

# CHRONIC ANAL FISSURE AN OBSERVATIONAL STUDY

Ankush Gangaram Aasole\*, Sunil Navasaji Bomble\*\*, Pravinkumar Chandramani Govande\*, Ravikumar Nathrao Phad\*,<sup>1</sup> and Kartik Chandrkant Gupta\*

\*Assistant Professor, Department of General Surgery, SRTR GMC, Ambajogai, Beed, Maharashtra, India, \*\*Assistant Professor, Department of General Surgery, SC GMC, Nanded, India.

**ABSTRACT Introduction:** Anal fissure may be a common problem that causes substantial morbidity in otherwise healthy subjects. An anal fissure will probably be non-healing if the fissure persists beyond four weeks and is called chronic. Anal fissure management has rapidly progressed with vast treatment options available, but surgical management remains the mainstay. To study aetiology & management of chronic anal fissure. **Materials & Methods:** A prospective observational study was done on 107 patients coming to OPD in a rural tertiary hospital from February 2020 to February 2021 with age 18 years and above, patient/legally acceptable representative willing to give written informed consent, admitted with a diagnosis of chronic anal fissure. Pregnant and lactating women & anal fissures with systemic diseases were excluded. Patients were treated with either a medical or surgical approach, and the response was noted. Data were collected from case records, and analyses were done with the help of Microsoft Excel. **Results:** Mean age of patients was  $43.1 \pm 7.4$  with a male to female ratio of 1.2:1. Nearly 80% of patients complained of chronic constipation and a history of the passage of hard stools. Posterior wall location of the fissure is seen in more than 80% of patients. Forty-nine patients received 0.2% GTN treatment 48.9% showed a favourable response. Eighty-three patients received 2% Diltiazem treatment (including patients who failed and stopped 0.2% GTN treatment) 69.8% of patients showed positive outcomes. Surgical treatment showed nearly 100% cure rates. The maximum patient showed favourable outcomes at 8-10 weeks. **Conclusion:** Many patients who present with chronic anal fissure complains of chronic constipation with a history of the passage of hard stools. The posterior anal canal wall is the most common site. Medical management is the common initial option preferred by patients but with poor healing rates compared to lateral anal sphincterotomy, associated with minimal complication and maximum efficacy.

**KEYWORDS** Chronic fissure; constipation; diltiazem; glyceryl trinitrate; lateral anal sphincterotomy

## Introduction

An anal fissure is a common problem that causes substantial morbidity in otherwise healthy subjects. The anal fissure was first described by Recaimer [1] in 1829. An anal fissure is a

linear tear in the distal anal mucosa below the dentate line. An anal fissure is likely to be non-healing if the fissure persists beyond four weeks and is called chronic. A chronic fissure can be identified by indurated edges, visible internal sphincter fibres at the base of the fissure, a sentinel polyp at the distal end of the fissure or a fibroepithelial polyp at the apex. A chronic fissure classically occurs at the posterior midline position.[2]

Constipation and passage of hard stools is often the cause of chronic anal fissure, although vaginal delivery, anal sex also can cause chronic anal fissure.[3] Anal fissure affects both sexes equally. Most fissures occur in the posterior midline, although anterior midline fissures are seen mostly in women. Some patients have both anterior and posterior fissures.[4] Anal traumas by the passage of hard stool, associated with persistence high

Copyright © 2021 by the Bulgarian Association of Young Surgeons  
DOI: 10.5455/IJMRCR.chronic-anal-fissure-760

First Received: July 22, 2021

Accepted: August 15, 2021

Associate Editor: Ivan Inkov (BG);

<sup>1</sup>Corresponding author: Dr Ravikumar Nathrao Phad; Address: Department of General Surgery, SRTR GMC, Ambajogai, Beed, Maharashtra, India; Email: ravi88gmcite@gmail.com

basal internal anal sphincter tone, and presence of anal wall ischemia are causating factors.[5] First-line therapy to minimize anal trauma includes bulk agents, stool softeners and warm sitz bath.[6] Topical ointments like 0.2% Glyceryl trinitrate, 2% Diltiazem ointment, injection botulinum toxin are medical treatment options.[2] Patients not responding to medical therapy can be treated with surgical therapy like lateral internal sphincterotomy, anal dilatation, flap anoplasty, sphincterolysis.[2]

Anal fissure management has rapidly progressed in the last 15 years. All treatment methods aim to reduce the anal sphincter spasm associated with chronic anal fissure. The present study was carried out to study the aetiology & management of chronic anal fissures with favourable outcomes & treatment complications.

