

# Anoplasty with skin tag flap for the treatment of chronic anal fissure.

## *Anoplastia com plicoma sentinela para o tratamento de fissura anal crônica.*

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### A B S T R A C T

**Objective:** to evaluate the long-term results of the correction of chronic anal fissures (CAF) in patients without anal hypertonia using the technique of anoplasty with skin tag flap. **Methods:** we conducted a prospective study of CAF patients refractory to conservative treatment without anal hypertonia, subjected to anoplasty with the use of anal plicoma to cover the bloody area. We confirmed the absence of anal hypertonia through rectal exam and electromanometry. We applied a visual pain questionnaire and the Cleveland Clinic fecal incontinence score before and after surgery. **Results:** we followed 15 patients with chronic anal fissure for a mean period of 29 months (12-56). The mean age was 41 years (29-69) and the duration of symptoms ranged from six months to five years. Healing occurred between three and six weeks for 13 patients (86.7%). The other two patients underwent debridement and new anoplasty successfully. No plicoma necrosis or anal stenosis occurred in any patient. The anal incontinence score did not change after the procedure, and all patients reported reduced pain. After 12 months of follow-up, none of the patients presented recurrence or anal incontinence, and 93.3% (14/15) of the patients were very satisfied. **Conclusion:** fissurectomy and anoplasty with the use of sentinel plie is a safe technique that results in improvement in pain without change of fecal continence and with high satisfaction rates.

**Keywords:** Fissure in Ano/therapy. Rectal Diseases. Quality of Life. Anal Canal. Surgical Flaps.

### INTRODUCTION

Anal fissure is an extremely painful condition that has as a first line treatment pharmacological agents that cause muscle relaxation and improvement in local microcirculation<sup>1</sup>. Treatment by chemical sphincterotomy is a simple method, with cure rates between 30% to 96%<sup>2</sup>. In cases of failure, the gold standard surgical technique is anal lateral internal sphincterotomy (LIS), which results in healing in 90% to 100% of cases. Despite these high success rates, continence disorders have been reported in up to 43% of cases<sup>3-6</sup>. A systematic review by Cochrane published by Nelson, in 2005, with randomized trials evaluating fecal incontinence after sphincterotomy revealed an average risk of 10%<sup>7</sup>.

The presence of post-sphincterotomy fecal incontinence may be permanent or persist for long periods, causing worsening of quality of life, regardless of age or gender. For this reason, a series of procedures with preservation of anal sphincters has been attempted in patients with refractory anal fissure.

The main techniques of continence preservation include fissurectomy, isolated or associated with drugs that relax the anal sphincter (topical isosorbide dinitrate or diltiazem) or the anoplasties, which consist in carrying a normal and well-vascularized skin to cover the fissure bloody bed. In the anoplasties, the anal sphincters are not manipulated, and the risk of incontinence is very low or nonexistent<sup>8</sup>. They are indicated in cases of anal fissure not associated with internal anal sphincter (IAS) hypertonia and resistant to drug treatment.

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The absence of hypertonia in patients with chronic anal fissure (CAF) is more frequent in the elderly, females, in anterior fissures, on the post-partum or after anorectal surgery<sup>9-12</sup>.

In the present study, we used an anoplasty technique with the use of skin tag flap (sentinel pile) for the treatment of chronic anal fissure and we evaluated the results of 15 patients submitted to surgical treatment.

## **METHODS**

We conducted a prospective study with patients with anal fissure and chronicity signals (sentinel pile, anal ulcer and hypertrophic papilla), refractory to conservative treatment and without anal hypertension, subjected to anoplasty with use of skin tag flap to cover the bloody area, in the period from March 2008 to July 2014, on the *Hospital das Clínicas* of the Faculty of Medicine of the University of São Paulo, São Paulo, Brazil. We obtained Informed consent of all patients prior to the procedure.

