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Focus on the Internal Orifice Closure and Mucosal Advancement Flap in FILAC Technique

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Abbreviations:
OTSC: over-the-scope clip;
PERFACT:
MAFT: minimally invasive anal fistula treatment;
LIFT: ligation of inter sphincteric fistula tract;
VAAFT: video-assisted anal fistula treatment;
FILAC: fistula-tract laser closure.

ABSTRACT

A cryptoglandular abscess, which can result in a perianal abscess and fistula, is caused by an anal gland infection. An anal fistula occurs in 40–66% of perianal abscesses. The general indications for this method range from high trans sphincteric fistulas to "short" (3 cm) trans sphincteric fistulas to inter sphincteric fistulas. We present the case of a 36-year-old patient who has a trans sphincteric anal fistula. The patient had an anal abscess that was drained in emergency. A seton was placed when an internal opening in the anal canal was detected. Local irrigations with a good evolution were used for local care. In the absence of infection and inflammation, we decided to proceed with the FILAC surgery with internal orifice closure and mucosal advancement flap, the second phase in the anal fistula treatment. Simple sutures may be less successful if the internal opening is surrounded by fibrous, poorly vascularized scar tissue. We believe that proper sealing of the fistula trajectory from faecal spillage is critical for complete healing after Laser treatment and can reduce the morbidity and recurrence. One of the most important aspects in fistula therapy is the correct closure of the internal opening of the fistula trajectory with adequate measures to avoid incontinence.

Key words: anal fistula, mucosal flap, laser treatment, internal orifice closure.

BACKGROUND

An anal fistula is the formation of a tube lined with fibrotic epithelium that connects the perianal region to the anal canal. Anal gland infection is typically the cause of a cryptoglandular abscess. Patients may emerge with recurring perianal abscess and fistula if the abscess is not thoroughly drained. In between 40% and 66% of perianal abscesses, an anal fistula develops (1).

Over time, a number of surgical approaches have been put forth, with a steady and gradual rise in sphincter-saving techniques at the expense of cutting techniques. The terms like over-the-scope clip (OTSC), proximal superficial cauterization, emptying regularly fistula tracts and curettage of tracts (PERFACT), minimally invasive anal fistula treatment (MAFT), ligation of inter sphincteric fistula tract (LIFT) and video-assisted anal fistula treatment (VAAFT)

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are now often used by colorectal surgeons (2). Among these cutting-edge methods is Fistula-tract Laser Closure (FILAC), which was first reported by Wilhelm et al. in 2011. It involves applying heat energy radially to destroy the epithelium along the fistula tract, obliterating the tract. Better accuracy and less damage to the sphincter muscle and perianal skin are the advantages of this procedure (3).

General indications for this approach vary amongst published series, ranging from high trans sphincteric fistulas to "short" (3 cm) trans sphincteric fistulas to inter sphincteric fistulas (4).

We describe a case report of a patient with trans sphincteric anal fistula for whom we performed an FILAC technique with multiple layer closures of the internal orifice and good postoperative outcomes.

CASE REPORT

We present the case of 36 years old patient with a trans sphincteric anal fistula.

The patient presented an anal abscess that was drained in emergency setting. An internal opening of the anal canal was discovered, and a seton was placed. The local care was performed by local irrigations with a good evolution. The follow-up after the drainage of the abscess was performed in consultation for two months.

The local conditions were favourable with the disappearance of infection and inflammation, and we decided to perform the second step of the anal fistula treatment, the FILAC surgery.

Preoperatively, we performed an MRI of the pelvis who found the fistula trajectory at 12 o'clock with the seton in place and no signs of a residual abscess *(fig. 1)*.

Figure 1 - Pelvic MRI who reveals the presence of the anal fistula with the seton in place.

OPERATIVE TECHNIQUE

The patient was placed in lithotomy position. The external and internal orifice was identified *(fig. 2)*. The laser probe was placed on the fistula trajectory using the seton as a guide. The seton was removed.

A mucosal patch was resected on the level on the internal opening due to the poor quality of the tissue on this area.

A mucosal flap was mobilized 2 cm upwardly *(fig. 3)*.

The anal part of the fistula trajectory was sutured by a purse-string of Vycril 2.0.

A muscular flap was performed at the level of the internal opening using separate stitches of Vycril 2.0 *(fig. 4)*. The mucosal advancement flap was sutured with Vycril 2.0 *(fig. 5)*.

Saline was injected around the probe to protect the surrounding sphincter from the thermic action of the Laser. The Laser probe was employed at a wavelength of 1470 nm and 10W, and retired progressively to thermocoagulate the fistula trajectory *(fig. 6)*.

Postoperative course

The patient was discharged in the same day with painkillers and stool softeners. The postoperative course was uneventful. The patient presented no recurrence at 6 months from the surgery.