## Material & Methods

A prospective observational study was done on 107 patients reported to OPD in a rural tertiary hospital from February 2020 to February 2021 over 12 months which was approved by Institutional Ethics Committee. Written informed consent was taken from each participant. Our study sample included all eligible patients with age 18 years and above, patient/legally acceptable representative willing to give written informed consent, admitted with a diagnosis of chronic anal fissure defined as anal fissure persisting beyond 4 weeks' duration and/or anal fissures with associated features of chronicity like sentinel pile, hypertrophied papillae. Pregnant and lactating women, anal fissures with inflammatory bowel disease, patients with immunocompromised state, diabetes mellitus, history of previous surgery for anal fissures were selectively excluded from this study.

Diagnosis and aetiology were confirmed by history and clinical examination. History of pain and difficulty with passage of hard stools, intermittent per anal bleed, occasional perianal itching or tenesmus. The clinical examination consists of per rectal examination with raised internal anal sphincter tone with visible anal fissure and sentinel pile and gentle proctoscopy after applying local anaesthetic agent or under regional anaesthesia with visible hypertrophied anal papillae. Chronic fissures suspected of being associated with systemic diseases were ruled out by respective significant investigations like abdominal ultrasonography, colonoscopy, stool examination, urine examination, abdominal CT scan with differential and complete blood counts, sputum AFB. Once the diagnosis was confirmed, each patient was entered prospectively & data was collected by face to face interview with the help of a questionnaire from patients and relatives.

Medical treatment along with conservative measures was given. It includes laxatives, sitz bath, 0.2% Glyceryl trinitrate ointment topically and/or 2% Diltiazem ointment topically. Patients were given medical treatment and evaluated. Patients showing favourable outcomes or fissure healing were given treatment until total subsidence of pain, symptoms, and total healing. Non-responders were given medical treatment for maximum 6 weeks. Those patients who showed side effects or poor outcome to one form of treatment is switched over to another before going for surgery.

Clinical response to medical treatment was classified by the following criteria :

- a. Complete response or favourable outcome - a total absence of pain and difficulty while defecation, without any per anal bleed, clinically visible healing fissure like granulation or healing base of the fissure.

- b. Partial response - reduction in symptoms subjectively to the extent that patient feels relief and clinically seen healing fissure with a reduction in hypertrophied anal papillae.

- c. Non-responders and progressive disease.

All patients with non-responding and progressive disease were considered for surgery with lateral internal sphincterotomy with sentinel skin tag excision. Patients were observed throughout the hospital stay and watched for any bleeding, local infection, flatus or faecal incontinence, perianal abscess, fistula or progressive fissure. Follow up at 4, 6, 8, 12, 16 & 20 weeks were done. The data from the study subjects were analyzed using SPSS version 21 software (by IBM, based in Chicago, Illinois). Descriptive data described as frequencies, percentages, mean and standard deviation, the association between study variables was done using paired t-test. The level of significance was set at a p-value < 0.05.

## Results

In our study, the mean age of patients was  $43.1 \pm 7.4$ , with significant male preponderance. The male to female ratio is 1.2:1. Maximum patients were in the age group of 31-50 years. Pain during the evacuation of stools was the most common complaint in all our patients—nearly 90% of patients presented with sentinel tag and hypertrophied anal papillae. History of constipation and passage of hard stools accounted for most common etiologies for fissure in our observation. 11 females in the post-partum period presented with chronic anal fissure suggesting trauma during vaginal delivery being more common cause in females. Posterior wall location of the fissure is seen in more than 80% of patients, while 17.7% of patients presented with anterior wall location, which was mostly seen in females. (Table 1)

Diet modification, laxatives and sitz bath were given to all 107 patients with an anal fissure, while 49 patients were treated with 0.2% GTN ointment. In comparison, 83 patients were treated with 2% Diltiazem ointment in which patients who showed a failure to 0.2% GTN, i.e. 25 patients, were also included. Headache was seen in 14 patients with medical treatment. Seven patients showed side effects of pruritus ani with 2% Diltiazem treatment. (Table 2)

There were 25 patients who were operated on for anal fissure. The procedure is done under spinal anaesthesia with local lignocaine plus adrenaline injection. A lignocaine jelly soaked pack was kept for four hours, with hypertrophied anal papillae and sentinel tag excised in all patients. The primary wound was closed in all 25 patients. All 25 patients operated on for anal fissure showed complete healing within 6 – 12 weeks. Out of 25 patients, 11 patients showed complete healing at eight weeks, while three patients took 12 weeks' interval. (Table 3)

Bleeding was seen in one patient, local infection in two patients and incontinence for flatus in three for 3-4 weeks. None of our patients showed recurrence or fistula formation. (Table 4)

