

Anal Fissure: A Strong Treatment 15 Years of Evidence

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ABSTRACT

Anal fissure is a very common disease and is defined as a linear tear or injury or ulcer, involving the anoderm perpendicular to the pectineal area at the edge of the anus. Anal fissure is classified as acute, less than 6 weeks duration of symptoms and chronic with a time greater than this. The objective is to describe the experience of the results obtained from the surgical treatment of chronic anal fissure in four different hospitals, second and third level care. Material and methods: it is described as a study with a retrospective, longitudinal, observational and descriptive design, with the presentation of the results carried out through

descriptive biostatistical procedures. The results were 2,728 surgical procedures of fistulectomy with open lateral internal sphincterotomy, which were 1,853 women (68%) and 875 men (32%). With an age range of 17 to 81 years. No recurrence or surgical reintervention was documented, no patient readmission was reported 30 days after surgery, and there was no mortality. Discussion: the treatment of chronic anal fissure is multiple and varied, in the first place general management measures should be initiated, the use of multiple topics, chemical sphincterotomy, as well as surgical management with many of its variants. In conclusion, fissurectomy with open lateral internal sphincterotomy with a 33% cut of the internal anal sphincter achieves a high rate of success in healing, zero complications and no recurrence, with level II scientific evidence in regard to international medical literature.

Keywords: Anal fissure. Fissurectomy. Anoderm. Sphincterotomy. Anal Sphincter.

INTRODUCTION

Anal fissure (AF) is a very common disease and is defined as a linear injury or tear or ulcer, which involves the anoderm perpendicular to the pectineal area at the edge of the anus, it is more frequent in females and its presentation in the posterior is up to 90% of cases. [1] In the year 1, 200 a. C. in the Chester Beatty papyrus, topical treatments for diseases of the anus are described and detailed. Specific historical antecedents of this proctological disease are not documented. [2] AF is classified as acute, less than 6 weeks duration of symptoms, and chronic (chronic anal fissure = CAF) with a time greater than this. Morphologically, CAF is composed of the fact that apart from the anal ulcer, a cutaneous flap or sentinel hemorrhoid is added, as well as a hypertrophic anal papilla; forming the so-called Brodie triad, described for the first time by the English surgeon Benjamin Collins Brodie in the year 1840. [3] The most widely accepted genesis of CAF is that of an anodermal trauma, such as surgery, diarrhea, acute constipation, among others, which, together with the synergy of the hypertonus of the anal sphincters as an involuntary mechanism of response to pain, are translated into a vicious circle of chronicity and this justifies its existence as (disease) a very specific pathological identity. [1, 4]

OBJECTIVE

To describe the experience of the results obtained from the surgical treatment of CAF in four different hospitals of second and third level of care in the United States of Mexico(Mexico); with a statistical, deductive, critical, logical and impartial analysis.

MATERIAL AND METHODS

It is a study with a retrospective, longitudinal, observational and descriptive design. The presentation of the results was carried out through descriptive biostatistical procedures, where the records and files of all patients with CAF who underwent surgical treatment consisting of fissurectomy and open lateral internal sphincterotomy (F+OLIS) in four hospitals were reviewed. of second and third level of health care, in the United States of Mexico (Mexico):

- Mexico City Specialty Hospital "Dr. Belisario Domínguez" from the Ministry of Health. Mexico City. Country: Mexico. 3rd Level.
- General Hospital "Dr. Rubén Leñero" from the Ministry of Health. Mexico City. Country: Mexico. 2nd Level.
- High Specialty Medical Unit Hospital National Medical Center of the General Hospital "Dr. Gaudencio González Garza" from the Mexican Institute of Social Security. Mexico City. Country: Mexico. 3rd Level.

- Metropolitan Hospital of Mexico City. Angeles Group. Mexico City. Country: Mexico. 3rd Level.
- In a study period that comprised from March 2006 to March 2021, age, sex, comorbidities were taken into account as risk factors for complications, average duration of surgery, type of anesthesia applied, surgical time, hemorrhage, aggregated or joint surgical procedures, postoperative complications, fecal continence or incontinence, postoperative pain, recurrence, surgical reintervention, healing, findings, readmission at 30 days, morbidity, mortality and finally special observations.