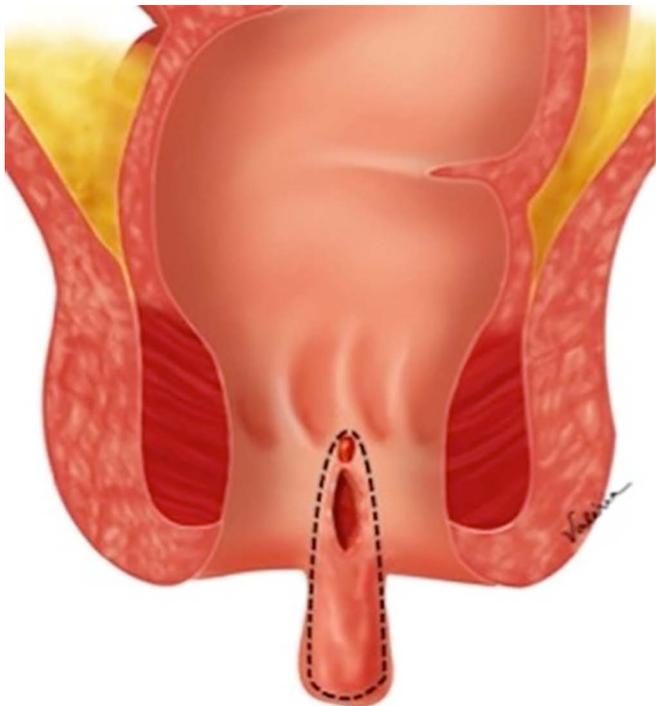
We performed manometric evaluation in the preoperative period using the ALACER biomedical® apparatus and an eight-channel radial catheter filled with water. The manometer is hydrostatic, converting the water pressure into millimeters of mercury (mmHg). We positioned the patients in left lateral decubitus, with the legs semi-flexed and the head resting on a pillow. We introduced the catheter up to six centimeters from the anal border, and then gradually drew the catheter caudally to each centimeter in a stationary manner (stationary technique) to measure pressures at rest and at voluntary contraction.

Thirteen patients had posterior anal fissures and underwent surgery in the lithotomy position,

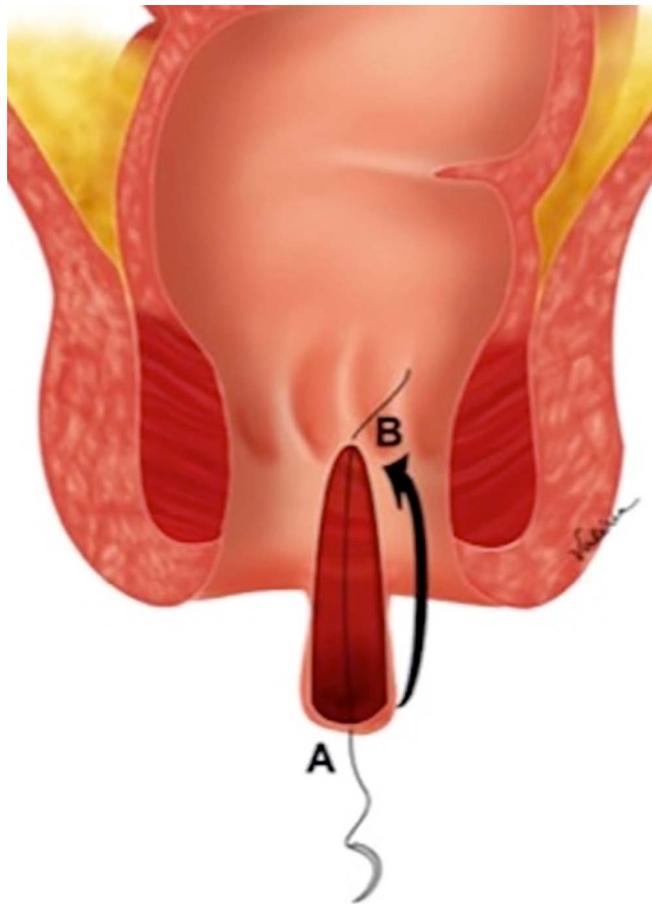
and the two bearers of anterior fissures, in jackknife position, always under general anesthesia.

The patients underwent rectal lavage with 500ml glycerin solution prior to the operation. In anesthesia induction, they received metronidazole at a dose of 500mg intravenously. After the positioning of the patient, we performed digital touch and anoscopy to confirm the CAF and to discard associated lesions. Then we introduced the Faensler retractor in the anal canal to expose the injury and the hypertrophic papilla. With an 11 scalpel, we made an incision on the internal face of the skin tag and then completed to fissurectomy and removal of the hypertrophic papilla (Figures 1 and 2). We curetted the granulation tissue at the base of the fissure until small bleeding and clear exposition of the fibers of the internal sphincter. We then placed the skin triangle, reminiscent of the residual anal skin tag, with good vascularization, over the bloody area to cover the defect (Figure 3). We sutured the tension-free cutaneous flap at the apex of the triangle with 3-0 vycriil suture, for fixation of the flap, and then closed the lateral borders with continuous sutures, with the same suture (Figure 4). At the end of the operation, we injected 8ml of ropivacaine in the anal sphincter, 2ml in each quadrant. All procedures were performed by the same surgeon.

