



## Original Article

# Retrospective analysis of patients submitted to surgical treatment of perianal fistula in Santa Marcelina Hospital, São Paulo<sup>☆</sup>



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### ABSTRACT

**Introduction:** Perianal fistula is a condition commonly found in surgical practice, with an incidence of approximately 1 in 10,000 individuals, with a predisposition for the male gender, occurring mainly in patients between 30 and 50 years and in 80% of the cases originating from infection in the glandular crypts (cryptoglandular).

**Objective:** To perform a retrospective analysis using electronic medical record data of patients submitted to surgical treatment for perianal fistula in Santa Marcelina Hospital in São Paulo, as well as to verify the incidence of relapse and anal continence disorders, in addition to the complexity and types of fistulas and patient characterization.

**Results:** Two hundred patients were submitted to surgical treatment of perianal fistula were analyzed. Among men, there was a higher incidence of patients with lower educational level ( $p=0.02$ ), hypertension (0.03), diabetes (0.05), older age ( $p=0.001$ ), whereas among women previous perianal abscess predominated (0.001). There was no statistical difference in anal continence between patients submitted to fistulotomy with or without seton.

**Conclusion:** We observed a predominance of male patients and a low incidence of recurrence and symptoms of anal continence disorders, in addition to a predominance of complex fistulas.

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<sup>☆</sup> Study carried out in Hospital Santa Marcelina, Departamento de Cirurgia Geral, Programa de Residência Médica de Coloproctologia, São Paulo, SP, Brazil.

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## Análise retrospectiva de pacientes submetidos à tratamento cirúrgico de fístula perianal no Hospital Santa Marcelina, São Paulo

### R E S U M O

#### Palavras-chave:

Fístula perianal

Dados demográficos

Recidiva

Incontinência anal

**Introdução:** Fístula perianal é uma condição comumente encontrada na prática cirúrgica com incidência de cerca 1 em 10000 indivíduos com predisposição para o sexo masculino, ocorrendo fundamentalmente em pacientes entre 30 e 50 anos e em 80% dos casos tem origem em infecção nas criptas glandulares (criptoglandular).

**Objetivo:** Realizar análise retrospectiva através de dados de prontuário eletrônico de pacientes submetidos a tratamento cirúrgico de fístula perianal no Hospital Santa Marcelina São Paulo, além de verificar a incidência de recidiva e desordens da continência anal, além da complexidade e tipos das fístulas e caracterização dos pacientes.

**Resultados:** Duzentos pacientes foram submetidos a tratamento cirúrgico de fístula perianal. Entre os homens houve maior incidência de pacientes com menor escolaridade ( $p=0,02$ ), hipertensos (0,03), diabéticos (0,05), maior idade ( $p=0,001$ ) e nas mulheres predominou abscesso perianal prévio ( $p=0,001$ ). Não houve diferença estatística na continência anal entre os pacientes submetidos a fistulotomia com ou sem sedenho.

**Conclusão:** Verifica-se predomínio de pacientes do sexo masculino e uma baixa incidência de recidiva e sintomas de desordens da continência anal, além de um predomínio de fístulas complexas.

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## Introduction

Perianal fistula is a condition commonly found in surgical practice<sup>1</sup> and can be defined as an abnormal communication between two epithelialized surfaces, usually the anal canal with the perianal region.<sup>2-4</sup> It has an incidence of approximately 1 in 10,000 individuals, with a predisposition for the male gender (2-7:1), occurring mainly in patients aged between 30 and 50 years<sup>5,6</sup> and in 80% of cases originating from infection in the glandular crypts (cryptoglandular).<sup>6</sup>

Clinically, it manifests as persistent or intermittent drainage of perianal secretion associated with pruritus and eventual bleeding.<sup>7</sup> Therefore, the diagnosis is based on the anamnesis and physical examination, during which the external fistula orifice, its location and distance from the anal verge must be observed, in search of a palpable trajectory. After that, the digital examination of the distal rectum and anal canal is performed, paying attention to the tonus of the anorectal sphincter complex, looking for tumors and, eventually, palpation of the internal fistulous orifice, which can be visualized through the anoscopy.

