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Endorectal Mucosal Advancement Flap for Treatment of Complex Anal Fistula

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Abstract **Sixteen patients who had complex anal fistula were treated in both private and government hospitals in Chiang Mai from 1992 to 1996. They comprised 12 men and 4 women. The treatment consisted of enlarging the external opening for well drainage, curetting the tract, and separating the fistulous tract from its communication with the anal canal by using the endorectal mucosal advancement flap. Nine of 16 patients (56%) produced satisfactory results. Among the failures, the longest period of time before symptom recurrence was 8 months. The causes of failure seemed to relate to the presence of diffuse internal hemorrhoids, taut anal mucosa, and failure to remove septic tissue in the fistulous tract.**

Key Words : *complex anal fistula, treatment, mucosal advancement flap*

Fistula in ano is believed to be a chronic form of anal gland infection. A complex anal fistula is high in the anal canal and, if treated by a conventional lay-open technique, has a substantial chance of compromising continence.[1] The staged fistulotomy or a cutting Seton protracts the course of treatment and might have some degree of incontinence. Separation of the fistulous tract from its communication with the anal canal by using the endorectal mucosal advancement flap, if successful, might be the answer to the treatment of complex anal fistula. This latter procedure has more benefit over the former because it does not disturb any of the sphincter muscles. Also it does not protract the course of treatment and, as the wound of fistula is still wide open. There is a chance of carrying out other procedures should this approach fail.

Patients And Methods

From 1992 to 1996, 16 patients with complex anal fistula were treated with the following technique in both private and government hospitals in Chiang Mai. There were 12 men and 4 women with a mean age of

43 years (range 37-71). Informations about the fistulous tract length, the presence of internal hemorrhoids, and the tautness of mucosa were recorded. No patient had inflammatory bowel disease.

Operative Technique

All patients had the same preoperative preparation as for a simple fistulotomy, which consisted of a single soapsuds enema 4-6 hours before surgery and 500 mg of metronidazole given intravenously within 30 minutes before surgery. Either spinal anesthesia or a combination of caudal block with general anesthesia under a mask was used. Patients were placed in a lithotomy position. The Hill-Ferguson anal retracter was placed in the anal canal and the internal opening was identified by using a fistulous probe or, in difficult cases, hygrogen peroxide. Location of the internal opening was found to be at the posterior in all cases. Diagnosis of the complex anal fistula and the decision to do an endorectal mucosal advancement flap was made at this stage. In the first 2 cases, curettage of the fistulous tract was not carried out, but in the following 14 cases, a cruciate incision, about 1 cm in each, was made over the external opening to enlarge it, and all septic tissue in the fistulous tract was removed by using a soft tissue curette. Bleeding from tract curettage was stopped by packing the fistulous tract with a slender gauze pack soaked with 1: 100,000 adrenalin solution. A trapezoid-shaped, broad base flap consisting of mucosa, submucosa, and sometimes a superficial layer of the internal sphincter was mobilized 3-4 cm proximally by using a sharp dissection. The ratio between the pedicle length and base of this flap should not exceed 2 : 1 (Figure 1, A and B). The internal opening of the fistulous tract was closed with 2 stitches of 4/0 absorbable interrupted suture. Two Allis tissue forceps were clamped at the tip of the mobilized flap (which would be excised later-on). The weight of these two Allis tissue forceps were used as a continuous traction down, advancing the mobilized flap distally while suturing both right and left lateral edges of the mobilized flap with 4/0 absorbable, interrupted suture was done (Figure 1C). If more weight for the distal traction advancement of the mobilized flap was required, another 1 or 2 Allis tissue forceps could be clamped at the handle of the first two. Finally the clamping tip of the mobilized flap, which was in excess at this time, was excised and the suturing of the flap was completed (Figure 1D). No intraanal packing was required. Packing gauze in the fistulous tract was removed.

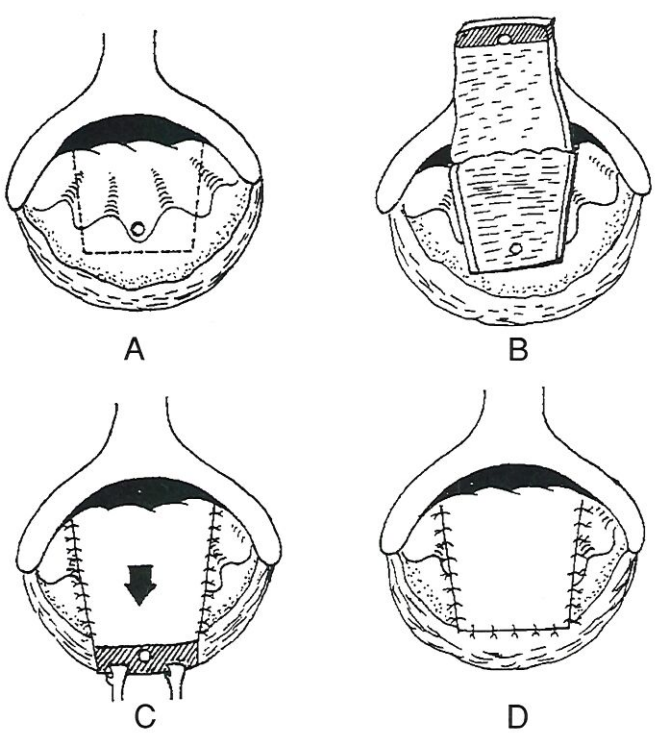

Fig. 1 A: Outlines of the flap to be raised
B: The flap is elevated
C: The shaded area is part of the flap that will be excised and this is the area to be clamped with Allis tissue forceps for continuous traction down distally
D: Flap is sutured in place.

