

**TRANSANAL ADVANCEMENT FLAP REPAIR OF  
TRANSSPHINCTERIC FISTULAS**

Schouten WR, Zimmerman DDE, Briel JW

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## **ABSTRACT**

The purpose of this study was to evaluate the healing rate of transsphincteric perianal fistulas after transanal advancement flap repair (TAFR) and to examine the impact of this procedure on fecal continence. 44 Consecutive patients underwent TAFR (m:f = 34:10). The median age was 44 (range, 19-72) years. Twenty-four patients (55 percent) had previously undergone one or more prior attempts at repair. Median follow-up was 12 months. Fecal continence was evaluated in 43 patients by means of a questionnaire. TAFR was successful in 33 patients (75 percent). Success inversely correlated with the number of prior attempts. In patients with no or only one previous attempt at repair the healing rate was 87 percent. In patients with two or more previous repairs the healing rate dropped to 50 percent. In 15 patients (35 percent) continence deteriorated following TAFR. Twenty-six patients (59 percent) had a completely normal continence preoperatively. Ten of these patients (38 percent) encountered soiling and incontinence for gas after the procedure, whereas 3 subjects (12 percent) complained of accidental bowel movements. The results of TAFR in patients with no or only one previous attempt at repair are good. In patients who have undergone 2 or more previous attempts at repair the outcome is less favorable. Remarkably, the number of previous attempts did not adversely affect the continence status.

## **INTRODUCTION**

For many years transsphincteric perianal fistulas were treated by laying open the entire fistulous tract. A major disadvantage of this technique is the inevitable transection and subsequent separation of both sphincters. 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<sup>1,2</sup>. It has been suggested that the separation of both sphincters is less pronounced after muscle division by a staged seton technique. However, the reported incidence of impaired continence after this procedure is remarkably high, varying between 40 and 60 percent<sup>3-5</sup>. Until now it is unknown which treatment modality is superior, since prospective randomized trials comparing the lay-open technique and the staged seton technique are lacking. In recent years the transanal advancement flap repair (TAFR) has been advocated as an attractive alternative for patients with transsphincteric perianal fistulas. It has been stated that this procedure is advantageous because it enables the healing of almost all fistulas without sphincter damage and without continence disturbance. However, recently less favorable results have been reported in patients with a transsphincteric fistula of cryptoglandular origin<sup>6</sup>. To investigate the healing rate after TAFR and its impact on fecal continence we conducted the present prospective study.

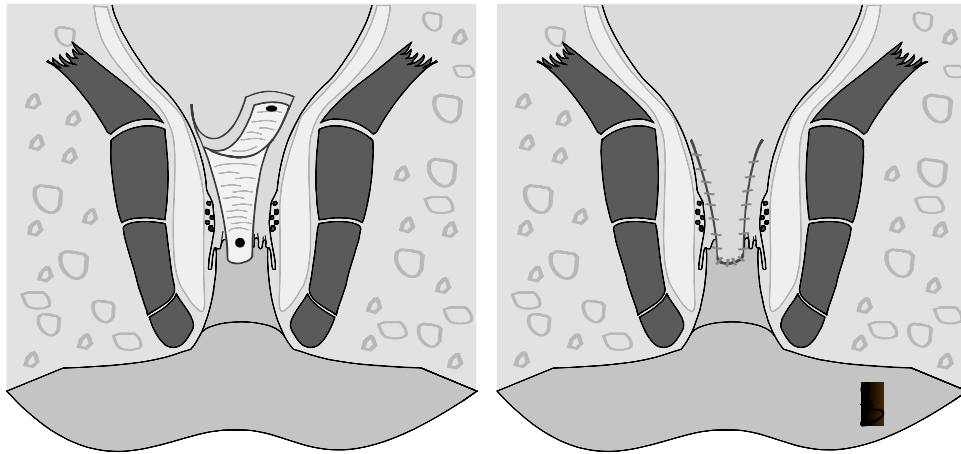
## **PATIENTS AND METHODS**

From January 1992 to January 1995, forty-four consecutive patients with a transsphincteric fistula of cryptoglandular origin underwent TAFR. In all patients the fistulous tract crossed the middle or upper third of the external anal sphincter. The present series comprised 10 women and 34 men. Their median age at the time of repair was 44 (range, 19 - 72) years. Thirty-five patients (80 percent) had previously undergone one or more attempts at repair before referral to our hospital. Patients with a superficial transsphincteric fistula, passing through the lower third of the external anal sphincter, underwent a lay-open procedure and were excluded from this

series. Subjects with a perianal fistula due to Crohn's disease were also excluded. All patients underwent complete mechanical bowel preparation (polyethylene glycol).

