 and 0.2353±0.9505, respectively. Significant p-value was noted at 15<sup>th</sup> and 30<sup>th</sup> and 45<sup>th</sup> day post-treatment, when surgically managed patients were compared with medically managed patients [Table/Fig-3].

Rating scale	Mean	SD	Minimum	Maximum	Median	p-value	
Pain rating scale day 0	Medical (n=51)	8.1961	0.7217	6.00	10.00	8.00	0.7774
	Surgical (n=51)	8.1569	0.6745	6.00	10.00	8.00	
Pain rating scale 15 <sup>th</sup> day	Medical (n=51)	6.1569	1.1895	4.00	8.00	6.00	<0.001**
	Surgical (n=51)	4.5686	0.9001	4.00	6.00	4.00	
Pain rating scale 30 <sup>th</sup> day	Medical (n=51)	4.3529	1.1802	2.00	6.00	4.00	<0.001**
	Surgical (n=51)	3.1765	0.9941	2.00	4.00	4.00	
Pain rating scale 45 <sup>th</sup> day	Medical (n=51)	1.5686	1.5133	0	4.00	2.00	0.0002*
	Surgical (n=51)	0.5098	1.2550	0	6.00	0	
Pain rating scale 6 <sup>th</sup> month	Medical (n=51)	0.6667	1.4787	0	4.00	0.0001	0.0828
	Surgical (n=51)	0.2353	0.9505	0	4.00	0.0001	

**[Table/Fig-3]:** Distribution of mean pain rating scale at day 0, 15<sup>th</sup> day, 30<sup>th</sup> day, 45<sup>th</sup> day and 6<sup>th</sup> month with respect to the treatment modality (Medical n=51; Surgical n=51).

In the present study, only 20 (19.6%) patients presented with bleeding of which 13 (25.5%) were in medically managed group and 7 (13.7%) in surgically managed group. A total of (80.4%) patients had no bleeding. [Table/Fig-4] shows bleeding distribution during follow-up.

Rating scale	Frequency	Percentage	
Bleeding 15 <sup>th</sup> day	No	98	96.1
	Yes	4	3.9
	Total	102	100
Bleeding 30 <sup>th</sup> day	No	98	96.1
	Yes	4	3.9
	Total	102	100
Bleeding 45 <sup>th</sup> day	No	98	96.1
	Yes	4	3.9
	Total	102	100
Bleeding 6 <sup>th</sup> month	No	98	96.1
	Yes	4	3.9
	Total	102	100

**[Table/Fig-4]:** Per rectal bleeding at 15<sup>th</sup> day, 30<sup>th</sup> day, 45<sup>th</sup> day and 6<sup>th</sup> month during follow-up.

Association of bleeding at 15<sup>th</sup> day, 30<sup>th</sup> day, 45<sup>th</sup> day and 6<sup>th</sup> month with mode of management was statistically significant (p<0.05\*) [Table/Fig-5]. Four patients in the medically managed group had

bleeding during the entire period of follow-up [Table/Fig-5] and had to be surgically managed after which the patients recuperated. In this study, 47 (46.1%) patients had constipation while 55 (53.9%) were devoid of it [Table/Fig-6].

Bleeding day 0	Medical	Surgical	Total	Statistics
No	38 (46.3)	44 (53.7)	82 (100.0)	Chi-square value: 2.2390
Yes	13 (65.0)	7 (35.0)	20 (100.0)	p-value: 0.1345
Total	51 (50.0)	51 (50.0)	102 (100.0)	Odds ratio: 0.4650 (0.1683, 1.2848)
Bleeding 15 <sup>th</sup> day	Medical	Surgical	Total	Statistics
No	47 (48.0)	51 (52.0)	98 (100.0)	Chi-square value: 4.1633
Yes	4 (100.0)	0	4 (100.0)	p-value: 0.0413
Total	51 (50.0)	51 (50.0)	102 (100.0)	Odds ratio: 0.735 (1.149, 1.392)
Bleeding 30 <sup>th</sup> day	Medical	Surgical	Total	Statistics
No	47 (48.0)	51 (52.0)	98 (100.0)	Chi-square value: 4.1633
Yes	4 (100.0)	0	4 (100.0)	p-value: 0.0413
Total	51 (50.0)	51 (50.0)	102 (100.0)	Odds ratio: 0.735 (1.149, 1.392)
Bleeding 45 <sup>th</sup> day	Medical	Surgical	Total	Statistics
No	47 (48.0)	51 (52.0)	98 (100.0)	Chi-square value: 4.1633
Yes	4 (100.0)	0	4 (100.0)	p-value: 0.0413
Total	51 (50.0)	51 (50.0)	102 (100.0)	Odds ratio: 0.735 (1.149, 1.392)
Bleeding 6 <sup>th</sup> month	Medical	Surgical	Total	Statistics
No	47 (48.0)	51 (52.0)	98 (100.0)	Chi-square value: 4.1633
Yes	4 (100.0)	0	4 (100.0)	p-value: 0.0413
Total	51 (50.0)	51 (50.0)	102 (100.0)	Odds ratio: 0.735 (1.149, 1.392)

