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Original

LOCAL INFLAMMATION ON ANAL FISTULA TRACK DETERMINES CRYPTOGLANDULAR
ORIGIN OF DISEASE

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ABSTRACT

BACKGROUND

METHODS

RESULTS

CONCLUSION

KEYWORDS: Anal fistula, Cryptoglandular origin, Histology, Anal abscess

INTRODUCTION

Anal fistula it is a troublesome clinical disorder, with an incidence that varies among the different populations of western world.¹ Anal abscess presented with clinically evident anorectal abscess in up to 20% of cases², and therefore follow-up of the anal abscess after surgery is therefore recommended.³ This is why the so called sequence anorectal abscess to anal fistula, is one of the pathophysiological investigation which was studied from the last decades.⁴

The sequence perianal abscess and perianal fistula it is still in part, and unknown process.⁵ There is some investigations focusing in the histology and structure of anal fistula track in relationship of a new described pathogenesis of anal fistula.⁶ However we need more information in order to establish some new hypothesis in which the differences among cryptoglandular or inflammatory origin it is not a clear pathway.⁷

The use of adjuvant antibiotherapy at time of abscess presentation had been no demonstrated effective to diminish anal fistula development.^{8,9} This is why there are running some randomized controlled trials in Europe. ¹⁰ However, our hypothesis is that inflammation rather than infection play a key role in anal fistula genesis.

The aim of this study was to characterize local inflammation along anal fistula track in order to highlight inflammation role in anal fistula development.

METHODS

This is an observational study with aim to investigate histology and local inflammation of anal fistula track in patients with clinical disorder from gryptoglandular origin or with inflammatory bowel diseases.

Inclusion and exclusion criteria

Surgical specimen

Histology study

Microscopic histology of X fistulae was reviewed after retrieval of glass slide from the archive of pathology. X corresponded to curettage and to complete excision of fistulae. The latter allowed a complete topographical evaluation after serial sectioning.

Sample size and Ethical considerations

RESULTS

DISCUSSION

Clinical presentation

Perianal abscess is a common benign anorectal disease, affecting primarily young patients of working age. This condition is usually caused by infection of the so-called anal glands (cryptoglandular infection hypothesis), while about 10% of cases have an underlying cause such as Cohn's disease, tuberculosis, trauma, hidradenitis suppurativa, HIV infection, sexually-transmitted disease, radiotherapy, malignancy or foreign bodies.

The main symptoms are acute perianal pain, and/or systemic features of anorectal sepsis (i.e temperature). The physical examination commonly shows signs of localized infection on the perianal skin comprising redness, tenderness, pain at palpation, and occasionally fluctuation. However, in some cases, the findings of external physical examination can be normal as the abscess is deeper to the skin surface; in these cases, a high index of suspicion may be needed to reach a diagnosis. Clinical management includes prompt surgical incision and drainage. Consequently, referral for an emergency assessment is always recommended.

Anal fistula

There are several types of anal fistula according to its relationship with external anal sphincter: intersphincteric, transsphincteric, suprasphincteric and extrasphincteric (Figure 1). Classically, perianal fistula has been considered to share a cryptoglandular origin with

perianal abscess and to be part of the same disease. However, few translational studies have highlighted the precise natural history of the two conditions. Anal fistula also typically affects patients with Crohn's disease, with slightly different etiology and clinical pattern. Some authors have recently suggested a common genesis between the two clinical scenarios.

Anal fistula should be suspected in patients with perianal discharge for more than 8 weeks after drainage of an abscess or if there is recurrence of abscesses. In these last situations, specialist referral is mandatory. Anal fistula commonly manifests as anal discharge, itching and/or anal discomfort.

Physical examination is characterized by the presence of a small orifice on the skin of the perianal area, which represents the external opening the fistula track (Figure 2). The internal opening of the track can usually be felt on digital rectal examination at the level of the dentate line.

In our histological review we have found.....