F+OLIS surgical technique

With prophylactic antibiotic therapy and rectal preparation; prior anaesthesia, with asepsis and antisepsis of the patient's region to be operated on and in the Seville razor or Kraske position; Anoscopy of the 4 quadrants is performed to locate chronic anal fissure with Brodie's triad. A fissurectomy, papillectomy, and resection of the skin flap or sentinel hemorrhoid were performed with a cold scalpel, sending material to pathology for histological study. In addition, scraping without cutting the ulcer of the tissue and/or sphincteric muscle is performed with a scalpel, stimulating healing; and the anoderm is dissected to avoid tension of the ends of the remaining wound. Closure is performed with a continuous surgete anchored with polyglycolic acid 000. Internal anal sphincter is located in the 9 o'clock sector or alternatively 3 o'clock clockwise to perform an open internal lateral sphincterotomy, the anoderm is cut and the sphincter is dissected referring to forceps, identifying the height that goes from the anal edge to its base at the distal end 1 cm from the pectineal line and measures 2.5 to 3 cm wide by 0.3 cm long. its thickness. The muscle is cut with electrocautery of 33% or one third, depending on its height. The skin and anoderm are closed with continuous suture anchored with polyglycolic acid 000. Hemostasis is verified and the surgical procedure is completed. External patch is placed.

RESULTS

2,728 **F+OLIS** surgical procedures were performed, 1,853 women (68%) and 875 men (32%). With an age range of 17 to 81 years, with a mean of 31 years and a bimodal value of 26 and 39 years. The following comorbidities were detected in isolation or together: first, type 2 diabetes mellitus, in 601 patients representing 22%, in second place arterial hypertension in 218 cases and they are 8% and in third place to overweight in 251 (9%) individuals and the rest of comorbidities detected were 12% (in 327 patients). **See Table 1.** The average time of surgery was 15 minutes with a range of 9 to 26 minutes; the type of anesthesia in 2,564 (94% of the patients) was regional block and in the remaining 6% (163) it was local anesthesia. All surgeries were scheduled. The average of tabulated bleeding in all surgeries was minimal (less than 50 ml).

On the other hand, 15% of the 419 patients had added anal pathology which was treated in the same surgical time, making the procedure more efficient; the most frequent was hemorrhoidal disease and in isolated cases, cases of previous postsurgical anal stenosis (due to proctological surgical history), anal sphincteric injury with or without previously diagnosed secondary clinical incontinence, double anal fissure and unclassified anal injuries or tumors were treated equally. . Anal fistulas were not treated together with this pathology. **See Table 1.**

Table 1: Comorbidities and aggregate anal pathology of patients with chronic anal fissure expressed in number and percentage

VARIABLE TO BE STUDIED	NUMBER OF PATIENTS	PERCENTAGE %
<i>Comorbidities</i>		
• Mellitus diabetes	601	22
• Arterial hypertension	379	14
• Obesity	251	9
• Previous surgery	144	5
• Chronic renal insufficiency	25	1
• Hyperuricemia	16	<1
• Dyslipidemia	88	3
	17	<1
• Liver disease	11	<1
	159	6
• Thyroid disease	6	<1
	3	<1
• HIV	8	<1
• Malnutrition		
• Heart disease		
• Neoplasia		
<i>Added anal disease</i>		
• Hemorrhoidal disease	579	21
• Post-surgical anal stenosis	43	1
• Anal sphincter injury	51	2
• Various	262	10

The most frequent signs and symptoms presented by patients with **CAF** are:

- Intense and disabling anal pain when passing stool for more than 6 weeks and 2 hours on average post-defecation, decreasing in intensity until it disappears, in 99% of patients.

- Fear or stress when evacuating as described in the previous point, which occurs in 68% of this group of patients.
- Scarce intermittent rectal bleeding in each evacuation or at the end of cleaning the stool, it occurs in 96%.
- Foreign body sensation in 36% of individuals.
- Anal itching in 5% of the study population.
- Constipation 63% occurred in this group of patients.

The etiology or probable cause associated with **CAF** that was identified in this group of patients were. See **Table 2**:

1. Acute, subacute and chronic diarrhea.
2. Constipation.
3. Trauma.
4. Anal surgical history.
5. Diverse surgical history.
6. Others.

Table 2: Clinical picture and etiology associated with chronic anal fissure. Expressed in number and percentage

VARIABLE TO BE STUDIED	NUMBER OF PATIENTS	PERCENTAGE %
<i>Clinical picture</i>		
• Anal pain	2,701	99
• Fear of evacuating	1,855	68
• Rectal bleeding	2,618	96
• Foreign body sensation	982	36
• Anal itching	136	5
• Constipation	1,718	63
<i>Etiology</i>		
• Acute, subacute and chronic diarrhea.	900	33
• Acute or chronic constipation.	737	27
• Direct trauma	27	1
• Anal surgical history	133	5
• Diverse surgical history.	436	16

In an important group of individuals (327) it is not possible to identify a determining factor, such as genesis of the **CAF**. In 2,264, 83% of patients underwent **F+OLIS** as outpatient surgery (with less than eight hours of hospital stay and home discharge) and in the rest of the patients as short-stay surgery of less than 12 hours in the hospital. . Anal pain was the symptom that was extraordinarily eliminated immediately postoperatively in up to 96% of patients. A very strict subsequent follow-up was carried out in the medical consultation after a week, a fortnight, a month, every 2 months and 6 months, until the end of the year. Complete healing or closure is achieved at an average of 4 weeks, with a range of 3 to 6 weeks.