**[Table/Fig-5]:** Association between bleeding at different follow-up periods with respect to the treatment modality.

Constipation	Medical	Surgical	Total	Statistics
No	37 (67.3)	18 (32.7)	55 (100.0)	Chi-square value: 14.2445
Yes	14 (29.8)	33 (70.2)	47 (100.0)	p-value: <0.001
Total	51 (50.0)	51 (50.0)	102 (100.0)	Odds ratio: 4.8452 (2.0887-11.2398)

**[Table/Fig-6]:** Incidence of constipation in study groups at time of presentation.

In medical management, 14 (27.5%) patients had constipation. In surgical management, 33 (64.7%) patients had constipation. Healing was achieved for 90 patients (88.2%) at the end of 6<sup>th</sup> month follow-up [Table/Fig-7]. There was no statistically significant difference

Rating scale	Response	Frequency	Percentage
Healing 15 <sup>th</sup> day	No	12	11.8
	Yes	90	88.2
	Total	102	100
Healing 30 <sup>th</sup> day	No	12	11.8
	Yes	90	88.2
	Total	102	100
Healing 45 <sup>th</sup> day	No	12	11.8
	Yes	90	88.2
	Total	102	100
Healing 6 <sup>th</sup> month	No	12	11.8
	Yes	90	88.2
	Total	102	100

**[Table/Fig-7]:** Distribution of healing at 15<sup>th</sup> day, 30<sup>th</sup> day, 45<sup>th</sup> day and 6<sup>th</sup> month.

with respect to healing at 6<sup>th</sup> month between medically and surgically managed patients [Table/Fig-8]. [Table/Fig-9] shows distribution of incontinence in study group. Incontinence persisted in all the four patients who had undergone surgical treatment for acute anal fissure at the end of 6<sup>th</sup> month follow-up [Table/Fig-9].

Healing 15 <sup>th</sup> day	Medical	Surgical	Total	Statistics
No	9 (75.0)	3 (25.0)	12 (100.0)	Chi-square value: 3.4000
Yes	42 (46.7)	48 (53.3)	90 (100.0)	p-value: 0.0651
Total	51 (50.0)	51 (50.0)	102 (100.0)	Odds ratio: 3.4286 (0.8706, 13.5024)
Healing 30 <sup>th</sup> day	Medical	Surgical	Total	Statistics
No	9 (75.0)	3 (25.0)	12 (100.0)	Chi-square value: 3.4000
Yes	42 (46.7)	48 (53.3)	90 (100.0)	p-value: 0.0651
Total	51 (50.0)	51 (50.0)	102 (100.0)	Odds ratio: 3.4286 (0.8706-13.5024)
Healing 45 <sup>th</sup> day	Medical	Surgical	Total	Statistics
No	9 (75.0)	3 (25.0)	12 (100.0)	Chi-square value: 3.4000
Yes	42 (46.7)	48 (53.3)	90 (100.0)	p-value: 0.0651
Total	51 (50.0)	51 (50.0)	102 (100.0)	Odds ratio: 3.4286 (0.8706-13.5024)
Healing 6 <sup>th</sup> month	Medical	Surgical	Total	Statistics
No	9 (75.0)	3 (25.0)	12 (100.0)	Chi-square value: 3.4000
Yes	42 (46.7)	48 (53.3)	90 (100.0)	p-value: 0.0651
Total	51 (50.0)	51 (50.0)	102 (100.0)	Odds ratio: 3.4286 (0.8706-13.5024)