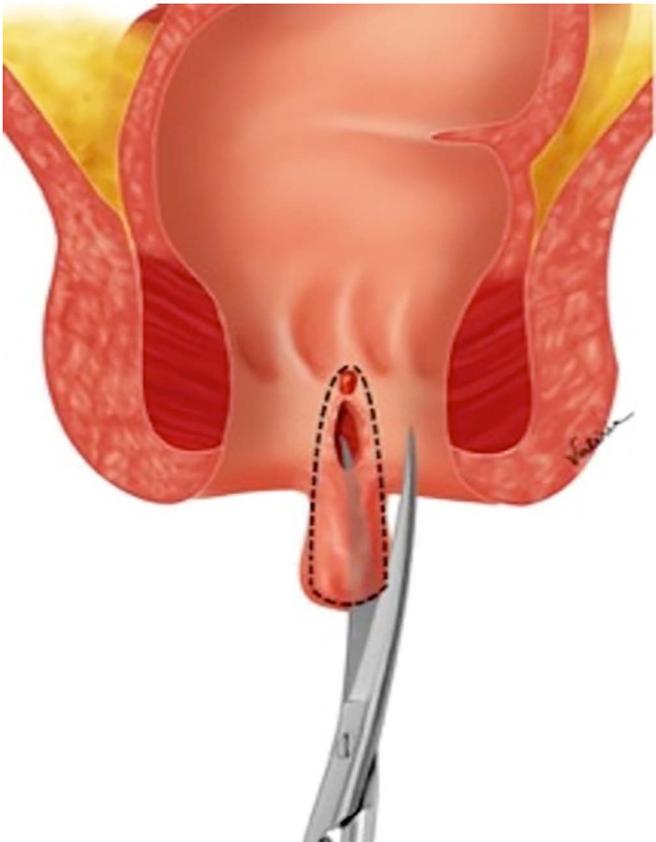
Postoperatively, we oriented towards fiber supplementation, fluid intake, and patients who did not have bowel movements in 48 hours took an oral osmotic laxative (lactulose or Macrogol 3350). Analgesia was carried out with ketoprofen 200mg per day divided into two intakes and paracetamol 750mg three times daily. We maintained Metronidazole 400mg in three daily doses for seven days, as well as good anal hygiene with water.



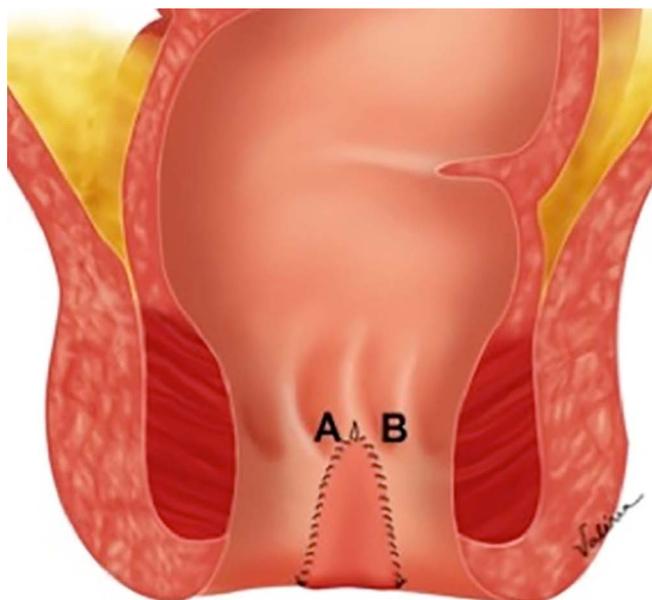
**Figure 1.** Placement of the Faensler retractor, ligation of the vascular pedicle and triangular incision of involving the internal side of the skin tag, the anal fissure and the hypertrophic papillae.



**Figure 3.** Suturing of the vertex of the triangle using the remaining skin from the anal skin tag, using absorbable thread (polyglactin 3-0, Ethicon).



**Figure 2.** Dissection of the mucocutaneous flap and separation from the muscle plane.



**Figure 4.** Closure of lateral edges of the skin and mucosa using polyglactin 3-0.

Outpatient postoperative visits occurred in seven days, three weeks, six week, three and 12 months, and from then on as needed. Patients were discharged within 24 to 48 hours, usually after bowel movement. We evaluated the degree of incontinence before the operation and three months after, using the Cleveland Clinic Florida score (CCF-FI)<sup>13</sup>.

