ANOCUTANEOUS ADVANCEMENT FLAP REPAIR OF TRANSSPHINCTERIC FISTULAS

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ABSTRACT

The purpose of this study was to evaluate the healing rate of transsphincteric perianal fistulas after anocutaneous advancement flap repair and to examine the impact of this procedure on fecal continence. 26 Consecutive patients (m:f = 20:6) underwent anocutaneous advancement flap repair (AAFR). The median age was 39 (range, 27-54) years. Twenty patients (77 percent) had previously undergone one or more prior attempts at repair. Median follow-up time was 25 months. Fecal continence was evaluated in 23 patients by means of a questionnaire. AAFR was successful in 12 patients (46 percent). Success was inversely correlated with the number of prior attempts. In patients who had undergone no or only one previous attempt at repair (n = 9), the healing rate was 78 percent. In patients with two or more previous repairs (n = 17) the healing rate was only 29 percent. In seven patients (30 percent) continence deteriorated after AAFR. Eleven patients (48 percent) had a completely normal continence preoperatively. Two of these patients (18 percent) encountered soiling and incontinence for gas after the procedure, whereas two subjects (18 percent) complained of accidental bowel movements. The results of AAFR in patients with no or only one previous attempt at repair are moderate. In patients who have undergone two or more previous attempts at repair the outcome is poor. Based on the relatively low healing rate and deterioration of continence, this procedure seems less suitable for high transsphincteric fistulas than transanal mucosal advancement flap repair.

INTRODUCTION

A transsphincteric fistula, running through the lower third of the external anal sphincter can be cured in most cases by a simple "laying-open" technique. This procedure is less appropriate for fistulas running through the middle and upper third of the external anal

sphincter. In case of such a high transsphincteric fistula, transsection and subsequent separation of both sphincters will inevitably lead to impaired continence. Although incontinence for solid stool is rare, the reported incidence of minor continence disorders such as soiling, incontinence for gas or liquid stool is rather high, varying between 30 and 50 percent[1,2]. It has been reported that transanal mucosal advancement flap repair is an attractive alternative for patients with a high transsphincteric fistula[3-5]. In a recent study it has been shown that the results of this procedure are good in patients with no or only one previous attempt at repair[6]. In patients who have undergone two or more previous attempts at repair the outcome is less favorable[6]. This study also revealed that continence deteriorated in 35 percent of the patients after transanal mucosal advancement flap repair[6]. A few years ago, anocutaneous advancement flaps were introduced in the treatment of high transsphincteric fistulas. The results, reported so far, seem to be comparable with those obtained after transanal mucosal advancement flap repair[7-10]. Some investigators advocate anocutaneous advancement flap repair, because this procedure does not result in anatomic alterations of the anal canal. The anocutaneous advancement flap repair can be performed without deep intra-anal dissection. This might be a major advantage, resulting in less sphincter damage. We were interested in the impact of this procedure on fecal continence. Therefore we conducted a prospective study in a consecutive series of 26 patients with a high transsphincteric fistula to evaluate the healing rate and to examine fecal continence after this procedure.

PATIENTS AND METHODS

From January 1997 to June 1999, 26 consecutive patients with a transsphincteric fistula running through the middle or upper third of the external anal sphincter were admitted to our hospital. All fistulas were of cryptoglandular origin. The present study comprised

6 women. The median age at the time of repair was 39 (range, 27-54) years. Patients with a low transsphincteric fistula, passing through the lower third of the external anal sphincter, underwent a lay-open procedure and were excluded from this study. Patients with a perianal fistula caused by Crohn's disease were also excluded from this study. All internal openings were located at the dentate line, anteriorly in 4 patients and in the posterior midline in 22 patients. Twenty patients had undergone one or more previous attempts (median 3; range, 2-7) at repair before referral to our hospital. All patients underwent complete mechanical bowel preparation (polyethylene glycol).