Fecal incontinence was emphatically evaluated as the main and potential complication of the surgical procedure, using the Jorge Wexner scale; [5] since they do not have the resources or access to studies in any of the public hospitals for their study or protocol in a correct way, with the exception of patients treated at the Metropolitan Hospital of Mexico City Angeles Group, which is private care and non-public like the rest, that is, care paid for by the patients themselves; and these consist of:

- Anal manometry
- Pudendal nerve latency
- Anal electromyography
- Endoanal ultrasound
- Videodefecography
- Anorectal nuclear magnetic resonance
- Colonoscopy

The preoperative and postoperative Wexner scale is used, see **Table 3**; in order to evaluate post-surgical defecation changes perceived by patients in an indirect way of anal incontinence and are documented. See **Table 4**. 84 patients already had a previous sphincteric injury with symptoms of mild to moderate anal incontinence, so they were excluded from the post-surgical investigation.

Table 3. Wexner scale

Wexner scale	Never	<1 vez al mes	>1 vez al mes < 1 vez semana	>1 time a month <1 time a week	>1 time per day
Solid stool incontinence	0	1	2	3	4
Incontinence to liquid stool	0	1	2	3	4
Gas incontinence	0	1	2	3	4
Diaper use	0	1	2	3	4
Disruption of social life	0	1	2	3	4

Table 4: Complications of F+OLIS surgical treatment and evaluation of fecal incontinence with the Wexner scale in number/percentage

COMPLICATIONS	NO. / %
▪ Infection	3/<1
▪ Urinary retention	39/1
▪ Hemorrhoidal thrombosis	21/ 1
▪ Recurrence	0/0
▪ Other general	62/2
	Total patients: 2,644
Anal incontinence	Score/Number / %
▪ Mild	<6/119/4.5
▪ Moderate	<12/14/<1
▪ Severe	>13/0/0

Post-surgical complications are separated into general and local. And the local ones are divided for study into two groups, in the first of them it involves infection, urinary retention, hemorrhoidal thrombosis, which together are less than 2%; caused by the type of sedative (benzodiazepine) used in urinary retention and incorrect adherence to sitz baths in the postoperative period of the patient. The second set analyzed fecal incontinence, which was documented in only 5% of this investigation. Most of the fecal incontinence was mild, sporadic or unique, less than 3 points on the scale, not requiring any management or treatment; On the other hand, moderate fecal incontinence occurred in 14 patients, one man and the rest women, with the only factor in common being that they were older than 60 years and only 12% of the rest of the patients of this age were affected, it was sporadic, transient and treated only 30% with pelvic floor rehabilitation for 2 months with complete recovery of anorectal continence. In the pathology findings or results, they detected 5 cases with epidermoid adenocarcinoma and 9 cases of anal warts, 2 of lymphogranuloma venereum and 12 more cases with cytomegalovirus; in addition, 98% of all patients had posterior **CAF** presentation and the rest anterior, no lateral **CAF** or in atypical sectors were found. No recurrence or surgical reintervention was documented, no patient readmission was reported 30 days after surgery, and there was no mortality.

Observations:

- Rectal preparation: Fasting for 12 hours and 2 to 3 previous evacuating enemas, 4 hours after surgery.
- Systematic use of polyglycolic acid or polyglactin 910 of 00 or 000, due to its tensile strength greater than 15 days, unlike 5-day chromic catgut; is a crucial factor in the dehiscence of sutured wounds
- Use of a prophylactic antibiotic one hour before or at the start of the surgical procedure, from 1 to 3 doses, such as a 2nd generation quinolone (ciprofloxacin) or a 2nd generation cephalosporin (cefuroxime).
- Any tissue removed from anal surgery must be evaluated by a pathologist.
- Consider that the clinical evaluation of anal continence with the Wexner scale is sufficient to efficiently treat the patient, even without material or financial resources.
- Fissurectomy is essential to obtain tissue for histological study.

- The open internal lateral sphincterotomy allows the internal anal sphincter to be visualized and from this to assess the cut in it and that it be exactly 50%.
- The **F+OLIS** surgical technique with local and ambulatory anesthesia is a viable, effective, efficient and economical option.
- Sediluvies or sitz baths with cold water, every 6 hours for 20 minutes for 2 weeks and then every 8 hours for 2 months, are essential for proper healing and zero complications.
- An acceleration in the healing of **F+OLIS** postoperative patients has been observed with the use of food supplements such as vitamin C and the element zinc. With a time of 3 weeks on average and without risk of recurrence.
- An external pressure patch is placed for 12 to 24 hours, an internal plug is no longer placed as in the past.