**[Table/Fig-8]:** Association between healing at different follow-up periods and mode of treatment.

Rating scale	Response	Frequency	Percentage
Incontinence 15 <sup>th</sup> day	Mild	4	3.9
	No incontinence	98	96.1
	Total	102	100
Incontinence 30 <sup>th</sup> day	Mild	4	3.9
	No incontinence	98	96.1
	Total	102	100
Incontinence 45 <sup>th</sup> day	Mild	4	3.9
	No incontinence	98	96.1
	Total	102	100
Incontinence 6 <sup>th</sup> month	Mild	4	3.9
	No incontinence	98	96.1
	Total	102	100

**[Table/Fig-9]:** Distribution of incontinence at 15<sup>th</sup> day, 30<sup>th</sup> day, 45<sup>th</sup> day and 6<sup>th</sup> month.

There was no statistically significant difference with respect to incontinence between medically and surgically managed patients during all follow-up periods ( $p < 0.05^*$ ) [Table/Fig-10]. Risk of fissure relapse was same between both groups. In this study, 12 (11.8%) patients had fissure relapse [Table/Fig-11]. In medical management, 9 (17.6%) patients had fissure relapse. In surgical management, 3 (5.9%) patients had fissure relapse.

Incontinence 15 <sup>th</sup> day	Medical	Surgical	Total	Statistics
Mild	0	4 (100.0)	4 (100.0)	Chi-square value: 4.1633
No incontinence	51 (52.0)	47 (48.0)	98 (100.0)	p-value: 0.0413*
Total	51 (50.0)	51 (50.0)	102 (100.0)	Odds ratio: 1.382 (1.149-1.621)
Incontinence 30 <sup>th</sup> day	Medical	Surgical	Total	Statistics
Mild	0	4 (100.0)	4 (100.0)	Chi-square value: 4.1633
No incontinence	51 (52.0)	47 (48.0)	98 (100.0)	p-value: 0.0413*
Total	51 (50.0)	51 (50.0)	102 (100.0)	Odds ratio: 1.382 (1.149-1.621)

Incontinence 45 <sup>th</sup> day	Medical	Surgical	Total	Statistics
Mild	0	4 (100.0)	4 (100.0)	Chi-square value: 4.1633;
No incontinence	51 (52.0)	47 (48.0)	98 (100.0)	p-value: 0.0413*
Total	51 (50.0)	51 (50.0)	102 (100.0)	Odds ratio: 1.382 (1.149-1.621)
Incontinence 6 <sup>th</sup> month	Medical	Surgical	Total	Statistics
Mild	0	4 (100.0)	4 (100.0)	Chi-square value: 4.1633
No incontinence	51 (52.0)	47 (48.0)	98 (100.0)	p-value: 0.0413*
Total	51 (50.0)	51 (50.0)	102 (100.0)	Odds ratio: 1.382 (1.149-1.621)

**[Table/Fig-10]:** Association between incontinence at different follow-up periods and mode of treatment.

Fissure relapse	Medical	Surgical	Total	Statistics
No	42 (46.7)	48 (53.3)	90 (100)	Chi-square value: 3.4000
Yes	9 (75.0)	3 (25.0)	12 (100.0)	p-value: 0.0651
Total	51 (50.0)	51 (50.0)	102 (100.0)	Odds ratio: 0.2917 (0.0741-1.1486)

**[Table/Fig-11]:** Fissure relapse during the course of follow-up (until 6 months).

## DISCUSSION

Acute anal fissure is one of the most common cases in anorectal disease spectrum. In the present study, it has been found that maximum number of patients in acute anal fissure were in their 4<sup>th</sup> decade (34.3%) and mean age (mean±SD) was 36.3333±10.1828 years, which is very similar to study of Acar T et al., which was 36.1±8.96 years (ranging from 17-73 years) [8].

In the present study, maximum patients were male (58.8%) similar to study conducted by Chaudhary R and Dausage CS, which had a total of 438 (69.63%) male patients and 191 (30.37%) female patients [3]. A 91% of patients suffered from posterior anal fissure which is similar to study conducted by Rinait A et al., which had 83.64% (41 patients) with posterior anal fissure [22].