### **surgical technique**

With the patient in the prone jack-knife position (figure 1.3); the fistulous tract running from the external opening to the external anal sphincter is excised. Using an anal retractor, a flap consisting of mucosa, sub mucosa and some of the most superficial fibers of the internal anal sphincter, is raised from the level of the dentate line and mobilized over a distance of 4 to 6 cm proximally (figure 3.1a).



**Figure 3.1;** Schematic drawing of the steps involved in transanal advancement flap repair. **A;** A flap consisting of mucosa, sub mucosa and some of the most superficial fibres of the internal anal sphincter, is raised from the level of the dentate line and mobilized. **B;** the flap is advanced and sutured to the neodentate line with absorbable sutures

Care is taken, to design the flap in such a way that the base of the flap is about twice the width of its apex. The crypt-bearing tissue around the internal opening, as well as the overlying anoderm is then excised. The fistulous tract is cored out of the sphincters. The defect in the internal anal sphincter is closed with absorbable sutures.

After excision of its apex, the flap is advanced and sutured to the neodentate line with absorbable sutures (figure 3.1b).

#### **postoperative care**

All patients were immobilized for 5 days. During this time period metronidazole and cefuroxime were administered intravenously three times daily.

#### **assessment of fecal continence**

Fecal continence was evaluated in 43 patients by means of a questionnaire, based on the scoring system according to Parks<sup>7</sup>. For statistical analysis the Fisher's exact test was used, whereby a p-value smaller than 0.05 was considered to be statistically significant.

## **RESULTS**

Within the first 30 days postoperatively TAFR was complicated by a wound abscess in 3 patients (7 percent). One patient encountered urinary retention. The overall success-rate was 75 percent. The outcome was influenced by the number of previous attempts at repair. In patients with no or only one previous attempt at repair the healing rate was 87 percent. The outcome was less favorable in patients who had undergone two or more previous repairs prior to admission to our hospital. In these patients the healing rate was only 50 percent. This difference in healing rate was statistically different ( $p=0.02$ )

#### **fecal continence**

Continence status before TAFR was compared with the continence status after TAFR in 43 patients. Deterioration was observed in 15 patients (35 percent).

Twenty-six patients (60 percent) had a normal continence status preoperatively. Ten of these patients (38 percent) encountered soiling and/or incontinence for gas after the procedure, whereas 3 subjects (12 percent) complained of accidental bowel movements. Seventeen patients (40 percent) presented with continence disturbances at the time of admission to our hospital. Two of these patients (12 percent) encountered incontinence for solid stool after the procedure. Postoperatively, the rate of incontinence for liquid or solid stool was found to be higher among female patients (20 percent vs. 9 percent). This difference was not significant ( $p=0.22$ ). The number of previous attempts at repair had no significant influence on the continence status after TAFR. In patients older than 50 years the rate of disturbed continence after TAFR was higher than in younger patients (50 percent vs. 29 percent). This difference was not statistically significant ( $p=0.29$ ).

## **DISCUSSION**

The principal goals in the treatment of transsphincteric perianal fistulas are eradication of the fistulous tract and preservation of sphincter function. In patients with a fistula, passing through the lower third of the external anal sphincter, these objectives can be achieved by either laying open or excising the fistulous tract. Although these procedures affect anal pressure, the functional results are quite satisfactory. The management of fistulas, crossing the external anal sphincter in the middle or upper third, however, remains a difficult surgical challenge. Treatment of these high transsphincteric fistulas by a traditional laying open technique will lead to an almost complete transection of the external anal sphincter with wide separation of both ends. Complete incontinence for solid stool is relatively rare after division of the external anal sphincter to such an extent. However, the reported incidence of

minor continence disturbances such as soiling, incontinence for gas or liquid stool is rather high, varying between 30 and 50 percent<sup>1,2</sup>.

