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TECHNICAL NOTE

Endoscopic pilonidal sinus treatment (E.P.Si.T.)

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Abstract We present a new video-assisted minimally invasive technique for the treatment of pilonidal disease (E.P.Si.T: endoscopic pilonidal sinus treatment). Between March and November 2012, we operated on 11 patients suffering from pilonidal disease. Surgery is performed under local or spinal anesthesia using the Meinero fistuloscope. The external opening is excised and the fistuloscope is introduced through the small hole. Anatomy is identified, hair and debris are removed and the entire area is ablated under direct vision. There were no significant complications recorded in the patient cohort. The pain experienced during the postoperative period was minimal. At 1 month postoperatively, the external opening(s) were closed in all patients and there were no cases of recurrence at a median follow-up of 6 months. All patients were admitted and discharged on the same day as surgery and commenced work again after a mean time period of 4 days. Aesthetic results were excellent. The key feature of the E.P.Si.T. technique is direct vision, allowing a good definition of the involved area, removal of debris and cauterization of the inflamed tissue.

Keywords Pilonidal disease · Pilonidal sinus · E.P.Si.T. · Fistuloscope

Introduction

Having achieved excellent results with the video-assisted anal fistula treatment (VAAFT) technique for the management of complex anal fistulas [1], we decided to treat pilonidal disease and its recurrence with the same equipment and philosophy of sinus ablation. It is recognized that other forms of more extensive pilonidal sinus surgery are associated with a significant recurrence and morbidity rate [2]. This new minimally invasive technique derives from the concept of operating endoscopically and removing all the infected area no matter how large by way of small (0.5 cm) circular incision.

Materials and methods

The kit includes a Meinero fistuloscope (Fig. 1), manufactured by Karl Storz GmbH (Tuttlingen, Germany), an obturator, a monopolar electrode, a brush and endoscopic forceps. The fistuloscope has an 8° angled eyepiece and is equipped with an optical channel and a working and irrigation channel. Its diameter is 3.2 × 4.8 mm, and its operative length is 18 cm. A removable handle allows easier manoeuvring. The fistuloscope has two taps one of which is connected to a 5,000-ml bag of glycine–mannitol 1 % solution [1]. Ethics Committee approval was obtained for the study. All patients signed a specifically formulated informed consent form before the procedure.

The patient is given a single dose of antibiotic prophylaxis (sodium cefazoline 2 g). Spinal or local anaesthesia is required, depending on the extent of the infected area. The patient is placed in the prone position with their legs slightly apart. The buttocks are separated by two big plasters. The first surgeon can stand either between the patient's legs or on the patient's right side depending upon the location of the external sinus opening(s).

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Technique

Similar to the VAAFT procedure, E.P.Si.T. has two phases: a diagnostic phase and an operative phase.

In the diagnostic phase, the aim is to identify the anatomy of the pilonidal sinus and any secondary tracts and/or abscess cavities.

The spontaneously draining opening which is normally situated on the midline cleft must be removed by making a 0.5-cm-circular incision around the opening. The number and site of incision vary, depending on the presence of secondary fistula tracts or abscesses as well as on the overall size of the area involved, so that in some more complex cases, two incisions may be required. Using a Kelly forceps, the edge of the incision is lifted in order to straighten the sinus area permitting easier insertion of the fistuloscope through the external opening, whilst infusion of the glycine/mannitol 1 % solution assists in opening the underlying tract (Fig. 1). The obturator remains in place within the operative channel of the fistuloscope, allowing the fistuloscope to progress and providing correct orientation within the pilonidal sinus. Hair and all fistula tracts or abscess cavities clearly appear on the screen (Fig. 2). By slow up-and-down and side-to-side movements, the infected area can be clearly delineated. The progression of the fistuloscope is easy even through long and angled secondary tracts.

The aim of the operative phase of the E.P.Si.T. procedure is to ablate and clean the infected area. The obturator is removed, and the forceps are inserted through the operative channel in order to thoroughly remove all the hair and hair follicles under direct vision (Fig. 3). This manoeuvre is considered to be a fundamental step to aid healing. Once this procedure is completed, the forceps are removed and the monopolar electrode is connected to an electrosurgical knife power unit for cautery ablation of the sinus granulation tissue, commencing in the main tract and where appropriate traversing secondary tracts and abscess cavities. Necrotic material is removed with an endobrush passed through the fistuloscope or with a Volkmann spoon if more superficially located. Where two incisions have been used because the infected area is extensive, a special brush, designed with bristles in the middle part of a flexible metallic thread, is passed through the incision site(s). The continuous jet of glycine–mannitol solution during the procedure ensures both a clear visual field and the elimination of the cauterized waste material brushed through the incision. Meticulous attention is paid to haemostasis through the fistuloscope during the procedure. At the end of the procedure, a light dressing with no packing is applied. The patient is discharged on the same day of surgery.