Treatment for anal abscess and anal fistula

Drainage of perianal abscess is normally performed under general anesthesia as ambulatory or day case surgery but, in specific situations, can be managed under local anesthesia. The practice of culture of material drained from an anorectal abscess during surgery is not generally recommended. However, because methicillin-resistant *Staphylococcus aureus* (MRSA) is isolated in up to 33% of cases and because it is useful in infected or non-healing wounds, culture is considered in most of cases. In addition,

patients with HIV infection and either concomitant infections or atypical microbes, including tuberculosis, may benefit from wound culture. The use of antibiotics alone without surgical drainage is not an option and could even be dangerous, as it could lead to septic shock, particularly in patients with diabetes mellitus or other comorbidities. After surgery, patients commonly require internal drains of the cavity until healed. Antibiotics are not generally indicated after surgery, unless there are signs of systemic infection, cellulitis around the site of the abscess, or special medical situations (eg, immunosuppressive status, neutropenia, etc.). The benefit of packing the wound after abscess drainage has been analyzed in two prospective randomized trials that have demonstrating equivalent or superior abscess resolution, with less pain and faster healing in patients whose wounds are left unpacked.

Surgery is mandatory for anal fistula if the patient is fit. There are no medical treatments to avoid the complications of this disease. Patients should be given general advice about signs of infection (perianal abscess). The primary goal of the operative treatment of anal fistula is ideally to avoid recurrent sepsis, through obliteration of the internal opening and any associated epithelized tracks and to preserve anal sphincter function.

Several surgical treatments are available. The main surgical technique is fistulotomy, as it has a success rate of more than 90% with a low percentage of recurrence. However, as the track is transected, transecting the involved external anal sphincter, this treatment may cause postoperative fecal incontinence. Risk factors for postoperative anal sphincter dysfunction include preoperative incontinence, recurrent disease, female sex, complex fistulas, and prior fistula or anorectal surgery.

The use of different types of setons, either temporarily or as a definitive treatment, is a common alternative that seems very useful. This consists of the insertion of different materials (e.g., silk suture) as a type of drain, in the fistulous track, with the aim of keeping the fistula open, avoiding infection and diminishing complications (i.e., pain or perianal abscess). Consequently, other, muscle-preserving techniques (advancement flaps, LIFT, fistula plug or fibrin glue) are reserved for patients with involvement of more than 60% of the anal sphincter muscle, in complex fistulas, or patients at risk of incontinence after fistulotomy.

Landmarks in anal fistula

Anal canal

Dentate line

Macroscopic appearance of anal fistula

External opening (FIGURE 2)

Fistula track (FIGURE 3)

Internal opening

Microscopic analysis of anal fistula

Chronic perianal fistula has a variably epithelialized tract following many studies.

Besides this epithelium is rounded by fibrous tissue and inflammatory cells. (Sugure 2017)

Parks in 1961 examined 30 fistulas specimens and hypothesized that more of cases of anal fistula may be caused by anal glands penetrating deep from the lower rectal mucous membrane into perianal tissue. He found almost 50% of this specimens lined with transitional zone epithelium similar to the dentate line. Because oh that the origin of chronic anal fistula were attributed to infected anal glands and nowadays it is widely accepted. (Sugure 2017)

Lunniss et al in 1995 analyzed 18 fistulectomy specimens and found stratified squamous epithelium in 5, transitional epithelium in 7, mixed epithelium squamous and columnar in 1 and no epithelium in 5 and they concluded that epithelialization may lead to non healing fistula.

Van Koperen in 2010 analyzed 18 specimens in 3 locations, proximal part (near to internal opening), middle part and distal part (near to external opening). They observed epithelization in at least 80% of specimens predominantly near to internal opening. They could not establish the degree of epithelization to fistula duration or healing.

Mitalas et al in 2011 analyzed 44 distal fistula specimens and reported 25% of epithelization

Ratto et al made an analysis of 12 fistula specimens in order to immunohistochemistry analysis and 3 of those have histological examination and found that tract was partly lined by stratified squamous epithelium. They were also large areas of fibrosis and abundant vascular granulation tissue with predominance of lymphocytes, macrophages and plasma cells, with granulation tissue showing newly formed vessels and areas of extravasation. In one case they found infiltration of lymphocytes around adipose tissue with micro abscess and diffuse fibrosis.

External opening

Fistula track (Figure 4)

There is some variation among Authors about the histologic structure of fistula track.

Internal opening

Relationship of anal abscess and anal fistula and its histologic considerations

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