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Evaluation of the results of patients who had undergone lateral internal sphincterotomy due to chronic anal fissure: analysis of 281 cases

Abstract

Introduction and purpose: Pharmacological and surgical treatment options are available for the treatment of chronic anal fissure (CAF). Pharmacological treatments include treatment modalities such as glyceryl trinitrate, calcium channel blockers and alpha-adrenoreceptor antagonists. Surgical treatment options include anal dilatation and sphincterotomy, and among many sphincterotomy procedures open lateral internal sphincterotomy (open LIS) is now considered the gold standard. The aim of this study was to investigate the demographic data, complaints, early and late complications of patients who have undergone LIS due to chronic anal fissure and to contribute to the literature.

Material and method: Data of 281 patients who have undergone open LIS operation between 2013-2018 due to chronic anal fissure that did not respond to conservative treatment were analyzed retrospectively. Age, gender, complaint (pain, bleeding, constipation, itching), follow-up period and postoperative complication (infection, bleeding, pain, fistula, gas or stool incontinence) data of the patients were evaluated retrospectively. Patients with gas or fecal incontinence were evaluated with Wexner incontinence score.

Results: Out of 281 patients, 197 were female (70.1%), 84 were male (29.9%). Female / male ratio was 2.34. The mean age was 40.31 ± 13.59 (min 18-max 84) years. The mean follow-up period was 24.53 (min 6 - max 67) months. In 248 (88.3%) patients, pain was noted during defecation, while bleeding was noted in 208 (74%) patients, constipation was noted in 133 (47.3) patients and perianal itching was noted in 91 (32.4%) patients. In 7 (2.5%) patients, infection occurred at the site of operation. Perianal fistula was seen in one patient (0.4%), recurrence was seen in 12 (4.3%), transient gas incontinence was seen in 4 (1.8%) and fecal incontinence was seen (0.35%) in 1 patient. Seven patients who had developed infection responded to oral antibiotic treatment and none of them developed abscesses.

Result: As a result, open LIS operation is an efficient and effective surgical treatment method for the treatment of CAF.

Keywords: chronic anal fissure, lateral internal sphincterotomy, postoperative complication

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Introduction and objective

Anal fissure is the linear tear of the anal canal epithelium and it is most often seen in the posterior mid-line because of the low blood supply of the anal canal. Anal fissures leading to pain and bleeding during defecation are often seen in young and middle-aged patients. The continuation of hypertonia in the internal anal sphincter muscle surrounding the anal canal is not certain, however, it leads to chronic fissure becoming chronic.[1–3] Acute anal fissures that persist for about 8-12 weeks become chronic anal fissures and they are usually detected with hypertrophic anal papillae and sentinel skin tag during physical examination.[4] Pharmacological and surgical treatment options are available for chronic anal fissure (CAF). Pharmacological treatments include treatment modalities such as glyceryl trinitrate, calcium channel blockers and alpha-adrenoreceptor antagonists.[5,6] Surgical treatment options include anal dilatation and sphincterotomy, and open lateral internal sphincterotomy among many sphincterotomy procedures (open LIS) is now considered the gold standard.[7,8]

The aim of our study was to investigate the demographic data, complaints, early and late complications of patients who undergone open lateral internal sphincterotomy (LIS) due to chronic anal fissure and to contribute to the literature.

Materials and methods

The data of 281 patients who undergone open LIS operation due to chronic anal fissure that did not respond to conservative treatment between 2013-2018 in the hospitals of public hospitals of Ordu province were examined retrospectively. Age, gender, complaint (pain, bleeding, constipation, itching), follow-up period and postoperative complication (infection, bleeding, pain, fistula, gas or stool incontinence) data of the patients were evaluated retrospectively. Patients with gas or fecal incontinence were evaluated with Wexner incontinence score (Table 1). The complaints, operation dates and complications of the patients were analyzed retrospectively through the Hospital Information Management System program, which is being used jointly by the public hospitals of Ordu Provincial Health Directorate. Exclusion criteria included, in addition to the LIS, simultaneous operation (hemorrhoidectomy, skin tag excision, etc.), previous sphincterotomy operations, inflammatory intestinal disease or malignant secondary anal fissures. The patients were operated using

the lithotomy position. All patients had undergone an open lateral internal sphincterotomy conducted by general surgery specialists in public hospitals in Ordu province. The patients were operated under general or spinal anesthesia. An approximately 1 cm incision was made at the location that is 0.5 cm lateral to the anus, and the internal sphincter muscle was isolated. Complete or partial sphincterotomy was performed using cautery. No patients went under anal dilatation in addition to sphincterotomy. Ethics committee approval was obtained from the Medical Research Ethics Committee of Ordu University Faculty of Medicine.