Fig. 1 The Meinero fistuloscope

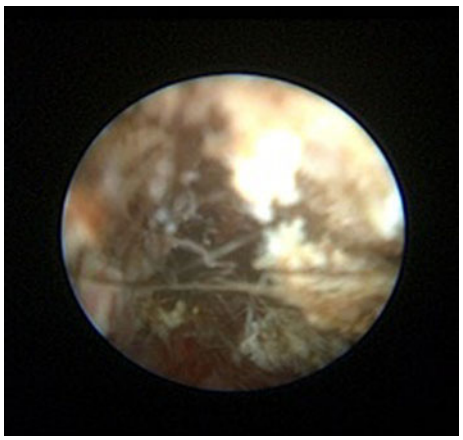

Fig. 2 Tuft of hair within the pilonidal sinus

Results

Between March and November 2012, we performed the E.P.Si.T. technique on 11 patients (6 males, 5 females;

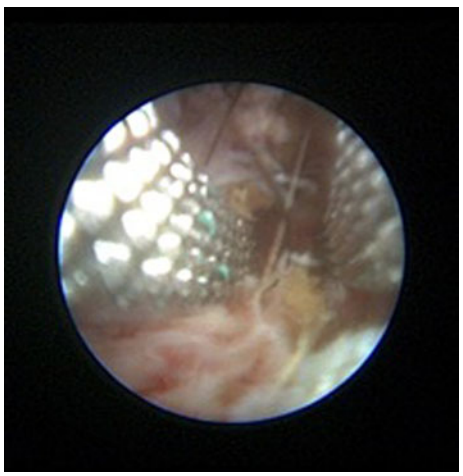

Fig. 3 The removal of all the hair and hair folliclesby forceps under direct vision

Table 1 Patient characteristics

	Gender	First operation	Second operation	Third operation	Double opening	Midline opening	Midline fistula	Paramedian fistula
1	M	+	−	−	+	+	+	−
2	M	+	−	−	+	+	+	−
3	F	+	−	−	−	+	+	−
4	M	−	+ (ot)	−	−	−	−	+
5	M	−	+ (ot)	−	−	−	+	−
6	M	−	+ (ct)	−	−	−	−	+
7	F	−	+ (ct)	−	−	−	+	−
8	F	−	−	+ (ot)	−	−	−	+
9	F	−	−	+ (ot)	−	−	+	−
10	F	−	−	+ (ct)	−	−	+	−
11	M	−	−	+ (ot)	−	−	−	+

M male, *F* female, *ot* previous open technique, *ct* previous closed technique

average age 23.3 years (±7.14 SD). The only inclusion criterion was pilonidal disease. The patients' characteristics are shown in Table 1. Of 11 patients, 8 (73 %) had undergone previous procedures. In 4 patients, due to the considerable width of the infected area, it was necessary to make two 0.5-cm-long incisions in the midline cleft, 6 cm apart. The lengths of the tracts treated ranged from 3 to 10 cm. Average operation time was 40 ± 10 min. External opening(s) were not closed. There were no significant complications recorded in the patient cohort. Patients experienced only slight pain or no pain at all in the early and later postoperative period (the average visual analogue scale (VAS) score, evaluated by a questionnaire, was 1.9 (±1.44 SD) during the first postoperative week and 0 after 2 weeks). Only 2 patients required analgesic (ketorolac trimetamine) on the day of surgery. No postoperative antibiotic therapy was administered. After discharge, the patients were asked to wash the wound through the external opening once a day for at least 2 weeks using a syringe with saline solution.

Patients were seen for follow-up at 1, 2, 4, 6 and 9 months. At 1 month postoperatively, the external opening(s) had closed in all patients and there were no cases of recurrence at a median follow-up of 6 months (range 1–9). The median time to return to work was 3.5 days (range 1–5).

Discussion

The aim of the traditional techniques used for surgical management of pilonidal sinus is the complete removal of the infected area with the surgical wound either closed or packed open. This may cause pain during the postoperative period, regular dressings may be required, the wound may take many weeks to heal and recurrences are possible. Better results seemed to have occurred with sinotomy [2], with flaps, (Karydakis flap [3], Limberg flap [4]), the multiple Z-Plasty [5], or platelet-rich plasma [6], Manuka honey [7] and sinus excision [8], but the ideal procedure has not yet been found. Bascom [9–11], in 1983, described a new technique involving short incisions and removal of the infected area based on a minimally invasive philosophy which makes it very similar to our new E.P.Si.T. procedure, but not performed under direct vision. The E.P.Si.T. procedure has many advantages compared with other techniques. First of all, direct vision allows the surgeon to see perfectly not only the pilonidal sinus, but also any possible fistula tracts or abscess cavities. Destruction of the granulation tissue can be done under vision, and there is the certainty of the complete removal of the infected area. Moreover, haemostasis is achieved entirely under direct vision.

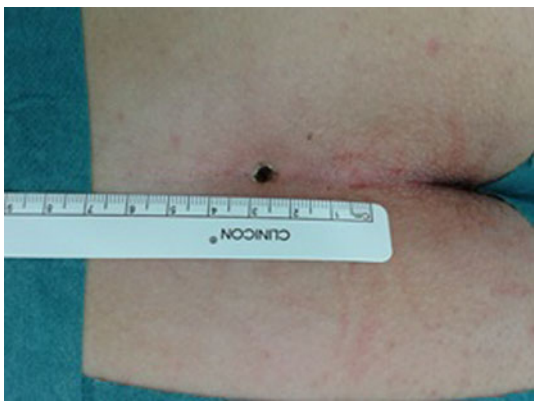

Fig. 4 Treated sinus tract at the end of the procedure

Direct vision also allows the complete removal of the hair and hair follicles which are often located not only in the pilonidal sinus, but also in the surrounding tissue. The aesthetic result appears to be good (Fig. 4), and the procedure is well tolerated with prompt return to work. There is no need for painful dressings and healing occurs within 2–3 weeks.

Conclusions

The key difference between E.P.Si.T. and other techniques is direct vision made possible by the fistuloscope. This allows an excellent definition of the involved area, thorough removal of hair and debris complete cauterization of granulation tissue.

Conflict of interest Piercarlo Meinero, M.D., has invented the fistuloscope, which is manufactured by Karl Storz GmbH Tuttlingen (Germany). He receives royalties.

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