We assessed pain intensity before the operation and at the time of hospital discharge using the analogue vertical scale (AVS)<sup>14</sup>. The degree of satisfaction with the procedure was performed after three months postoperatively, being classified in four grades (satisfied, unaltered, poorly satisfied or unsatisfied).

We performed all statistical analyzes using the software R version 3.2.1 for Windows. Data and variables analyzed such as fecal incontinence and presence of pain in the pre- and postoperative period were calculated using the Mann-Whitney paired test (or Wilcoxon signed-rank). The differences between the numerical variables were considered significant when p value was less than 0.05 ( $p < 0.05$ ).

This work was approved by the Institutional Ethics Committee with the following reference number: 3,159,201.

## **RESULTS**

Fifteen patients (10 women and 5 men) with chronic anal fissure who were not responsive to drug treatment underwent anoplasty from March 2008 to July 2014. Table 1 shows the clinical and demographic characteristics. Two fissures were located in the anterior wall, and 13 in the posterior wall. All patients had symptoms of anal pain and bleeding related to bowel movements, and did not complain of fecal incontinence. The average age was 41 years (29-69) and the duration of symptoms ranged from six months to five years. Surgical time ranged from 19 to 35 minutes, with an average of 25.

The visual analogue pain scale in the preoperative period was 5.2 (3 to 8) and in the postoperative one, 2.3 (1 to 4) ( $p=0.001$ ). Hospitalization time was one day in seven patients and two days in eight patients. The mean follow-up time was 29 months, ranging from 12 to 56 months.

**Table 1.** Demographic characteristics of patients.

	n
Gender	
Female	10
Male	5
Age (years)	41 (29-69)
Anal plicoma	15
Symptoms	
Pain/Discomfort	15
Bleeding	7
Anal secretion	11
Itching	9
Incontinence	0
Duration of symptoms (months)	17.3±6.7

With respect to the pain analogue visual scale (AVS), there was statistical difference between the pre- and postoperative period ( $p=0.001$ ) and with respect to fecal incontinence, there was no difference between these periods ( $p=0.174$ ).

Complete healing of the fissure occurred within three to six weeks, and was observed in 86.7% (13/15) of the patients. The two patients in whom no healing occurred were submitted to a new intervention: one underwent anoplasty by the Musiari technique and the other, surgical debridement and use 2% diltiazem ointment for 12 weeks, successfully. There were no cases of stenosis or flap necrosis. The preoperative incontinence score according to the CCF-FI classification was 2.2, and at three months postoperatively, 2.0, with no statistical difference ( $p=0.174$ ).

After 12 months of follow-up, 93% (14/15) of the patients were satisfied with the procedure.

## **DISCUSSION**

Anal fissure equally affects both genders, and is responsible for approximately 10% of visits to specialized medical services<sup>15,16</sup>. Chronic anal fissure can be defined as the presence of symptoms (pain, bleeding, pruritus, etc.) for more than eight weeks (chronological classification), or by the presence of the characteristic triad represented by sentinel pile, anal fissure and hypertrophic papilla, which is an unequivocal sign of chronicity (anatomic/morphological classification).

The classic treatment of chronic anal fissure is the anal sphincterotomy, described in 1835 by Brodie, and persists to this day as the gold standard, despite having undergone some technical modifications. LIS was advocated by Eisenhamer, in 1951, and has been the most used technique, being indicated in cases of anal fissure not responsive to conservative treatments, in recurrent cases and for those with the classic fissure triad, with the presence of large piles<sup>17,18</sup>. LIS results in 90% to 100% success, with a high level of patient satisfaction. However, it displays recurrence in 3% to 8% of cases, incontinence to feces in the range of 2% to 23%, and to flatus reaching 46%<sup>15,19-21</sup>.

The change in fecal continence in the postoperative period has a strong negative impact on the quality of life, since the patient better accepts recurrence than fecal incontinence. Corroborating this information, Garcia-Aguilar *et al.* reported that after surgery for anal fistula correction, relapse was much better tolerated than involuntary fecal loss<sup>22</sup>.

The sliding skin graft technique gained wide publicity with a study published in 1970, by Samson & Stewart, who reported the experience in 2,072 patients with anal fissure, with excellent results, with only ten patients needing new hospitalization for complementary treatment<sup>23</sup>. Subsequently, innumerable cutaneous and mucosal flap techniques associated or not with sphincterotomy have been described for the treatment of chronic anal fissure and anal stenosis<sup>24-26</sup>.