DISCUSSION

The treatment of the **CAF** is multiple and varied, in the first term, general management measures must be initiated: diet rich in fiber, sediluvios, etc. [6] Topical nitrites are used as treatment options with little success of less than 50% and with high recurrence, they also have too many adverse effects. [7] Another medication for topical use is derived from calcium channel blockers with very poor results in terms of cure since it is less than 37% and with a high recurrence rate above 80%. [8] The use of vasodilators such as 5% minoxidil gel should be pointed out with an acceptable cure rate in a short time, in an average of 3 weeks, however it has a high recurrence rate. [9]

On the other hand, the use of antioxidants such as tocopheryl acetate in the treatment of **CAF** has been documented, with some success at 16 weeks reported in 62%, but with a recurrence of more than 14%. [10] In addition, it is estimated that pelvic floor dysfunction such as dyssynergia and increased pelvic floor muscle tone, patients were treated by receiving 8 weeks of pelvic floor physiotherapy including electromyographic biofeedback, as an adjunct to conservative treatment, with a success rate of 55.7%, but no recurrence is reported in this study. [11] A randomized controlled clinical trial with the application of platelet-rich plasma injected locally in the intervention group followed by glyceryl trinitrate, with promising results at 4 weeks with a 60% success rate in healing, but no actual recurrence is measured. [12]

The use of botulinum toxin in local application maintains a certain respectable place in the treatment of **CAF**, with 78% healing and 7% recurrence; the dose and site of injection of the toxin correlate with the rate of cure. There were no relapses for an average of about 71 months. [13] Low-dose botulinum toxin is optimal; injection outside the fissure site improves short-term results, while injection on each side of the fissure site tends to reduce long-term recurrence. [14] Recent research reports that botulinum toxin achieves a cure rate of up to 93.9% without recurrence. [15]

Finally, the surgical management to treat **CAF** where there are multiple variants and surgical techniques is described; Lateral internal sphincterotomy is the gold standard in this pathology with success and without recurrence. [16] A variant that has been exposed is the posterolateral internal sphincterotomy, in the 5 o'clock position with respect to healing of the anal fissure, improvement of symptoms and complications; no significant differences were observed between the two techniques. [17] On the other hand, another variation of the modified open posterior internal sphincterotomy with sliding skin graft is documented, which is a combined

procedure of an anal advancement flap. [18] In addition, a high cure rate of fissurectomy and anoplasty with VY skin advancement flap and pharmacological sphincterotomy has been described, it is an adequate procedure for the treatment of **CAF**, although the statistical data are not well clarified. [19] It has been mentioned that the anocutaneous advancement flap is a very safe sphincter-sparing surgical option to treat **CAF**, it offers faster healing than fissurectomy, but its success rate does not exceed 60% and recurrence was not evaluated. [20, 21] Another modification to the **OLIS** surgical technique is the call extended by approximately 20% of the total length of the left lateral internal sphincter, which seems to be safe and effective in patients, achieving a high success rate without compromising anal continence. [22] Other research indicates that the length of the internal sphincter incision varies due to lack of standardization, insufficient length increases the risk of recurrence; therefore, the technique with closed lateral internal sphincterotomy reports a faster cure rate and fewer side effects. [23] Needless to say, the long-term risk of abnormal sphincter function after **OLIS** appears to be higher than expected, especially in the presence of multiple vaginal deliveries or systemic diseases such as mellitus diabetes; [24] however, it remains the gold standard for the treatment of chronic anal fissure when clinicians want to prevent recurrence and obtain the best pain relief. [25] For what is objected, that the effect of the anorectal manometric examination in the surgical treatment plan in the chronic anal fissure. it is important to minimize the risk of incontinence and determine the correct therapeutic choice. [26] Finally, the consensus recommendations of surgeons prefer to start with conservative measures followed by surgical procedures. The surgical procedure of choice was fissurectomy (71%) followed by lateral internal sphincterotomy (27%). Fissurectomy was always combined with botulinum toxin in 51%. [27]

CONCLUSIONS

The successful treatment of **CAF** is surgical, the drug and chemical options have a high rate of failure and recurrence. The **F+OLIS** surgical technique is a forceful treatment with guaranteed success and without recurrence, without incontinence as described in this research and finally, with local and outpatient anesthesia, it is a viable, effective, efficient and economical option. And with a level II of scientific evidence.

The authors conclude that the only and first-line treatment for **CAF** is surgery with the **F+OLIS** technique, which is safe, reproducible, curable and without sequelae; without wasting time and resources.

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