Postoperative Care

Patients were put on a clear liquid diet for 3 days to ensure adequate healing of the flap. A regular diet was given on the fourth postoperative day. Metronidazole was given intravenously, then orally for a total of 7 days. No Sitz bath was advised. However, patients were advised to clean their perineal area with water after every bowel action.

Each patient was appointed to be seen 2 weeks, 1 month, 2 months and 3 months after their operation. After the third month, patients were appointed to be seen every 3 months for up to one year after their operation. All patients were advised to contact the surgeon immediately if any pain, induration,or discharge occurred at the operative site. In such cases, they were asked to be seen as soon as possible to determine whether it was a recurrent fistula-in-ano or not. After one year, patients were advised to be seen

only if they thought that something abnormal had happened at their perianal area.

Results

Most of the patients had passed their stool within the first 48 hours after the operation. This should be the stool that had remained in the colon preoperatively. All patients came to see the doctor, as appointed, for the first two visits. Twelve out of 16 (75 %) came for the third visit. Nine out of 16 (56 %) for the fourth and only 3 out of 16 (18 %) for the fifth. Patients who did not come to see the doctor as appointed were followed up by telephone or, sometimes, visited at their homes.

The distance from the anal verge to the external opening was less than 4 cm in 4 cases, and was equal or more than 4 cm in 12 cases. In all cases, the fistulous tract could not be palpated.

Of the 16 cases, 9 (56%) had no symptoms of recurrence within one year after the operation. These were defined as success cases. Seven (44%) were failure.

Among the success cases, fistulous tract curettage was completed in all of them. One out of 4 cases who had a diffuse internal hemorrhoids at the flap site was successful.

Among the failures, 2 were detected within 2 months, 2 within 3 and the other 2 within 5. Only one case was detected within 8 months postoperatively.

The first 2 cases which curettage of the fistulous tract was not carried out, both failed. Three out of 4 cases of diffuse internal hemorrhoids at the flap site failed, while 2 out of 2 cases of taut anal mucosa also failed.

Discussion

Complex anal fistula is relatively rare, and most surgeons have dealt with it infrequently. The treatment method of complex anal fistula can be divided into 2 groups. The first one, which is the classic treatment, is to divide the sphincter muscles in stages with the use of the Seton, by allowing a scar to form that holds the ends of the sphincters muscles together. The result of Seton use has not always been satisfactory. Parks and Stitz[2] reported 22 per cent of 106 patients treated with the Seton had minor sphincter functional disturbances. The second method, is to separate the fistulous tract from its communication with the anal canal by using various types of flaps which allow the fistulous tract to heal by fibrosis. The latter method is more advantageous than the former because it does not disturb any of the sphincter muscles. Jun and Choi[3] reported a 97 per cent (39 out of 40 patients) success rate using the anocutaneous advancement flap. Pino et al[4] reported a 72 per cent (8 out of 11 patients, 3 of these had Crohn's disease) success rate using island flap anoplasty, as in the treatment of anal stricture or mucosal ectopian. In the Pino et al series, fistulous tract curettage was not done in most cases. Many authors[1,5,6,7] reported a good result when using the mucosal advancement flap with or without complete fistulous tract extirpation. The success rate reported ranged from 75 to 98 per cent. It seemed to the authors that various types of advancement flap might be the answer to the question about the treatment of complex anal fistula.

Diagnosis of complex or high type anal fistula was made before surgery in all series reported. This allowed all patients to have preoperative full mechanical bowel preparation and antibiotics, the same as in colonic surgery. In the authors' series, the precise diagnosis of complex anal fistula, as defined, could be made only after the patients were anesthetized, the fistulous probe put in place, and the amount of sphincter muscles to be cut assessed. Preoperative palpation of the fistulous tract was not enough to make this diagnosis. This explained why patients in the authors' series did not have full mechanical bowel preparation and passed stools early in the postoperative day. These points might affect the viability of the flap.

Fortunately, all patients in the authors' series had a posterior midline internal opening at the dentate line, and this gave the lithotomy position as the best one for doing this kind of operation. In the case of patients having an anterior internal opening, a prone jack-knife position seemed to be better.

The first 2 cases in authors' series did not have a fistulous tract curettage done and both cases failed. If one carried out fistulous tract curettage in such a case, one would see a significant amount of septic tissue removed. If this septic tissue remained in the fistulous tract, it could be an origin of the septic process that might spread underneath the flap and cause flap failure. Curettage of the fistulous tract and a well-drained external opening might affect the re-

sult.

Hemorrhoids, presented at flap site, cause bleeding, and force the surgeon to use too much coagulating current, which would affect the blood supply to the flap. Thus, lowering the success rate of this operation.

Taut mucosa from the scar at the flap site would put the flap under tension and compromise its blood supply. This might increase the failure rate.

The time of recurrence symptom in the authors' series might not be very accurate because it depended mainly on information given by the patient. Although the diagnosis of recurrence was proved by asking the patients to be seen in the office or at his or her home, some patients were not sure about the exact date of the first recurrence symptoms. This made an earlier time of recurrence than previously mentioned possible. That is why the time of recurrence was reported in term of : within a number of months.

Conclusion

Although the number of cases studied is still too small to be conclusive, the causes of failure seemed to relate to the failure of removing septic tissue in the fistulous tract, the presence of hemorrhoids at the flap site and taut anal mucosa. The effect and success rate of mechanical bowel preparation and early passing of a stool after operation need a further comparative study, which would also give answer to the question, whether postoperative bowel confinement is needed or not. Finally, it might need more than 8 months before a successful conclusion could be made.

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