Out of 49 patients who received 0.2% GTN treatment, 24 (48.9%) showed a favourable response, and the remaining did not respond to 0.2% GTN treatment. Eighty-three patients received 2% Diltiazem treatment (including patients who failed and stopped 0.2% GTN treatment), 58 (69.8%) patients showed a positive outcome. Surgical treatment showed nearly 100% cure rates. When surgical treatment was compared with medical treatment, it showed a nearly 100% cure rate, which was statistically significant. (Table 5)

**Table 1** Demographical and clinical observations

Variables	No. of patients	Percentage (%)
<b>Gender</b>		
Male	59	55.14
Female	48	44.85
<b>Mean age</b>	35.25 ± 7.4	
<b>Complaints</b>		
Pain at evacuation	107	100
Bleeding per anum	68	63.5
Perianal itching	39	36.4
Tenesmus	46	42.9
Skin tag	95	88.7
Hypertrophied anal papilla	96	89.7
<b>Etiology</b>		
Constipation	91	85
Diarrhea	7	0.65
Hard stools	88	82.2
Anorectal surgery	4	0.37
Associated disease	13	12.1
Post-partum	11	10.2
<b>Location of anal fissure</b>		
Posterior wall	87	81.3
Anterior wall	19	17.7
Lateral wall	01	0.09

**Table 2** Number of patients with medical treatment

Variable	0.2% Glyceryl trinitrate	2% Diltiazem ointment
No. of patients	49	83
<b>Side effects</b>		
Headache	09	05
Pruritus ani	-	7

**Table 3** Number of patients with complete wound healing after surgery ( $n = 25$ )

Duration for complete healing	No. of patients
6 weeks	2
8 weeks	11
10 weeks	9
12 weeks	3
<b>Total</b>	<b>25</b>

**Table 4** Postoperative complications ( $n = 25$ )

Complication	No. of patients
Bleeding	1 (for one week)
Local infection	2 (for 3-4 weeks)
Fistula	0
Incontinence (flatus)	3 (for 3-4 weeks)
Recurrence	0

**Table 5** Number of patients with positive outcome after various treatments

Treatment	Favorable outcome		Total	Percent	P value*
	Yes	No			
0.2% GTN	24	25	49	48.9%	0.03
2% Diltiazem	58	25	83	69.8%	
Surgical	25	0	25	100%	0.0001

\*Statistical analysis was done using the Chi-square test. Level of significance considered at p-value less than 0.05

## Discussion

In the present study, the mean age of patients is 35.25 years with 59 (55.14%) males and 48 (44.85%) females with a male to female ratio of 1.2:1. A similar study done by Tauro LF [7] found a maximum number of patients between 20-40 years with a mean age of 34.14 years, with a predominance of males & a ratio being 1:0.52, which is comparable to our results. The reason for male predominance in the present study may be due to reluctance on the part of females regarding this disease.

Defecation caused excessive pain in patients with anal fissure due to exposed underlying mucosa and raised internal anal sphincter tone. This pain again causes reluctance in passing stools leading to chronic constipation and hard stools leading to pain during defecation. This vicious cycle continues. Adding to this is taking low fibre. During our analysis, we found that a maximum number of patients suffered from hard stools (n=88, 82.2%) associated with constipation (n=82, 76.6%). Azeem Hashmat et al.[8] in a study, found chronic constipation to be present in 96.4% of patients with pain on defecation in 100% patients. Another study carried out by Nzimbala et al.[3] observed 51 (64%) cases having chronic constipation. The above observations are consistent with the present study. They strongly support a low fibre diet, hard stools and chronic constipation as etiological factors in the causation of chronic anal fissure.

In our study, all 107 patients were given diet modifications, inadequate water intake, high fibre with lifestyle modifications like smoking and alcohol abstinence and increased physical activities. Plenty of studies [9,10] suggest an alteration in the diet in a high fibre diet and enough liquids with lifestyle modification as primary management.

Laxatives have been used more commonly in treatment for chronic constipation for a long time. All 107 patients were treated with laxatives (Polyethylene glycol) for chronic constipation in the present study. Most comparative data suggest that lactulose and polyethene glycol have similar efficacy but with lower vomiting and flatulence associated with the latter. Polyethene glycol is well tolerated and given effective relief in constipated patients.[11-13]

In the present study, all 107 patients were given sitz baths. Maestre Y et al.[14] compared the effect of hot or cold water sitz bath in controlling the pain of fissure in 27 patients, found pain relief by the use of both hot and cold water sitz baths.