In the present study, out of 102 patients, 51 patients underwent medical and other 51 patients underwent surgical management. Initially, all patients presented with pain in anorectal region. Observations made on the data obtained from days 15, 30, 45 as well as 6<sup>th</sup> month after the respective management showed that, the relief from pain was significantly more in surgical management at each follow-up interval ( $p\text{-value} < 0.05^*$ ). Similarly, in a study by Motie MR and Hashemi P, it was found that relief from pain was more in surgical management ( $p\text{-value} < 0.001^{**}$ ) [11]. In another study, Acar T et al., observed relief of pain by surgical management in 87% patients by four weeks and 91% in 8 weeks [8].

In the present study, it was seen that, out of 102 patients, in 90 patients anal fissure healed at 15<sup>th</sup> day. A total of 12 patients did not achieve healing even after six months, in which nine patients were from medical management group and three patients were from surgical management group, proving that healing with surgical management was better, although there was no statistical difference between the two modalities, with respect to healing ( $p\text{-value} = 0.06$ ). In a study by Motie MR and Hashemi P healing in surgical group was (94%), as compared to medical group (83%) [11].

From the present study, it has been found that in the patients managed with lateral internal sphincterectomy, no bleeding was found after 45 days, whereas bleeding persisted in 4 (7.85%) patients of medical management even after 60 days ( $p\text{-value} = 0.04^*$ ). Similarly, in a study by Kumar MBS et al., at the second week, resolution of bleeding was observed in 100% of the patients in the surgical group, while it persisted in 8% of the patients managed medically [23].

In the current study, majority of the patients achieved remission. Out of 102 patients, 12 patients had relapse, out of which nine were in medical group and three were in surgical group (p-value=0.06). The study by Motie MR and Hashemi P reported recurrence in 17.5% cases of NTG (nitroglycerin) group, 9.2% in the diltiazem group and no recurrence in the sphincterotomy group after one year [11]. In the present study, incontinence was only for flatus which was seen in 4 (7.8%) of the patients of the surgical management group and faecal soiling was not reported by any patients (p-value=0.04\*). In a study by Pawar S et al., 10% patients reported faecal soiling and 2.5% patients reported flatus incontinence in the surgical group, which resolved by eight weeks [24].

From the present study, it is evident that surgical treatment of anorectal fissure was more effective than medical treatment despite good response to the latter. Patient compliance with proper treatment plays a major role in anal fissure treatment. However, long-term follow-up of patients is required to assess relapse of anal fissure in long-term.

### Limitation(s)

The limitations of the study were small sample size, unicentric study, so findings could not be generalised and the ongoing Coronavirus Disease 2019 (COVID-19) pandemic and lockdown, further hampering the study.

### CONCLUSION(S)

From the current study, it can be concluded that, in most cases of acute anal fissure, the location of anal fissure was found to be posterior in location. Patients found relief from pain by both surgical (lateral internal sphincterectomy) and medical management (nifedipine 2% gel locally, diltiazem (2%) locally) both but more with surgical management. Majority of the patients achieved remission at 6<sup>th</sup> month irrespective of the type of management but relapse was seen slightly more with medical management, compared to surgical management. Large scale multicentric studies with larger sample size are recommended, to further validate the findings of the present study.

