

Prevalence of Patients with Anal Fistula due to Chronic Anal Fissure: Analytical Observational Study

Sanjeev Kumar

Associate Professor, Department of Surgery, Madhubani Medical College and Hospital, Madhubani, Bihar, India

Received: 08-07-2021 / Revised: 15-08-2021 / Accepted: 21-09-2021

Corresponding author: Dr. Sanjeev Kumar

Conflict of interest: Nil

Abstract

Aim: To study the prevalence of patients with anal fistula due to chronic anal fissure

Methods: This was an analytical observational study conducted in the Department of Surgery, Madhubani Medical College and Hospital, Madhubani, Bihar, India, for 1 year. The patients were examined on the 8th postoperative day and at 1, 2 and 6 months postoperatively. Objective healing was defined as complete epithelization of the fissure base and if present, all raw areas created by sentinel pile excision or fistulotomy. Time of relief of pain and complications were also analyzed in the group of patients who underwent surgery. At 6 months' follow up, successful clinical outcome was defined as the lack of anal symptoms and objective healing of the fissure. The Cleveland clinic incontinence score (CCIS) was also noted at 6 months.

Results: Of the 171 surgically treated patients, 120 (70.2 percent) underwent LIS (LIS-only group) as no additional sequels were detected. Two complications (1.7 percent) were noted. A single case had bleeding that required additional hemostasis and a second one developed infection on the LIS incision. Time of relief of pain was 1.82 ± 1.02 days. Objective healing was achieved in 114 (95 percent) of the patients at one month's follow up and in 118 (98.3 percent) at two months. At 6 months, three patients were lost for follow up, the rest healed, but a single patient developed recurrence and he was treated with Botox® injection (successful clinical outcome in 96.7 percent). The parameters investigated are shown in Table 1. Sentinel piles were detected in 56 patients (22 percent). Of the 171 patients who underwent surgery, 46 (26.9 percent) had sentinel piles. Sentinel piles were removed in 44 patients (95.7 percent) with their will and consent (LIS+sentinel pile excision group). The remaining two patients were excluded from further analyses. A single case developed abscess and subsequent fistula on the sphincterotomy site, and another patient developed bleeding on the raw area of the sentinel pile excision (complication rate of 4.5 percent).

Conclusion: In conclusion, at least 3 percent of the patients with CAF harbor a coexistent abscess or fistula around the fissure. This fact, which may sometimes be disguised, needs to be seriously considered by practitioners of this field and appreciated by hospitals and insurance companies.

Keywords: CAF, LIS, Anal Fistula.

This is an Open Access article that uses a fund-ing model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

An anal fissure (AF) is a small break or tear in the skin of the anal canal, which typically runs from below the dentate line to the anal verge, and is usually situated in the posterior midline[1,2] AF causes severe pain and bleeding with bowel movements, and is associated with spasm of the internal anal sphincter which may lead to reduction of blood flow and delayed healing[2] Most AF are minor and thought to heal spontaneously, but those that are still symptomatic after 4 to 6 weeks are often referred to as chronic AF[1,2] In his study to relieve the anal spasm by anal stretching followed by radio frequency procedures to eliminate the associated pathologies, Gupta reported that out of the 283 patients, 146 had sentinel tags, and 7 had post fissure granuloma or fistula.[3]

More important and disguised might be the association of an abscess and/or fistula with the fissure. Experts of this field were well aware of this insidious association that may threaten successful treatment and they strongly recommended that fissure patients should be well evaluated for a posterior abscess or fistula. Petros and coworkers suggested that fissure patients with a longer duration of symptoms and those with pruritus and drainage were more likely to have a fistula[2] The aim of this study was to search for the prevalence of an abscess and/or fistula in patients with CAF. We also investigated the prevalence of sentinel piles and if excision of the sentinel pile or concomitant surgery for fissure-fistula/abscess caused additional impact on the surgical treatment of CAF.