Statistical analysis

Descriptive statistics for the continuous variables were designated as mean, minimum and maximum values and the categorical variables were designated as numbers and percentages. Statistical significance level was taken as 5% (p=0.05) for calculations and SPSS (Windows SPSS for Windows, v24) was used for carrying them out.

Results

Out of 281 patients, 197 were female (70.1%) and 84 were male (29.9%). Female/male ratio was 2.34. The mean age was 40.31±13.59 (min 18-max 84) years. The mean follow-up period of the patients was 24.53 (min 6-max 67) months. 181(93.89%) of the cases were operated under spinal anesthesia. 20(7.11%) patients received general anesthesia because they did not want regional anesthesia. While 248(88.3%) patients had pain during defecation, 208 patients (74%) had bleeding, 133(47.3%) had constipation and 91(32.4%) had pruritus ani. Preoperative referral complaints and gender distribution data are summarized in Table 2. The patients were discharged within the first 24 hours after the operation. While no complication was observed in 257(91.5%) patients in the postoperative period, bleeding was observed in the first 72 hours in 15 patients (5.3%) and hemostasis was achieved in these patients without any surgical intervention. In 7(2.5%) patients, infection occurred at the site of operation. Perianal fistula was seen in one patient (0.4%), recurrence was seen in 12(4.3%), transient gas incontinence was seen in 4(1.8%) and fecal incontinence was seen (0.35%) in 1 patient. Seven patients who had developed infection responded to oral antibiotic treatment and none of them developed abscesses. One patient with perianal fistula went under fistulectomy and with complementary internal sphincterotomy. Out of 12 patients who had recurrence, 3 received supplemental sphincterotomy and one received botox injection. 3 of the patients who developed gas incontinence lost their incontinence within 8 weeks while the incontinence continued in one patient. The Wexner incontinence score of 279 patients was 0 and the remaining 2 (0.7%) patient's score was 3. The frequency of postoperative complications is summarized in Table 3.

Table 1 Wexner incontinence score

Incontinence	None	Rarely	Some times	Usually	Always
Solid	0	I	2	3	4
Liquid	0	I	2	3	4
Gas	0	I	2	3	4
Wears ped	0	I	2	3	4
Lifestyle alteration	0	I	2	3	4

Table 2 Preoperative referral complaints and gender distribution

		n	Mean %
Gender	Female	197	70.1
	Male	84	29.9
Constipation	Yes	133	47.3
	No	148	52.7
Pain	Yes	248	88.3
	No	33	11.7
Pruritus Ani	Yes	91	32.4
	No	190	67.6

Table 3 Postoperative complications

Postoperative complications	n	mean %
Infection	7	2.5
Bleeding	2	0.7
Recurrence	2	4.3
Fistula	I	0.4
Incontinence	2	0.7
No complications	257	91.5

Discussion

CAF is associated with spasms and ischemia of the internal anal sphincter, and the main purpose of pharmacological and surgical treatment is to eliminate this.[1] Pharmacological treatment options for CAF are considered before surgery because of the fact that they are less costly, easier to apply and less likely to create fecal incontinence. Although pharmacological treatment is the first choice in the treatment of CAF, studies have found that surgical treatment is a more effective treatment.[9,10] The first sphincterotomy was performed by Boyer in 1881 to treat CAF surgically and in 1951 Eisenhammer defined LIS.[11,12] Sphincterotomy is not only permanent, but it is frequently preferred due to a success rate of approximately 93% and due to better short-term improvement.[13] LIS can be performed in open and closed operations.[14] In this study, the results of patients who underwent open LIS due to CAF were evaluated.