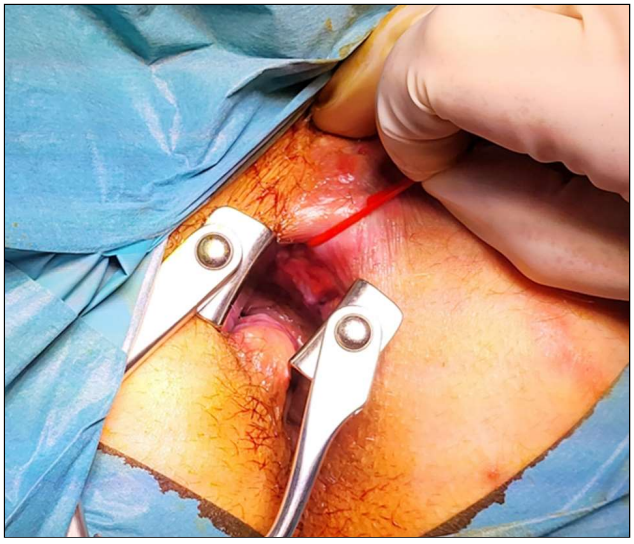

Figure 2 - Anal fistula with seton in place.

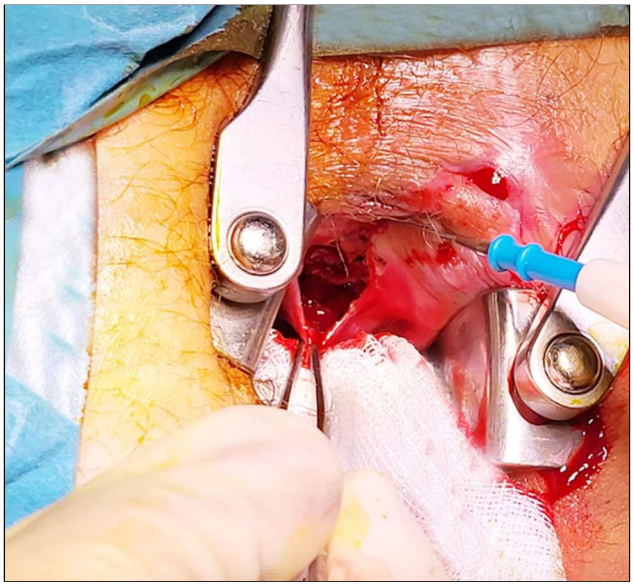

Figure 3 - Mucosa mobilisation after the patch resection on the level of the internal orifice.

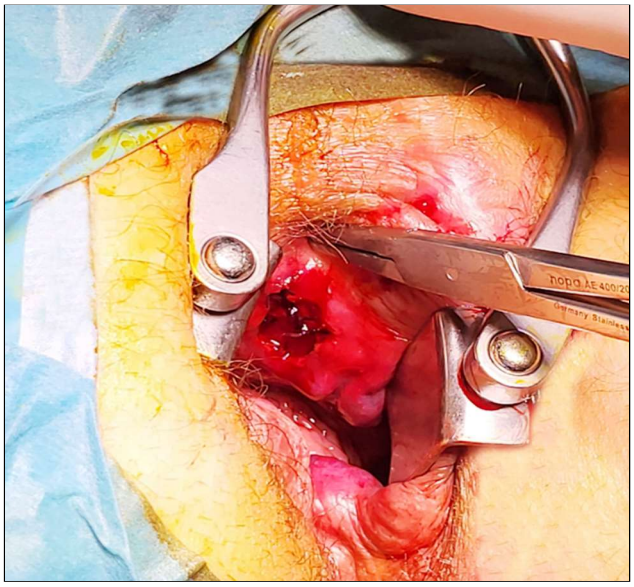

Figure 4 - Muscular closure on the level of the interval orifice.

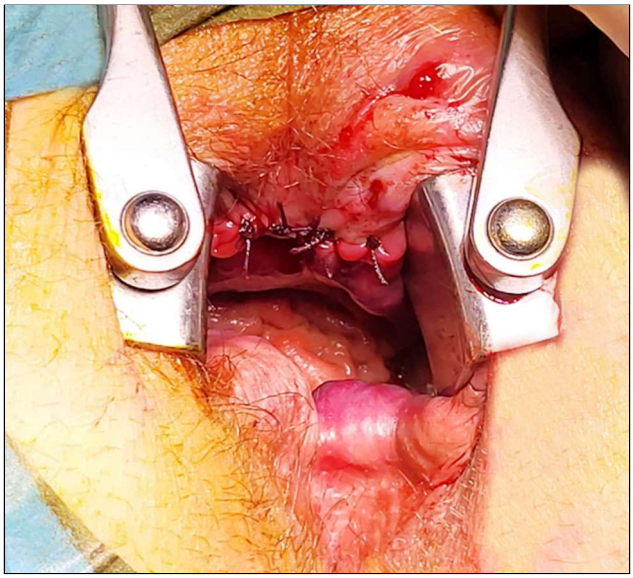

Figure 5 - MAF closure.