Subsequently, complementary propaedeutic actions should be continued, especially in cases of complex and recurrent fistulas,<sup>7</sup> with the aid of computed tomography of the pelvis, but mainly magnetic resonance and endoanal ultrasonography.<sup>6,8</sup> However, the fistula can be considered as simple, if the external orifice is close to the anal verge, with a short trajectory, after ruling out the hypothesis of Crohn's disease.<sup>9</sup>

Once the complexity has been defined, those of low transsphincteric location or the intersphincteric ones with involvement of the external anal sphincter less than 30% are

classified as simple.<sup>6</sup> On the other hand, complex fistulas are the ones that have high transsphincteric, suprasphincteric, and extrasphincteric trajectories, as well as horseshoe fistulas. Additionally, those associated with inflammatory bowel disease, previous pelvic radiation, associated symptoms of anal incontinence, and those with chronic diarrhea, as well as anterior fistulas in women are also considered complex.<sup>10,11</sup>

The treatment of the perianal fistula is mainly surgical, with the objective of eradicating the fistulous trajectory,<sup>12</sup> identifying the internal fistula orifice and searching for adjacent collections, without lesions to the anorectal sphincter complex.<sup>7,12,13</sup> However, this ideal proposal may be difficult to achieve, with risk of anal incontinence and fistula recurrence, which can occur in up to 18% of cases.<sup>1,14</sup>

## Objectives

The primary objective was to perform a retrospective analysis using electronic medical record data of patients submitted to surgical treatment of perianal fistula in Santa Marcelina Hospital, São Paulo, SP. A secondary objective was to verify the incidence of recurrence and anal continence disorders, in addition to the complexity and types of fistulas and characterization of the patients.

## Materials and methods

A retrospective study was carried out through the analysis of electronic medical record data of patients submitted to surgical treatment of perianal fistula in Santa Marcelina Hospital,

São Paulo, between January 2010 and July 2015, after excluding patients with inflammatory bowel disease.

The data were tabulated in an Excel worksheet with analysis of gender, age, body mass index, level of schooling, comorbidities, history of perianal abscess, symptomatology, classification and location of the perianal fistula, type of surgery, postoperative complications, and recurrence.

### Statistical analysis

Data were described as mean ± standard deviation (extremes) or absolute frequency (percentage). Fischer's exact test and Relative Risk (RR) calculation (95% Confidence Interval) were used to study the association between qualitative variables. Student's t test for independent samples was used to study the difference between quantitative variables. Binary logistic regression was used to study the association between preoperative or intraoperative factors. The level of statistical significance was set at 95%.

### Results

During the period from January 2010 to July 2015, 302 surgeries were performed to treat perianal fistulas. The final sample consisted of 200 patients submitted to surgical treatment. The flowchart of patient involvement with the study is described in Fig. 1.

The socio-demographic characteristics and medical-obstetric history stratified by gender of patients referred for surgical treatment of perianal fistulas of cryptoglandular etiology are described in Table 1. Among men, there was a higher incidence of patients with lower educational level ( $p=0.02$ ), hypertension (0.03), diabetes (0.05), and older age ( $p=0.001$ ),

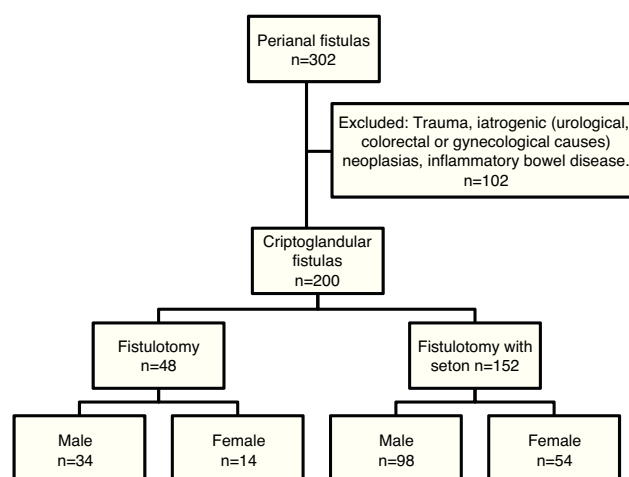


Fig. 1 – Flow chart of patient involvement in the study.

whereas previous perianal abscess was predominant in women ( $p=0.001$ ).

The complaints reported by the patients undergoing preoperative evaluation are described in Table 2, with the presence of secretion being the most frequent complaint, followed by perianal lesion perceived by the patient, with no statistically significant difference regarding the symptoms between the genders.

In the intraoperative period, the fistulas were classified in relation to the anal sphincter and position using Goodsall's rule. The highest incidence was of intersphincteric fistulas (140 patients). Regarding the position, there was no difference between anterior and posterior fistulas, with 97 and 103 cases (greater than 200), respectively. The analysis is stratified by

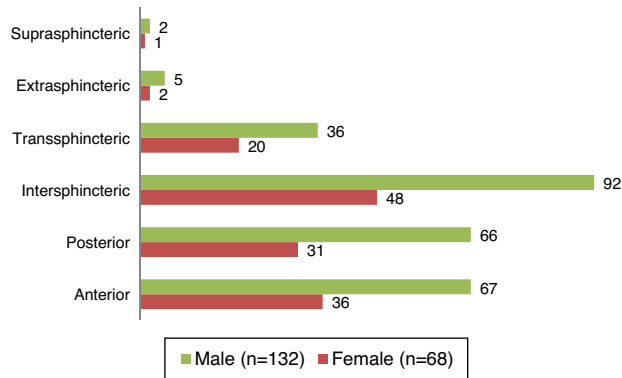
Table 1 – Sociodemographic characteristics and history of patients involved in the study.