The staged cutting seton technique has been recommended as an attractive alternative for the treatment of high transsphincteric fistulas. The cutting seton is thought to promote fibrosis, thereby preventing wide separation of both ends of the divided external anal sphincter and minimizing the risk of incontinence. However, the reported incidence of impaired continence after this procedure is remarkably high, varying between 40 and 60 percent<sup>3-5</sup>. These data illustrate that even limited damage to the external anal sphincter threatens fecal continence.

Those who propose the use of TAFR in the treatment of transsphincteric fistulas, argue that this procedure ensures obliteration of the internal opening and thereby healing of the fistula with preservation of the entire external anal sphincter. Noble<sup>8</sup> first described the use of advancement flaps for surgical repair of rectovaginal fistulas. Ten years later Elting<sup>9</sup> applied this technique to the treatment of transsphincteric fistulas. In his paper he outlined the following principles: “separation of the fistulous tract from the communication with the bowel and adequate closure of that communication with removal of all the diseased tissue in the rectum”. In 1948 Laird<sup>10</sup> described a flap of mucosa, submucosa and some fibers of the internal anal sphincter. Several other modifications of the advancement flap repair have been reported. Initially, quite promising results were reported, with healing rates up to 100 percent, even in patients with Crohn’s disease (Table 1.8). Recently, Ozuner and co-workers<sup>6</sup> reported a less favorable result in 19 patients with a transsphincteric fistula of cryptoglandular origin. They observed a recurrence rate of 32 percent (Table 1.8). Statistically higher recurrence rates were noted in patients who had undergone previous repairs. Although most recurrences occurred within

the first 15 months, some recurrences were noted for up to 55 months after repair. This finding indicates that long-term follow-up is essential to assess outcome after advancement flap repair. Like Ozuner and co-workers, we also found that the number of previous repairs affects the recurrence rate. The failure rate was 50 percent in patients who had undergone two or more previous repairs and 13 percent in patients with no or only one previous attempt. It might be possible that this striking difference simply reflects fistulas that are difficult to repair. In our opinion, however, these data indicate that a flap repair is less feasible in an area of scar tissue.

Although the external anal sphincter was preserved in all cases, many of our patients experienced reduced continence after the flap procedure. The number of previous repairs, age and gender did not statistically affect the continence status. Recently, van Tets et al<sup>16</sup>, demonstrated a significant impact on anal resting pressure of a Parks' retractor. In all our patients this instrument was used to gain exposure. It seems likely that overstretching of the sphincters during fifteen to twenty minutes contributes to the impairment of continence. It might be possible that the use of a ring retractor with multiple skin hooks on elastic bands minimizes the risk of sphincter damage and subsequent impairment of continence.

## **CONCLUSIONS**

Transsphincteric perianal fistulas, passing through the upper and middle third of the external anal sphincter can be treated effectively by transanal advancement flap repair. This procedure however is less effective in patients with multiple previous repairs. The high incidence of continence disturbances after the flap repair is probably due to the use of the Parks' retractor.



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## INVITED COMMENTARY

*By Dr. Pedro S. Aguilar, M.D., Columbus, Ohio*



The incidence rate of fecal incontinence after fistula surgery increases in direct proportion to the complexity of the fistula. In an attempt to avoid this complication, we<sup>1</sup> proposed the use of a transanal mucosal advancement flap (TAFR) to cure complex anorectal fistula, preserving the sphincter mechanism. Our initial work reported a 10 percent incidence of impaired continence and more recently our group reported an incontinence rate of 15 percent after this procedure<sup>2</sup>. Schouten and colleagues reported on their experience with 44 patients who underwent TAFR for the treatment of transsphincteric fistulas. A success rate of 75 percent was reported, which correlates inversely with the number of prior attempts, being 87 percent in those who had only one or no previous attempt at repair. This is not as high as the success rate reported by our group; however, it seems reasonable. What is remarkable about Schouten and coworkers' work is the 35 percent incidence of fecal incontinence reported. They attribute this to the use of a Parks' anal retractor. Although it is a plausible explanation, it might also be because their technique included fibers of the internal sphincter in their flap. Only a prospective, comparative study of TAFR using a standardized technique vs. staged fistulotomy supported by manometric and functional outcome will determine whether the TAFR truly causes less impairment of continence, as earlier proposed.

### **The authors reply:**

The authors have read the comments by Dr. Aguilar with interest. In his invited commentary, Dr. Aguilar states that it is remarkable that we report a 35 percent inci-