surgical technique

With the patient in prone jack-knife position (figure 1.3); the internal opening of the fistula is exposed using an anal retractor. The crypt-bearing tissue around the internal opening, as well as the overlying anoderm is then excised.
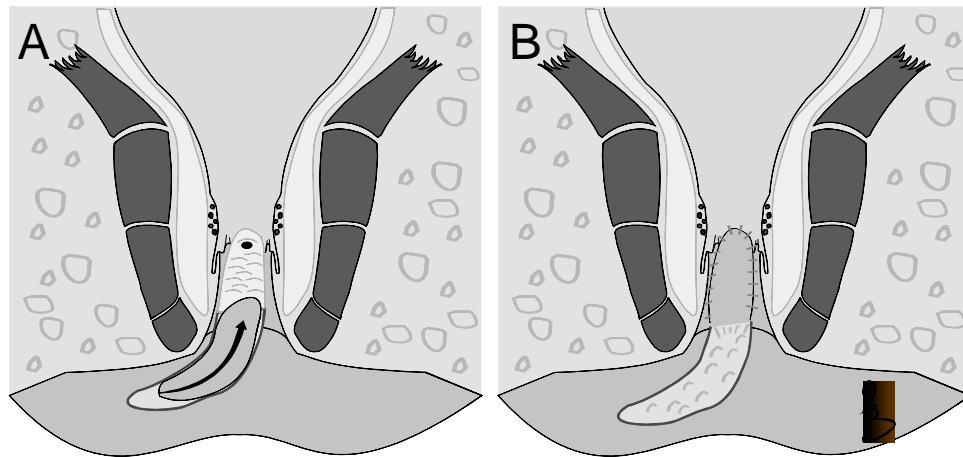

Figure 4.1; *Schematic drawing of the steps involved in anocutaneous advancement flap repair. **A;** An (inverted) U-shaped flap including perianal skin and fat, is created, taking care not to undermine the flap to prevent ischemia. **B;** An (inverted) U-shaped flap including perianal skin and fat, is created, taking care not to undermine the flap to prevent ischemia.*

The fistulous tract, running from the external opening to the external anal sphincter is excised as well. The tract running through the sphincters is curetted. The defect in the internal anal sphincter is then closed with absorbable sutures. An (inverted) U-shaped flap including perianal skin and fat, is created, taking care not to undermine the flap to prevent ischemia (figure 4.1a). The flap is designed in such a way that the base of the flap is approximately twice the width of its apex. The flap is advanced into the anal canal and sutured to the mucosa and underlying internal anal sphincter in a single layer, proximal to the closed internal opening, using interrupted, absorbable sutures (figure 4.1b). The perianal wound is left open.

postoperative care

All patients were immobilized for 5 days. During this time period metronidazole and cefuroxime were administered intravenously three times daily. After release from the hospital, all patients were instructed to take frequent sitz-baths and to refrain from activities that could harm the flap (e.g., riding a bicycle).

assessment of fecal continence

Before and after the procedure, fecal continence was evaluated in 23 patients by means of a questionnaire based on the scoring system according to Parks[11]. For statistical analysis the Fisher's exact probability test was used, whereby a limit of significance (P value) of 0.05 was considered to be statistically significant.

RESULTS

Within the first 30 days postoperatively a wound abscess in 1 patient (not interfering with the healing of the fistula) complicated AAFR. None of the patients encountered urinary retention. Three patients had an early breakdown of their suture line.

In the nine patients with no or only one previous attempt at repair the healing rate was 78 percent. The outcome was poor in the 17 patients who had undergone two or more previous attempts at repair, including fistulotomy, fistulectomy (with or without division of the distal part of both sphincters) and transanal mucosal advancement flap repair. In these patients the healing rate was only 29 percent. This difference in healing rate was statistically significant (P = 0.04) AAFR was successful in all those patients in whom the internal opening of the fistula was located anteriorly. In patients with an internal opening at the posterior midline the healing rate was just 36 percent, of these four patients, only one had undergone more than one operation. The operation was more successful in women than in men, 80 vs. 35 percent (P = 0.05). The outcome was not influenced by age. On average the external wound took three months (2-5) to heal (complete epithelialization).