Material and methods

This was a analytical observational study conducted in the Department of Surgery, Madhubani Medical College and Hospital, Madhubani, Bihar, India, for 1 year. after taking the approval of the protocol review committee and institutional ethics committee. We started to look and note on standard forms the presence or absence of

any local sequels around the fissure in consecutive patients with CAF. The duration of symptoms and a history of previous abscess formation and/or drainage were asked in detail. Patients with additional anorectal disorders such as significant hemorrhoids or outlet obstruction, patients with a history of endocrine disorders, inflammatory bowel disease (IBD), previous anorectal operations (including previous fissure surgery) and/or radiotherapy were not included as well as posterior fistulas in the absence of a CAF or those with no relationship with the fissure. Patients referred from other cities were also excluded unless they confirmed that they would adhere to the follow up.

The first examination was made on the proctologic examination table at first admission and the findings were recorded. Sentinel pile was defined as a single, nodular skin lesion of more than 3-4 mm adjacent to the fissure edge, differentiating it from the common elevated, edematous borders of CAF. The suspicion/identification of an abscess/fistula or any suspicious findings suggestive of IBD was followed by further work up with colonoscopy and endoanal ultrasound (EAUS). For those patients who underwent surgical treatment, a second detailed examination was made with the patient under anesthesia. Again, any suspicion for an underlying abscess necessitated preoperative EAUS. All operations were carried out in prone jack-knife position and most of them under local anesthesia plus intravenous sedation. The presence of a sentinel pile was not regarded as a contraindication for initial non-operative treatment.

Instead of an initial trial of topical GTN or Botox® injection, surgery was planned for patients with fissure- fistula or abscess formation, detected at the initial examination. In patients with fissure-fistula, fistulotomy/fistulectomy was first

performed because this part of the operation necessitated division of some of the IAS in some cases. As we performed sphincterotomy in a spasm-controlled manner, the anal caliber was checked after fistula surgery and the operation proceeded with lateral internal sphincterotomy (LIS) if needed[4]. For an abscess, concomitant fistulotomy with incision and drainage was again done as the first step. Sentinel piles were excised with the cut mode of the electrocautery following LIS.

The patients were examined on the 8th postoperative day and at 1, 2 and 6 months postoperatively. Objective healing was defined as complete epithelization of the fissure base and if present, all raw areas created by sentinel pile excision or fistulotomy. Time of relief of pain and complications were also analyzed in the group of patients who underwent surgery. At 6 month's follow up, successful clinical outcome was defined as the lack of anal symptoms and objective healing of the fissure. The Cleveland clinic incontinence score (CCIS) was also noted at 6 months.

Data analysis was performed using SPSS 15.0 software (Chicago, IL, USA). Quantitative data were given as the mean±standard deviation (SD) and qualitative variables were presented as frequency distributions and percentages. The groups were compared for quantitative data using the Kruskal Wallis test and for qualitative variables using the Chi-square. A $p < 0.05$ was considered as significant.

Results

Of the 306 adult patients with the diagnosis of CAF, 256 fulfilled the inclusion criteria. Two more were excluded after eventual diagnosis of IBD. Of the 254 patients (aged 18-60 years, 131 males, 51.6 percent), 53 (20.9 percent) underwent an initial therapy of GTN, 50 (19.7 percent) Botox® injection and 151 (59.4 percent) surgery (including the fissure-fistula/abscess cases). Due to cases of non-healing or recurrence after GTN and/or Botox® treatment, the number

of patients who underwent LIS eventually increased to 171 (67.3 percent).