The rationale for the anoplasty after resection of anal fissure relies on the use of a well-vascularized tissue present in the anal region that is slipped to cover an ischemic area (anal fissure). These advancement flaps have the disadvantages of local infections, postoperative pain, dehiscence of the suture line due to excessive tension, large scars with poor cosmetic appearance, among others<sup>27</sup>. Anoplasties have mainly been indicated for patients with normal or low resting pressure, but when there is IAS hypertonia, other therapeutic procedures such as infiltration of botulinum toxin or internal sphincterotomy are generally associated. None of the patients included in our study had hypertonia at the digital examination and the resting pressure in manometry was less than 70mmHg. Bove *et al.* observed that 52.1% of 73 patients with chronic anal fissure had normal anal pressure at rest<sup>28</sup>. This fact stimulated some surgeons to routinely perform fissurectomy and anoplasty without the division of the anal sphincter, especially in cases of increased risk for fecal incontinence. Giordano *et al.*, in a prospective study with 51 patients with chronic anal fissure, reported good results with cutaneous flap and concluded that this method should be considered as the first therapeutic option<sup>29</sup>.

More recently, a systematic review and meta-analysis was published comparing the flap advance *versus* internal lateral sphincterotomy in CAF patients, showing that the group undergoing anoplasty presented less anal incontinence ( $p=0.002$ )<sup>30</sup>.

Our experience with the use of sentinel pile to cover bloody areas in the anal region began three decades ago, and, in 1997, we published the experience with 322 patients undergoing hemorrhoidectomy in whom we used the external face of the pile to cover bloody areas with the aim of reducing the tension on the suture and reduce the risk of stenosis<sup>31</sup>. Due to the good results observed with this simple technique, we began to use the external part of the pile to fill the bloody area after fissurectomy, in anal fissure patients with its triad and without anal hypertonia. The use of the pile with good blood supply to cover the fissurectomy ischemic area has the advantage of a less painful postoperative because it is not associated with anoderma incisions, reduces the healing time, improves the aesthetic aspect, and avoids anal stenosis.

In 13 (86.7%) of our 15 patients, healing occurred in three to six weeks, and we did not observe incontinence disorder or flap necrosis. It is important to note that symptomatic improvement can already be observed after seven to ten postoperative days, before complete wound healing. The procedure is fast, has excellent aesthetic result and causes little pain. In the postoperative follow-up, diet rich in fiber, adequate water intake and careful anal hygiene are important aspects. After an average follow-up of 29 months, we observed no recurrence of anal fissure requiring surgical intervention, as well as no reports of deterioration of anal continence.

Based on the analysis of the results in these 15 patients, we can conclude that patients with chronic anal fissure with a fissure triad that do not respond to conservative treatment and do not have anal hypertonia can be treated with an anal skin flap with good results. The accomplishment of anoplasty using the sentinel pile is a simple, low-pain technique, does not cause fecal incontinence disorder, and presents high rates of healing and long-term satisfaction.

## R E S U M O

**Objetivo:** avaliar os resultados de longo prazo da correção de fissuras anais crônicas em pacientes sem hipertonia anal usando a técnica de anoplastia com o plicoma sentinela. **Métodos:** estudo prospectivo de pacientes com fissura anal crônica refratários ao tratamento conservador e sem hipertonia anal, submetidos à operação de anoplastia com utilização do plicoma anal para cobrir a área cruenta. Foi confirmada a ausência de hipertonia anal através do toque retal e da eletromanometria. Foi aplicado um questionário de dor visual e o escore de incontinência fecal da Cleveland Clinic, antes e após a cirurgia. **Resultados:** quinze pacientes com fissura anal crônica foram acompanhados por um período médio de 29 meses (12 a 56). A média de idade foi 41 anos (29 a 69) e a duração dos sintomas variou entre seis meses e cinco anos. A cicatrização ocorreu entre três e seis semanas para 13 pacientes (86,7%). Os outros dois pacientes foram submetidos a desbridamento e nova anoplastia, com sucesso. Em nenhum paciente ocorreu necrose do plicoma ou estenose anal. O escore de incontinência anal não se alterou após o procedimento e todos os pacientes referiram melhora da dor. Após 12 meses de seguimento, nenhum paciente apresentou recorrência ou incontinência anal e 93,3% (14/15) dos pacientes responderam estar muito satisfeitos. **Conclusão:** fissurectomia e anoplastia com o uso do plicoma sentinela é uma técnica segura que resulta em melhora da dor sem alterações da continência fecal e com altas taxas de satisfação.

**Descritores:** Fissura Anal/terapia. Doenças Retais. Qualidade de Vida. Canal Anal. Retalhos Cirúrgicos.

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