

## Repair of Anorectal Vaginal Fistula Utilizing Segmental Advancement of the Internal Sphincter Muscle\*

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EXPERIENCE and proficiency in managing anorectal problems do not always assure success in the management of anorectal vaginal fistulas. The standard fistulectomy or fistulotomy frequently results in continued drainage or incontinence because the fistulous tract runs deep to the perineal body.

Anorectal vaginal fistula is encountered rarely. In our experience with more than 4,000 anorectal operations, we have treated only 30. This type of fistula most commonly is caused by an infection or abscess originating in the anal tubular glands that open into the anterior crypts of Morgagni. Fistulas developing after third-degree tears at the time of childbirth may be either anorectal or rectovaginal.

The best means of correcting an anorectal and low rectovaginal fistula is by advancement of the internal fistulous opening to the anal margin as described by Elting,<sup>1</sup> Laird,<sup>3</sup> Mengert and Fish,<sup>4</sup> and Gallagher and Scarborough.<sup>2</sup>

Advancement of a mucosal flap, as described by Laird, requires very careful dissection to avoid tearing, inadequate blood supply or retraction. Advancement of the anterior rectal wall, with or without including the internal sphincter muscle, requires a considerable degree of mobilization, and even then there is a possibility that the flap will retract.

The technic described here utilizes segmental advancement of the internal sphincter muscle, the attached overlying mucosa, and the internal or primary fistulous opening. Advancement of only this portion of the muscle lessens the need for wide mobilization and retraction. The external sphincter muscle and its attachment to the perineal body are not disturbed, and this lessens the likelihood of incontinence. This technic can be employed when the internal fistulous opening lies at the dentate line, as it does in 90 per cent of anorectal vaginal and anorectal fistulas. It should not be employed to remedy a rectovaginal fistula when the internal opening is at or proximal to the anorectal ring, or when the right and left anterior hemorrhoidal areas have been removed or are fixed.

Planning and anticipating each step prior to repair of an anorectal vaginal fistula assures a good result. We have studied the anatomy of the anorectal region carefully by examining specimens obtained from the pathologist. Complete knowledge of anatomy will reveal why advancement of a segment of the internal sphincter muscle can be performed without disturbance of function, and will also show how far the segment needs to be advanced (Fig. 1).

The length of the anterior anal or surgical anal canal is approximately 2.4 cm. The anal crypts and glands, where almost all fistulous abscesses originate, lie in the mid-portion of the anal canal over the internal sphincter. Extending cephalad from the den-

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tate line for about 1.2 cm, and still overlying the internal sphincter, are the folds of Morgagni which overlie the internal hemorrhoids. The internal hemorrhoidal areas are 4 to 10 mm wide, and the mucosa is elevated 4 to 10 mm above the underlying internal sphincter. The looseness of the hemorrhoidal areas allows easy separation of the mucosa from the underlying muscle and advancement without tension.

The internal sphincter muscle extends

from the internal margin of the anal canal or anorectal ring to about .6 cm below the dentate line, where the lower .6 cm of the canal is closed by action of the subcutaneous portion of the external sphincter muscle. Therefore, if a skin incision is made overlying the subcutaneous external sphincter, the segment containing the fistulous tract lying at the dentate line must be advanced about .9 cm in order to bring the internal opening to the outer anal margin.