GTN acts by causing relaxation of the internal anal sphincter by releasing nitric oxide in normal and constipated patients in anal fissure. The concentration used is 0.2%. In the present study, 49 patients were treated with 0.2% GTN ointment. Out of 49 patients, 24 (48.9%) showed favourable outcomes with fissure healing. Rest 25 (51%) patients did not show any favourable healing, so they switched to 2% Diltiazem. Poh et al.[2] stated that healing rates for 0.2% GTN ointment range from 40.4% to 68%. The majority of patients healed within two months of treatment.

The above findings are similar to our observations. Headache being the most common side effect, it regresses gradually or with NSAID's.

Calcium channel blocker in the form of Diltiazem ointment is effective in managing chronic anal fissure by reducing the internal anal sphincter tone by relaxation. The concentration used for topical use is 2%. In the present study, a total of 83 patients were treated with 2% Diltiazem ointment, including 25 patients who failed or did not show any response to 0.2% GTN ointment. Of 83 patients, 58 (69.8%) patients showed favourable outcomes, with 34% achieving healing within 10 weeks, while 25 (30.1%) did not show any healing. Knight et al.[15] conducted a study in 71 patients, found the efficacy of 2% Diltiazem ointment and found 89.4% healing rates within 16 weeks. Headache was found in only one patient, with one patient developing allergic dermatitis. Aggarwal et al.[16] conducted a study in 60 patients for comparative evaluation of topical 0.2% GTN and 2% Diltiazem ointment in patients with chronic anal fissure. Healing rates were 92.31% in 2% Diltiazem ointment and 78.57% in the 0.2% GTN ointment treating group. It was concluded that both 2% Diltiazem and 0.2% GTN ointment are equally effective in healing the chronic anal fissure. However, early pain relief and fewer side effects profile suggest Diltiazem ointment be better. We observed similar healing rates and side effects of 2% Diltiazem ointment as previously reported.

Fissures not healing with medical therapy is treated with surgical therapy. Surgical treatment aims to lower internal anal sphincter tone so that chronic anal fissures can be healed. The internal anal sphincter is cut on the lateral side to relieve the raised sphincter tone. With adrenaline, this procedure was done under spinal anaesthesia with local 2% lignocaine. In the present study, 25 patients were treated with lateral internal sphincterotomy. Sentinel tag & hypertrophied papilla was excised in all 25 patients. Out of 25 patients, maximum patients showed healing at 8 weeks' interval. Postoperative bleeding was found in one patient, antibiotics healed local infection in two patients, and flatus incontinence occurred in three (12%) patients, gradually relieved. Richard et al.[17] in a comparative study of 90 patients, found 92.1% healing rates with internal sphincterotomy at six weeks, while 27.2% healing rates with 0.2% GTN.

Garcea et al.[18] conducted a study on 65 patients, found 97% healing rates with lateral internal sphincterotomy. Similar to the present study, flatus and faecal incontinence rates were 3.3%. Gupta Pravin J. [19] after removing hypertrophied papillae, observed a significant reduction in pruritus, discharge per anus and sense of incomplete evacuation. From the studies mentioned above and comparisons, lateral internal sphincterotomy seems to be the standard gold treatment for patients with chronic anal fissure with nearly 100% healing rates with minimal postoperative complications, resolving gradually of their own.

Sphincterolysis an apparent alternative to LIS in which skin incision can be avoided leading to reduced anal incontinence.

However, it is questionable whether such uncontrolled manipulation of the internal sphincter will lead to less incontinence. Further investigation is needed as there has only been a single study so far. Simple finger anal dilatation has no role in the modern-day treatment of chronic anal fissures due to unacceptably high anal incontinence rates.[2]

Flap anoplasty procedures have achieved good healing rates (81% to 98%) [20,21] approaching those of lateral sphincterotomy, with minimal anal incontinence complications. However, flap failure rates are relatively high (5.9% to 11.8%) and coupled with the fact that not many studies have been conducted to define the role of flap anoplasty procedures clearly.

### Limitations

As our study is very short term, we cannot decide long term prognosis and disease-free interval. Therefore, we recommend a large sample size, prospective, multicentric study to verify the findings so that definitive management can be planned to avoid unnecessary hassle or trouble to the patient. Also, there is a need to make people conscious of this very common yet unrevealing condition on a large society basis.

### Conclusion

Many patients with chronic anal fissure complain of chronic constipation with a history of the passage of hard stools. The posterior anal canal wall is the most common site. Medical management is the common initial option preferred by patients but with poor healing rates compared to lateral anal sphincterotomy, associated with minimal complication and maximum efficacy.