Of the 171 surgically treated patients, 120 (70.2 percent) underwent LIS (LIS-only group) as no additional sequels were detected. Two complications (1.7 percent) were noted. A single case had bleeding that required additional hemostasis and a second one developed infection on the LIS incision. Time of relief of pain was 1.82 ± 1.02 days. Objective healing was achieved in 114 (95 percent) of the patients at one month's follow up and in 118 (98.3 percent) at two months. At 6 months, three patients were lost for follow up, the rest healed, but a single patient developed recurrence and he was treated with Botox® injection (successful clinical outcome in 96.7 percent). The parameters investigated are shown in Table 1. Sentinel piles were detected in 56 patients (22 percent). Of the 171 patients who underwent surgery, 46 (26.9 percent) had sentinel piles. Sentinel piles were removed in 44 patients (95.7 percent) with their will and consent (LIS+sentinel pile excision group). The remaining two patients were excluded from further analyses. A single case developed abscess and subsequent fistula on the sphincterotomy site, and another patient developed bleeding on the raw area of the sentinel pile excision (complication rate of 4.5 percent). The healing rate was 90.9 percent, 95.5 percent and successful clinical outcome 95.5 percent at postoperative one, two and 6 months, respectively indicating to an only insignificantly slower healing rate, compared with that of LIS-only patients ($p > 0.05$ for all comparisons).

Six patients (2.4 percent) had fistula formation at the fissure base, all on the posterior midline (Figure 1 A and B). Intraoperatively, five patients were suspected to harbor fissure-abscess, but a single case of a posterior abscess was noted intraoperatively to accompany CAF (0.4 percent) (Figure 3). Six of the seven fissure-fistula/abscess patients were male (85.7 percent). Only two patients declared

previous abscess formation and/or spontaneous drainage. Only one of the fissure-fistulas was detected intraoperatively. All fissure-fistulas were treated with fistulotomy and LIS. In this series, the fistulas were always superficial lesions, the initial fistula surgery did not provide sufficient relaxation of the anal canal, and all necessitated additional calibrated sphincterotomy. For the fissure-

abscess, concomitant fistulotomy with incision and drainage was done as the first step followed by LIS[5,6] No complications occurred in this subgroup of patients (fissure-fistula/abscess group). At 6 months, all of the patients had a CCIS of 0. Compared with the LIS-only group, the only difference appeared for objective healing at 1-month's follow up ($p=0.019$).

Table 1: The parameters investigated in CAF patients who underwent surgery

Parameters	LIS only (N=120)	LIS+sentinel pile excision (N=44)	LIS+fistulotomy with/without abscess drainage (N=7)	P value*
Age (in years)	34.77±8.77 (21-60)	35.18±0.10 (19-57)	35.00±6.37 (25-44)	0.973
Male/female	58/62	20/24	6/1	0.11
Duration of symptoms (in months)	16.63±16.37 (3-60)	12.75±7.82 (3-36)	18.85±10.05 (6-36)	0.302
Time of relief of pain (in days)	1.82±1.02 (1-5)	1.95±1.07 (1-5)	2.85±1.34 (1-5)	0.063
Complication rate (%)	1.7	4.5	0	0.514
Objective healing at 1 month (%)	95	90.9	57.1	0.019
Objective healing at 2 months (%)	98.3	95.5	100	0.514
Successful clinical outcome at 6 months (%)	96.7	95.5	100	0.726
Patients with CCIS ≥ 2 at 6 months (%)	3 (2.5)	1 (2.7)	0	0.652

Discussion

Corman stated that "infection and abscess may develop around the fissure and in some cases, superficial fistula may develop[7] Abcarian named these lesions as fertilizing midline anal fissures[8] It's possible that cavitation of the deep anal fissure on the posterior midline might eventually develop into a pigeon hole hollow and it may serve as a nidus for chronic inflammation and/or abscess formation in some patients but not the others. Our study provided further data on the prevalence and treatment of skin lesions accompanying CAF.

The study was a retrospective analysis of prospectively designed data. As a referral

center, the number of patients who were referred directly for surgical treatment was high. This was a weak spot of this study, and our patient group may not perfectly represent the CAF patients in general practice. Although the cumulative number of patients also appeared to be high, it was still insufficient to form groups for further comparisons, such as patients with sentinel piles who underwent only LIS or LIS plus sentinel pile excision. Only patients who underwent surgery were examined under anesthesia, and only suspected cases underwent EAUS. Therefore, the real prevalence of fissure-fistula or fissure-abscess might be higher than we detected.