	General n = 200	Male n = 132	Female n = 68	p
Age (years)	43.3 ± 14 (15–82)	46.4 ± 14 (15–82)	37.3 ± 11.9 (20–75)	0.001
BMI (kg/m <sup>2</sup> )	28.5 ± 5.9 (16.6–55.3)	29 ± 6.0 (16.6–55.3)	27.6 ± 5.6 (16.9–40.9)	0.12
Level of schooling				
Illiterate	19 (9.5%)	15 (11.4%)	4 (6%)	0.02
Elementary school	72 (36%)	55 (41.7%)	17 (25%)	
High school	92 (46%)	51 (38.6%)	41 (60%)	
College/University	17 (8.5%)	11 (8.3%)	6 (9%)	
Hypertension	44 (22%)	35 (26%)	9 (13%)	0.03
Diabetes mellitus	13 (6.5%)	13 (9.8%)	0 (0%)	0.05
HIV	6 (3.0%)	6 (4.5%)	0 (0%)	0.09
Smoking	42 (21%)	31(23%)	11 (16%)	0.27
Previous orifice surgery	61 (30.5%)	36 (27.3%)	25 (36.8)	0.19
Previous abscess	113 (57%)	63 (47.7%)	50 (70.3%)	0.001
Previous pregnancy			40 (58.8%)	
Vaginal delivery			26 (38.2%)	
Forceps			8 (11.8%)	
Episiotomy			11 (16%)	
Mean pregnancies			1.4 ± 1.6 (0–7)	

BMI, body mass index; HIV, human immunodeficiency virus.

**Table 2 – Preoperative signs and symptoms reported by patients undergoing surgical treatment of perianal fistula.**

	General n = 200	Male n = 132	Female n = 68	p
Secretion	164 (82%)	105 (79.5%)	59 (86.8%)	0.24
Perceived lesion	147 (73.5%)	94 (71.2%)	53 (77.9%)	0.39
Pain	103 (51.5%)	66 (50%)	37 (54.4%)	0.65
Soiling	3 (1.5%)	1 (0.8%)	2 (2.9%)	0.27

**Fig. 2 – Characteristics of perianal fistulas in 200 patients submitted to surgery regarding type and location.**

gender in Fig. 2. One woman and two men had two fistulas that were treated at the same surgical procedure.

Most patients (50%) tolerated postoperative fistulotomy without reporting any complaints to the surgeon. However, the five most frequent complaints reported during the postoperative follow-up among these patients were pain (25%), soiling (20%), use of clothing protectors (14%) and difficulty in hygiene (12%).

On the other hand, among the patients submitted to fistulotomy with the use of seton, only 25.7% were asymptomatic at the postoperative period. The complaints in this group were seton loss in 32% of cases, pain (25%), difficulty in hygiene (18%) and soiling (15%), in addition to the need for reoperation in the second phase of surgical treatment for the removal or passage of a new seton when the result was

not satisfactory. Furthermore, there was no statistically significant difference regarding these postoperative complaints when comparing the different surgical techniques, as shown in Table 3, although it was observed that the group of patients submitted to fistulotomy without seton showed a higher percentage of asymptomatic patients, with a statistically significant difference (50% × 25.7%;  $p = 0.002$ ).

After performing the binary logistic regression analysis of the preoperative conditions, type of surgery performed and location of the fistula, which were analyzed in association with symptoms of incontinence and disease recurrence, an association was demonstrated between disease recurrence and intersphincteric ( $p = 0.03$ ), transsphincteric ( $p = 0.044$ ) and extrasphincteric ( $p = 0.005$ ) positions. Regarding complaints of anal incontinence, even if transient, there was an association with previous abscess ( $p = 0.034$ ), number of pregnancies ( $p = 0.019$ ) and anterior orifice surgery ( $p = 0.021$ ).

The recurrence rate in patients that were initially submitted to fistulotomy was four patients (8.3%), whereas in those submitted to fistulotomy with seton, this rate was verified in 22 patients (14.5%), with no difference in the incidence of recurrence between patients submitted to either technique (8.3% and 14.5%) for fistulotomy without and with seton, respectively;  $p = 0.33$ ; RR 0.61 (CI: 0.24–1.5).

The patients had an average of 4.4 ( $\pm 2.6$ ) postoperative consultations and mean follow-up time was 10.2 ( $\pm 8.7$ ) months; at the end of follow-up, perianal fistula resolution with surgical treatment was attained by 184 (92%) patients. A total of 85.4% (41 patients) of those submitted to fistulotomy reported absence of previous symptoms, whereas 94.1% (143 cases) of patients submitted to fistulotomy with seton reported improvement with treatment;  $p = 0.07$ ; RR: 1.38 (CI: 0.89–2.0).