CAF was most prevalent in the age group of 30 to 50 and according to the study of Davies et al., the average age was 49. The mean age of the patients of our study was 40.31 years, which is coherent with the literature.[15–17] In the study of Abdulwahid M., female/male ratio was determined as 3.42 in patients operated for CAF.[18] The ratio of female to male was found to be 2.43 in our study. Our findings include results that are close to the literature findings.

Bleeding during defecation is observed most often during in CAF cases and in the study by Liratzopoulos et al.[19] the rate of its prevalence was found to be 65.04%.[19] In our study, the rate of bleeding during defecation was 74% in patients with CAF, and our data was found to be similar to the literature. Pruritus ani is characterized by burning and pruritus in the perianal region, affecting 1% to 5% of the population. The etiology of pruritus ani includes perianal diseases such as hemorrhoids and anal fissures, topical applications to the perianal region, dermatological diseases, infections, and malignancies.[20] In our study, pruritus ani rate was 32.4% in patients with CAF. In more than

50% of patients with complaints of pruritus ani, anal region diseases such as hemmoroidal diseases are observed. In one series, a quarter of proctological reasons behind pruritus ani was reported to be anal or colorectal cancers.[21] While symptoms may recover following the treatment of benign anorectal diseases, for patients who have no symptoms, pruritus ani may develop due to fecal incontinence caused by the decreased sphincter function following the surgical operation.[22]

LIS is a surgical operation with a low recurrence rate of 1-3% and a high recovery rate of 90-100%.[23] In our study, our recurrence rate was 4.3%, which is consistent with the literature. Bleeding, infection and incontinence are the complications that may occur after LIS.[24] In the study performed by Pernikoff et al.[25] 15% of the patients had bleeding in the postoperative period and this rate was found to be 1.8% in our study.[25] Infection usually results from poor anal hygiene in the postoperative period and in a study by Davies et al.[15] 1(1.3%) out of 73 patients who had underwent LIS for the treatment of CAF was found to have an infection requiring systemic antibiotic therapy.[15] In our study, this rate was found to be 2.5%. This may be related to different local hygiene habits. Incontinence is a complication that can occur after anal surgeries which include sphincterotomy and it is a complication which often disrupts the quality of life of the patient. The probability of developing incontinence after LIS is between 3-5%.[26,27]

Despite its efficacy in fissure healing, post-LIS anal incontinence is one of the major complications. The most important problem in connection with this condition, which is the amount of internal anal sphincter excised and the amount incontinence that occurs due to it, is the subject of many studies. The first study of incontinence was performed by Lewis and the incontinence rate was reported as 17%. There are studies which indicate that post LIS prevalence of gas incontinence is 0-35%, prevalence of liquid fecal incontinence is 0-21% and prevalence of solid fecal incontinence is 0-5%.[10,28–31] The compilation made by Nelson has stated that the risk of incontinence post-sphincterotomy is 10%. Although there are so many studies about incontinence, it is noted that the resulting incontinence is generally at tolerable levels.[9] In our study, incontinence was observed in 5 patients, with gas incontinence in 4 patients and fecal incontinence in 1 patient.[32,33] The total the incidence rate was 1.8%. In the compilation carried out by Carter D. and Dickman R., efficacy of Botox treatment in the treatment of CAF was examined. The authors have emphasized that surgical treatment is undoubtedly superior to the application of botox, however, they have also stated that in cases which do not accept surgical treatment, it can be used as a short-term treatment.[34] Our analysis has proven the superiority of surgical treatment in our results.

There are some limitations of our study. First, it is possible to say that the fact that LIS was performed by more than one surgical expert is the primary limitation of our study. The second limiting factor is to plan as a retrospective study. As a result, open LIS operation is an effective surgical treatment method for the treatment of CAF. Additionally, it is a preferable treatment option due to its low rates of recurrence and incontinence.

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Ethics committee approval

Clinical Studies Ethics Committee of Ordu University, Faculty of Medicine, January 2019.

Informed consent

Written informed consent was obtained from patients who participated in this study.

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Conflicts of interest

No conflict of interest was declared by the authors.

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