### Funding

This work did not receive any grant from funding agencies in the public, commercial, or not-for-profit sectors

### Conflict of interest

There are no conflicts of interest to declare by any of the authors of this study.

### References

1. Kodner IJ, Fry RD, Fleshman JW, Birnbaum EH, Read TE. Colon, Rectum and Anus. In: Schwartz Seymour I, et al. Principles of Surgery.1999;7:1265-13
2. Aaron Poh, Kok-Yang Tan, Francis Seow-Choen. Innovations in chronic anal fissure treatment:A systematic review; World J Gastrointest surg 2010 July 27;2(7): 231-241.
3. Nzimbala MJ, Bruyninx L, Pans A, Martin P, Herman F. Chronic anal fissure: common aetiopathogenesis, with special attention to sexual abuse: Acta Chir. Belg. 2009 NOV-Dec; 109(6):720-6
4. Brisinda G, Maria G, Bentivoglio AR, Cassetta E, Gui D, Albanese A. A comparison of injections of botulinum toxin and topical nitroglycerin ointment for the treatment of chronic anal fissure. N Engl J Med 1999; 341: 65-69
5. Jonas M, Scholefield JH. Anal Fissure. Gastroenterol Clin North Am 2001; 30: 167-181
6. Bullard KM, Rothenberger DA. Colon, Rectum and Anus. Schwartz's Principles of Surgery 2005;8:28-110
7. Tauro LF, Shindhe VV, Aithala PS, Martis JJ, Shenoy HD. Comparative study of glyceryl trinitrate ointment vs. Surgical management of chronic anal fissure. Indian J Surg 2011; 73(4):268- 77.
8. Hashmat A, Ishfaq T. Chemical vs. Surgical sphincterotomy for chronic anal fissure. JCPSP 2007, vol 17(1): 44-47
9. Longstreth GF, Thompson WG, Chey WD, Houghton LA, Mearin F, Spiller RC. Functional bowel disorders: Gastroenterology 2006; 130(5):1480-91
10. J Tack, S Muller-Lissner, V Stanhellini, G Boechxtaens, M A Kamm, M Simren, J-P Galmiche, M Fried. Diagnosis and Treatment of chronic constipation: a European perspective. Neurogastroenterol Motil(2011) 23,697-710
11. Petticrew M, Rodgers M, Booth A. Effectiveness of laxatives in adults. Qual Health Care 2001; 10: 268-73
12. Dupont C, Leluyer B, Maamri N Et al. Double-blind randomized evaluation of clinical and biological tolerance of polyethylene glycol 4000 versus lactulose in constipated children. J Pediatr Gastroenterol Nutr 2005; 41: 625-3
13. Di Palma JS, Cleveland MV, McGowan J, Herrera JL. A randomized, multicenter comparison of polyethylene glycol laxative and tegaserod in treatment of patients with chronic constipation. Am J Gastroenterol 2007; 102: 1964-71
14. Maestre Y, Pares D Salvans S, Ibanez-Zafon I, Nve E, Pons MJ, Martinez-Casas I, Pascual M, Pera M, Grande L. Cold or Hot sitz baths in the emergency treatment of acute anal pain due to anorectal diseases? Results of a randomised clinical trial. Cir Esp 2010 Aug; 88(2):97-102.
15. Knight JS, Birks M, Farouk R. Topical diltiazem ointment in the treatment of chronic anal fissure. Br J Surg 2001; 88: 553-556
16. Varun Aggarwal, Rachna Dhingra, Gurpal Singh, Shamim Monga, Anuj Jain, Vivek Bansal, Shivani. Surgical management and therapeutic prospectus of anal fistula: a review. Int Surg J.(2015);2(2): 125-129
17. Bullard KM, Rothenberger DA. Colon, Rectum and Anus. Schwartz's Principles of Surgery 2005;8:28-1104.
18. Garcea G, Sutton C, Mansoori S, Lloyd T, Thomas M. Results following conservative lateral sphincteromy for the treatment of chronic anal fissures. Colorectal Dis 2003; 5: 311-31
19. Gupta PJ. A study of hypertrophied anal papillae and fibrous polyps associated with chronic anal fissures. Rom J Gastroenterol 2004; 13(2):103-7
20. Singh M, Sharma A, Gardiner A, Duthie GS. Early results of a rotational flap to treat chronic anal fissures. Int J Colorectal Dis 2005; 20: 339-34
21. Giordano P, Gravante G, Grondona P, Ruggiero B, Porrett T, Lunniss PJ. Simple cutaneous advancement flap anoplasty for resistant chronic anal fissure: a prospective study. World J Surg 2009; 33: 1058-106