**Table 3 – Occurrence of signs and symptoms referred by the patients in the postoperative period of fistulotomy without and with the use of seton.**

	Fistulotomy n = 48	Seton n = 152	p	RR and (95%CI)
Acute pain	12 (25%)	35 (23%)	0.84	0.61 (0.62–1.92)
Difficulty in hygiene	6 (12.5%)	28 (18.4%)	0.39	0.60 (0.32–1.50)
Loss of seton		50 (32.9%)		
Infection	4 (8.3%)	8 (5.3%)	0.48	1.4 (0.61–3.3)
No complaints	24 (50%)	39 (25.7%)	0.002	2.2 (1.3–3.5)
Reoperation	5 (10.4%)	62 (40.8%)	0.0001	1.4 (1.2–1.6)
Soiling	10 (20.8%)	24 (15.8%)	0.51	1.3 (0.71–2.3)
Gas leakage	3 (6.3%)	5 (3.3%)	0.40	1.6 (0.63–4.0)
Fluid leakage	1 (2.1%)	10 (6.6%)	0.46	0.35 (0.1–2.4)
Solid leakage	3 (6.3%)	4 (2.6%)	0.36	1.8 (0.75–4.5)
Clothing protectors	7 (14.6%)	10 (6.6%)	0.13	1.8 (0.98–3.5)
Social life alterations	1 (2.1%)	13 (8.6%)	0.20	0.28 (0.1–1.9)
Sexual life alterations	1 (2.1%)	4 (2.6%)	0.99	0.83 (0.14–4.9)

## Discussion

Perianal fistula is a disease with an incidence of around 1 to 2.3 per 10,000 inhabitants per year<sup>15</sup> with a predisposition for the male gender, mainly affecting individuals in their productive years, around the 3rd to the 5th decades.<sup>16</sup> A higher incidence was also observed in males, that is, 1.95:1 with an older mean age of  $43.3 \pm 14$  years, both consistent with data from the literature.

Clinically, it is mainly characterized by the presence of tumor or swelling, secretion and pain.<sup>17</sup> Additionally, it is known that approximately 30–50% of patients with anorectal abscess will develop a persistent trajectory or anorectal fistula with communication from the anal canal to the perineal skin, being impossible to predict or prevent this evolution.<sup>7</sup> In our study, 113 patients (57%) had a previous history of anorectal abscess, and a higher incidence of this previous history was observed in females (70.3% –  $p = 0.001$ ).

Regarding the surgical treatment of the perianal fistula, it is known that it is based on the eradication of the fistulous trajectory with maintenance of anal continence. For this purpose, fistulas that involve less than one-third of the external anal sphincter muscle are usually treated through fistulotomy, whereas complex ones, with significant involvement of the internal and external anal sphincter muscles are treated through more complex techniques, among which is the fistulotomy with the use of seton.<sup>18,19</sup>

The use of the seton in the surgical planning of the perianal fistula is one of the most commonly used techniques, especially in cases of complex disease, and it is based on the chronic inflammatory reaction, with consequent fibrosis caused by the foreign body that helps in the prevention of sphincter retraction when its division is performed, reducing, but not eliminating major damages, among them the risk of anal incontinence.<sup>4,20</sup>

Subhas et al.<sup>18</sup> analyzed 24 patients with transsphincteric fistulas, 25% of which had Cronh's disease, and in all of them the fistulotomy was performed with the seton passage, with progressive traction and therapeutic success achieved by 75% of the patients. Moreover, there was an index of satisfaction with the technique and 90% of the patients considered they would repeat the treatment with a seton in case of disease recurrence. Similarly, other studies in the literature have shown a recurrence rate of 0–6% with the use of seton.<sup>21</sup> We, on the other hand, found a rate of recurrence of 8.3% in patients submitted to fistulotomy and 14.5% in patients submitted to fistulotomy with seton.

Regarding the incidence of anal incontinence after surgery for perianal fistula, it is known that it can occur, even if transiently, in up to 18% of patients<sup>1,14</sup>; in our study, an association of this morbidity was demonstrated with previous perianal abscess, number of pregnancies and history of orifice surgeries, leading us to believe that in these situations anorectal manometry should be routinely requested.

## Conclusion

A retrospective analysis of cases of perianal fistula submitted to surgery in Santa Marcelina Hospital showed a

predominance of male patients, more than half related to previous perianal abscess, especially in females, and a low incidence of recurrence and symptoms of anal continence disorders, in addition to a predominance of complex fistulas.

## Conflicts of interest

The authors declare no conflicts of interest.

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