Because we abstained from pre-treatment endoscopic evaluations in patients with CAF due to pain, unless suspicion exists for co-existing or underlying diseases such as IBD, further detailed examination after conservative treatment or during the operating theater was mandatory. Accordingly, sphincterotomy under local anesthesia should be supported by deep sedation for a through anal examination and intraoperative EAUS whenever necessary. Our results suggested a male predominance in fissure-fistula cases. Unlike common fistulas, most of the patients did not declare drainage or previous abscess formation. The severe fissure pain possibly shaded the barely perceptible symptoms of a superficial fistula, and this fact might add to the difficulty in diagnosing this special group of abscess and fistula. Not surprisingly, objective healing was prolonged with combined surgery. Time of relief of pain was also longer, however, this was clinically and statistically insignificant (one day's delay in postoperative relief of pain; $p=0.063$). Although the number of fissure-fistula/abscess patients was small, fistulotomy+LIS did not appear to result in increased operative complications. Therefore, when a fissure-fistula was detected, it appeared both logical and safe to proceed with fistulotomy and LIS at the same session.

The other practical problems were insurance and consent issues, especially when a fissure-fistula or fissure-abscess was detected intraoperatively. Because the patient was under sedation, additional consent should be obtained from the patient's relatives and some tedious interactions have to be started with the insurance companies. In two cases, we were faced with such problems. Treating only the fissure and postponing the fistula or abscess for a second operation might be a theoretical option, but such an approach would double the surgical risks and cost and it might suggest a misdiagnosis. Therefore, the consent forms of fissure surgery and also the surgeon must keep in mind the

possibility of abscess drainage and/or fistulotomy in addition to sphincterotomy and insurance companies should recognize the rare, sometimes disguised, but distinct coexistence of the anal fissure with an abscess or fistula.

Conclusion

The present study concluded that at least 3 percent of the patients with CAF harbor a coexistent abscess or fistula around the fissure. This fact, which may sometimes be disguised, needs to be seriously considered by practitioners of this field and appreciated by hospitals and insurance companies. Sentinel piles are present in about one-fourth of the patients with CAF, and they can be removed safely with the patients' will and consent. Controlled studies are needed to confirm our findings, as well as to define the possible impact of these secondary lesions on successful treatment.

Reference

1. Zaghiyan KN, Fleshner P: Anal fissure. *Clin Colon Rectal Surg* 2011, 24:22–30.
2. Madalinski MH: Identifying the best therapy for chronic anal fissure. *World J Gastrointest Pharmacol Ther* 2011, 2:9–16
3. Gupta P. Radio frequency surgery: A new treatment technique of fissure in ano and associated pathologies. *Inter J Gastroenterol*. 2002;2(1):1-8.
4. Menteş BB, Güner MK, Leventoğlu S, Akyürek N. Fine-tuning of the extent of lateral internal sphincterotomy: spasm-controlled vs. up to the fissure apex. *Dis Colon Rectum*. 2008;51(1):128-33.
5. Ho YH, Tan M, Chui CH, Leong A, Eu KW, Seow- Choen F. Randomized controlled trial of primary fistulotomy with drainage alone for perianal abscesses. *Dis Colon Rectum*. 1997;40(12):1435-8.
6. Steele SR, Kumar R, Feingold DL, Rafferty JL, Buie WD, Standards Practice Task Force of the American Society of Colon and Rectal Surgeons. Practice parameters for the management of perianal abscess and

- fistula-in-ano. Dis Colon Rectum. 2011;54(12):1465-74.
7. Corman ML. Colon and rectal surgery. 3rd ed. Philadelphia: JB Lippincott; 1993.
 8. Abcarian H. Classification and management strategies. In: Abcarian H, ed. Anal Fistula Principles and Management. New York: Springer; 2014: 39-44.