fecal continence

Continence status before AAFR was compared with the continence status after AAFR in 23 patients. Deterioration was observed in seven patients (30 percent). Eleven patients (48 percent) had a normal continence status preoperatively. Two of these patients (18 percent) encountered soiling and/ or incontinence for gas after the procedure, whereas two subjects complained of accidental bowel movements. Twelve patients (52 percent) presented with continence disturbances at the time of admission to our hospital. Two of these patients (17 percent) encountered deterioration. In five of these patients (42 percent) continence was found to be improved after the procedure. Postoperatively, the rate of incontinence for liquid or solid stool was similar among male and female patients. The postoperative continence status was not influenced by the number of previous attempts at repair, the position of the internal and external

opening of the fistula or the age of the patient. There was no relationship between the outcome of the operation and the incidence of impaired continence.

DISCUSSION

The management of fistulas, crossing the external anal sphincter in the middle or upper third, remains a difficult surgical challenge. Treatment of these high transsphincteric fistulas by a traditional laying open technique will lead to an almost complete transsection of the external anal sphincter with wide separation of both ends. *Mucosal* advancement flap repair has been introduced as a sphincter-preserving alternative. Those who advocate the use of *mucosal* advancement flap repair argue that this procedure ensures obliteration of the internal opening and thereby healing of the fistula with preservation of the entire external anal sphincter. Initially, quite promising results were reported, with healing rates up to 100 percent,[3-5] even in patients with Crohn's disease[12,13]. Recently less favorable results have been reported[6,14] especially in patients who had undergone two or more previous repairs. Furthermore it has been reported that continence deteriorates in quite number of patients after transanal mucosal advancement flap repair.[6,14] It has been argued that overstretching of the sphincters, caused by the use of a retractor, during the deep intra-anal dissection, contributes to the impairment of continence. In 1996, Del Pino and coworkers introduced the *anocutaneous* advancement flap repair (AAFR) for the treatment of transsphincteric fistulas[7]. They reported a small number of patients with promising results. According to these authors, this procedure does not result in anatomic alteration of the anal canal, so all other operative choices are still feasible. In recent years three studies have been conducted[8-10] to evaluate the role of AAFR in the treatment of high transsphincteric fistula. The reported recurrence rate varied between 5 and 21 percent. Deterioration of continence was observed in only a few patients[9]. Based on these promising results we decided to

implement this technique in the treatment of high transsphincteric fistulas. The present study suggests that AAFR is only successful in patients who have undergone no, or only one previous attempt at repair. The healing rate in this group of patients is similar to the healing rates reported by other workers. The very poor outcome of AAFR in patients who had undergone two or more previous attempts at repair indicates that this procedure is not suitable for this group of patients. In a previous study[6] we found that the outcome of transanal mucosal advancement flap repair is also less favorable in patients who had undergone two or more previous attempts at repair. These data indicate that any flap repair (mucosal or anocutaneous) is less feasible in an area of fibrosis and scar formation caused by earlier anorectal surgery.

The relatively high incidence of impairment of continence after AAFR is rather disappointing. Even among patients who had undergone no or only one previous attempt at repair the continence deteriorated in 30 percent of the cases. The procedure was performed without deep intra-anal dissection. Moreover, an exerted anal stretch was kept to a minimum using a special retractor with multiple skin hooks on elastic bands. Therefore it seems unlikely that the impairment of continence is a result of sphincter damage. It has been postulated by Bielefeldt and coworkers[15] that the sensory function of the anal canal contributes to the preservation of continence. Disruption of the circumferential continuity of the anoderm and the insertion of less innervated perianal skin into the anal canal might contribute to the deterioration of continence. Surprisingly, five patients, who were incontinent for gas and/or mucus before the procedure, experienced an improvement of their continence status. In two of these patients the fistula healed after AAFR. The other three patients had a drainage seton before the operation, which was removed during the procedure. It might be possible that fistula healing and removal of the setons contribute to the improvement of continence.

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CONCLUSIONS

Transsphincteric perianal fistulas, passing through the upper and middle third of the external anal sphincter can be treated effectively by AAFR. This procedure is not effective in patients with multiple previous attempts at repair. However, impairment of continence is a matter of concern and remains unexplained so far.

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