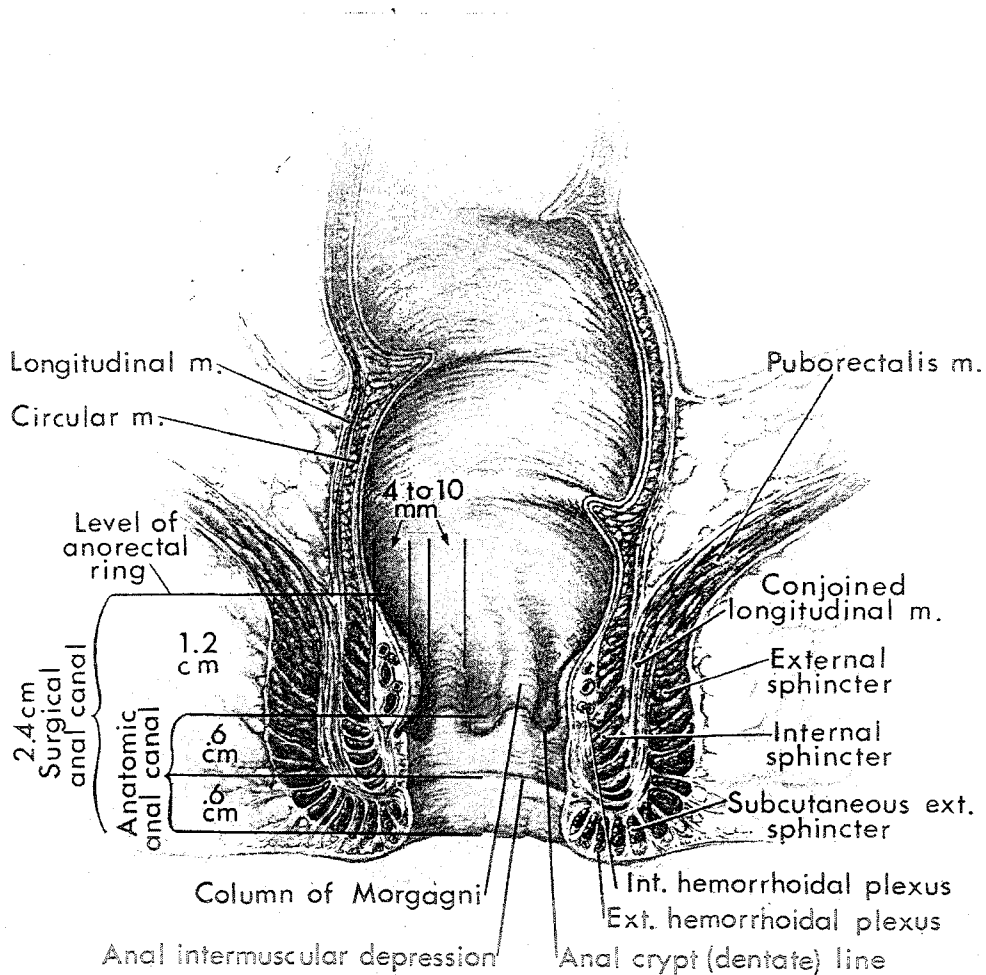
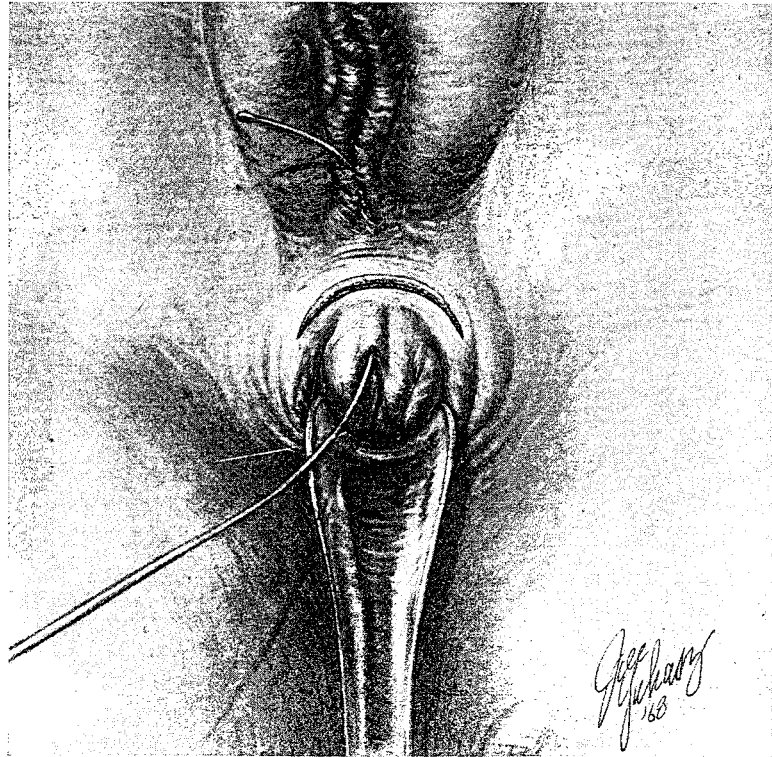


FIG. 1. Coronal section of anal canal. By observing dimensions of anal canal, it can be seen that the segment containing the fistulous tract must be advanced about .9 cm in order to bring the internal opening to the outer anal margin.

FIG. 2. Anorectal vaginal fistula. Skin incision over the midportion of the subcutaneous portion of the external sphincter muscle.



and prevent undermining of the skin during defecation.

The anal canal is surrounded by two muscular sleeves. The inner sleeve consists of the internal sphincter muscle, which is a continuation of the circular muscle of the rectum. The outer sleeve comprises the external sphincter muscle, which is a prolongation of the puborectalis muscle. The key to sliding the inner sleeve forward surgically is the conjoined longitudinal muscle, which is a continuation of the longitudinal muscle of the rectum. This muscle provides a plane for dissection between the two anal sphincters and eliminates the risk of altering function.