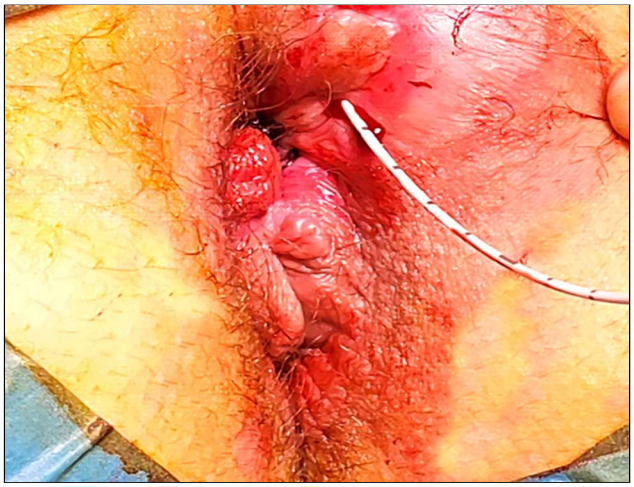

Figure 6 - Laser probe in place.

DISCUSSIONS

The pathophysiology of cryptoglandular perianal fistula still has a contentious theoretical foundation. According to the cryptoglandular theory, perianal fistulas emerge from the inter sphincteric plane, penetrate the internal sphincter and arise from the rectal glands. Cryptoglandular anal fistula development may be significantly influenced by rectal glands engaged in the inflammatory process, including secondary pro-inflammatory substances. (5) The internal orifice may be encircled by fibrous, poorly vascularized scar tissue, which could reduce the effectiveness of sutures. The suture of the internal orifice, if is larger than the laser probe was advised by De Bonnechose et al. Is suggested that the suture of the internal orifice may help to temporarily stop faecal waste from spilling into the fistula and impair the healing. (6) We believe that a correct sealing of the fistula trajectory from the faecal spilling is very important for a complete healing after the Laser treatment and can decrease the recurrence.

Wilhelm and colleagues closed the internal opening using a variety of techniques, including primary suture closure (in 12 patients, primary healing rate 50%), anodermal flap (in 52 patients, primary healing rate 65%), and mucosal—submucosal advancement flap (in

51 patients, primary healing rate 67%) (7). The risk of incontinence is seen as the most crucial barrier in MAF (mucosal advancement flap), even though it is by definition a sphincter-sparing procedure. A increased risk of incontinence is frequently linked to the use of the core out approach, partial and full thickness flaps, and important anal dilatation during surgery (8). It is important that during surgery, the risk factors for recurrence are identified and managed. To prevent postoperative continence issues, is very important to respect the architecture and integrity of the anal sphincter system by performing a sphincter-saving procedure (9). The correct closure of the internal opening with the preventive measures to avoid incontinence is just one of the key steps of this surgery and is completed by the thermocoagulation of the trajectory.

The idea behind seton insertion is that the inflammation will reduce by the drainage of the eventual infected fluid, and the fistula tract's breadth will decrease. At a wavelength of 1470 nm, the laser can penetrate up to 2-3 mm. As a result, it barely damages the sphincter muscle and the surrounding tissue (10). To insure the maximal protection of the sphincter around the trajectory, we inject saline around the probe. This has two purposes: to protect the sphincter by dissipating the heat from the laser beam and to compress the walls of the fistula on the probe to insure maximal 360 degree contact and correct coagulation of the trajectory.

FILAC technique does not impact the sphincter function degradation as a result of the laser energy's denaturation effect, which is limited to the fistula lumen (11). Compared to video assisted techniques, FILAC has a shorter learning curve, doesn't impair continence, has a controlled hyperthermic effect on the tissues, and shortens the length of hospital stay following surgery when compared to endorectal advancement flap or LIFT (12).

Further studies are necessarily to validate the decrease of fistula morbidity and recurrence in internal opening closure and mucosal advancement flap completed by Laser coagulation of the trajectory.

CONCLUSION

The correct closure of the interior opening of the fistula trajectory with appropriate measure to avoid the incontinence is one of the key steps in fistula treatment. We believe that the correct closure will provide the best conditions for the efficiency of the laser thermocoagulation of the trajectory and decrease the recurrence.

Conflict of interests

No conflict of interest to declare.

Funding

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Ethical statement

The research project has been conducted ethically, keeping in mind privacy, consent and appropriate reporting of those involved in the study.

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