### REFERENCES

- [1] Reddy S, Sreeramulu PN, Abraham A, Praveen GP, Reddy M, Deepthi R. Surgical management of anal fissure versus Glyceril-Trinitrate ointment: A comparative prospective study. *International Surgery Journal*. 2018;5(6):2205-10.
- [2] Ayatunde AA, Debrah SA. Current concepts in anal fissures. *World J Surgery*. 2006;30:2246-60.
- [3] Chaudhary R, Dausage CS. Prevalence of anal fissure in patients with anorectal disorders: A single-centre experience. *J Clin Diagn Res*. 2019;13(2):23-31.
- [4] Utzig MJ, Kroesen AJ, Buhr HJ. Concepts in pathogenesis and treatment of chronic anal fissure-A review of the literature. *The American Journal of Gastroenterology*. 2003;98(5):968-74.
- [5] Aslam MI, Pervaiz A, Figueiredo R. Internal sphincterotomy versus topical nitroglycerin ointment for chronic anal fissure. *Asian Journal of Surgery*. 2014;37(1):15-19.
- [6] Giridhar CM, Babu P, Rao KS. A comparative study of lateral sphincterotomy and 2% diltiazem (2%) gel local application in the treatment of chronic fissure in ano. *J Clin Diagn Res*. 2014;8(10):NC01-NC08.
- [7] Vimal V, Senthilvel S. Comparative study of lateral sphincterotomy and local application of 2% diltiazem gel in treatment of chronic anal fissure. *International Journal of Scientific Study*. 2017;5(2):185-89.
- [8] Acar T, Acar N, Güngör F, Kamer E, Güngör H, Candan MS, et al. Treatment of chronic anal fissure: Is open lateral internal sphincterotomy (LIS) a safe and adequate option? *Asian Journal of Surgery*. 2019;42(5):628-33.
- [9] Bara BK, Mohanty SK, Behera SN, Sahoo AK, Swain SK. Fissurectomy versus lateral internal sphincterotomy in the treatment of chronic anal fissure: A randomized control trial. *Cureus*. 2021;13(9):e18363.
- [10] Gupta V, Rodrigues G, Prabhu R, Ravi C. Open versus closed lateral internal anal sphincterotomy in the management of chronic anal fissures: A prospective randomized study. *Asian Journal of Surgery*. 2014;37(4):178-83.
- [11] Motie MR, Hashemi P. Chronic anal fissure: A comparative study of medical treatment versus surgical sphincterotomy. *Acta Medica Iranica*. 2016;3(5):437-40.
- [12] Sileri P, Mele A, Stolfi VM, Grande M, Sica G, Gentileschi P, et al. Medical and surgical treatment of chronic anal fissure: A prospective study. *Journal of Gastrointestinal Surgery*. 2007;11(11):1541-48.
- [13] Higuero T. Update on the management of anal fissure. *Journal of Visceral Surgery*. 2015;152(2):S37-43.
- [14] Sajith Babu SM, Gupta R, Singh L. Effectiveness of conservative management of acute fissure in ano: A prospective clinical study of 165 patients. *International Surgery Journal*. 2017;4(9):3028-33.
- [15] McCallion K, Gardiner KR. Progress in the understanding and treatment of chronic anal fissure. *Postgraduate Medical Journal*. 2001;77(914):753-58.
- [16] Emile SH, Elgendy H, Elfeki H, Magdy A, Abdelmawla AA, Abdelnaby M, et al. Does the duration of symptoms of anal fissure impact its response to conservative treatment? A prospective cohort study. *International Journal of Surgery*. 2017;44:64-70.
- [17] Altomare DF, Binda GA, Canuti S, Landolfi V, Trompetto M, Villani RD. The management of patients with primary chronic anal fissure: A position paper. *Techniques in Coloproctology*. 2011;15(2):135.
- [18] Farooq U, Farooq S, Zahir S. Comparison of surgical and chemical sphincterotomy in the management of acute anal fissures. *Pak J Med & Health Sciences*. 2016;6(1):24-32.
- [19] Drendel AL, Kelly BT, Ali S. Pain assessment for children: Overcoming challenges and optimizing care. *Paediatric Emergency Care*. 2011;27(8):773-81.
- [20] Rao SS. Pathophysiology of adult faecal incontinence. *Gastroenterology*. 2004;126(1 Suppl 1):S14-S22.
- [21] Schouten WR, Briel JW, Auwerda JJ, De Graaf EJ. Ischaemic nature of anal fissure. *Br J Surg*. 1996;83(1):63-65.
- [22] Rinait A, Lamture YR, Pulvarty P, Gode D. Acute fissure in Ano: Comparative study between medical and lateral internal sphincterotomy. *Journal of Critical Reviews*. 2020;7(8):1123-29.
- [23] Kumar MBS, Geetha KA, Sachin K. Comparative study between medical and surgical management for anal fissure in a rural tertiary care hospital in Karnataka, India. *Global Journal of Medicine & Public Health*. 2021;10(1):67-72.
- [24] Pawar S, Bhamre SD, Malpathak V, Sorate Y. A prospective study to observe the results and complications of lateral internal sphincterotomy in anal fissure. *MVP Journal of Medical Sciences*. 2015;2(2):81-84.

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