#### Technic

The technic that we employ consists of palpating the anal intermuscular depression and making an anterior semicircular

skin incision over the midportion of the subcutaneous external sphincter, which extends from the right anterior to left anterior (10 to 2 o'clock) position (Fig. 2). Dissection is carried beneath the skin to the lower margin of the internal sphincter, where the anal mucosa is dissected off the entire length of the underlying internal sphincter, but *only* in the right anterior primary (11 o'clock) and left anterior secondary (1 o'clock) hemorrhoidal areas (Fig. 3). No attempt is made to dissect off a flap of mucosa between these two positions because of the thinness of the mucosal space and fixation by scar tissue. At the lower margin of the internal sphincter, the conjoined longitudinal muscle fibers are incised to separate the internal and external sphincter muscles. The entire anterior portion of the internal sphincter is dissected away from the deep external

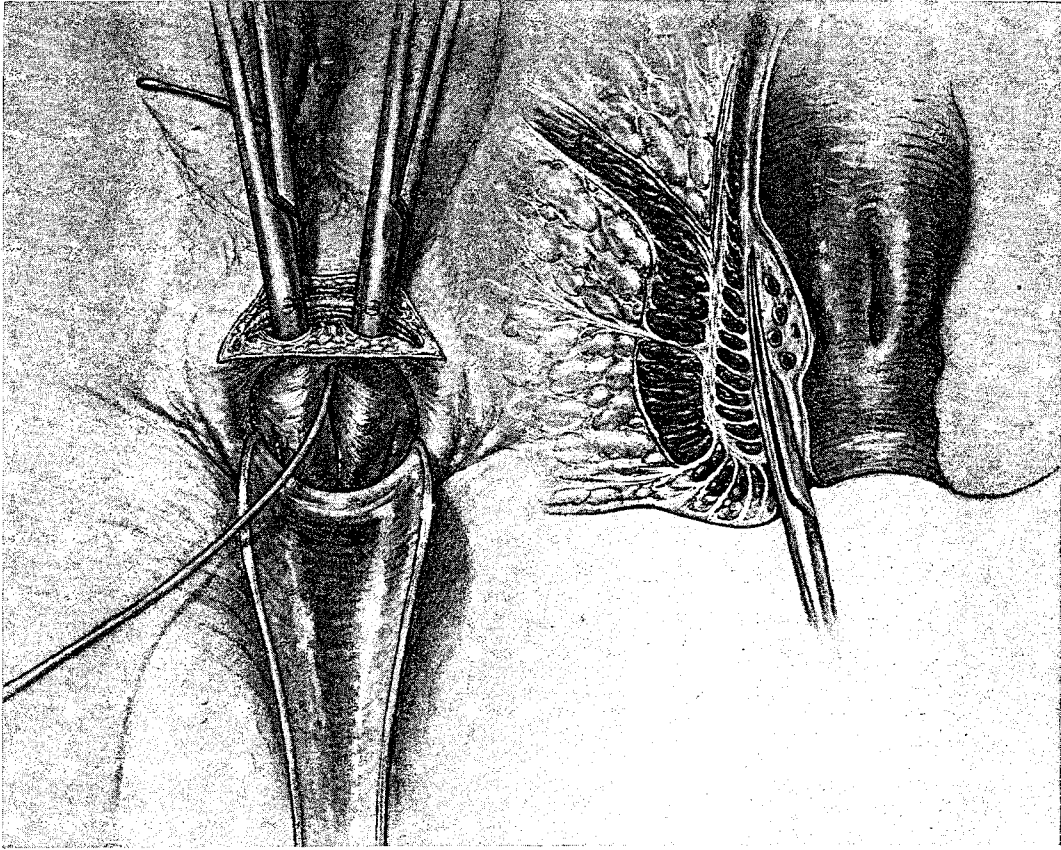


FIG. 3. Dissection between internal sphincter and loose right anterior primary and left anterior secondary hemorrhoidal areas. Mucosa between these two hemorrhoidal areas should not be disturbed.

sphincter by following along the plane of the conjoined longitudinal muscle to the upper margin of the internal sphincter, where the rectovaginal septum is entered (Fig. 4a). During the dissection, the fistulous tract is severed. It is not necessary to close the vaginal defect.

After separation of the mucosa from the internal sphincter at the 11 and 1 o'clock positions, and separation of the internal sphincter from the external sphincter, two small, straight, intestinal clamps are applied along the full length of the internal sphincter, and the muscle is incised lateral to the clamps (Fig. 4b). Forward traction on the clamps readily brings the internal fistulous

opening to the midsubcutaneous external sphincter level. The apposing internal sphincter edges are sutured with 000 chromic catgut (Fig. 4c). The cuff of the internal sphincter is excised at the internal fistula site along with the crypts and adjacent scar tissue. The wound is closed with cotton or braided wire suture (Fig. 4d). Fluid which might accumulate between the tissue flap and the vagina is drained by introducing a 1/2-inch rubber drain through a transverse midperineal incision (Fig. 5).

Preoperative enemas are given to clear the rectum, but no other preparation has been utilized. After the operation, the patient is maintained on a low-residue diet,

and a mineral oil emulsion is administered. Sitz baths are not employed, and a bowel movement is initiated on the third postoperative day by administering a low, tap-water enema. Sutures are removed on the seventh postoperative day.

The procedure described for repair of vaginal fistula arising in the anal canal is relatively easy to perform, extensive mobilization is unnecessary, the possibility of retraction of the flap is minimized, and no incontinence develops.

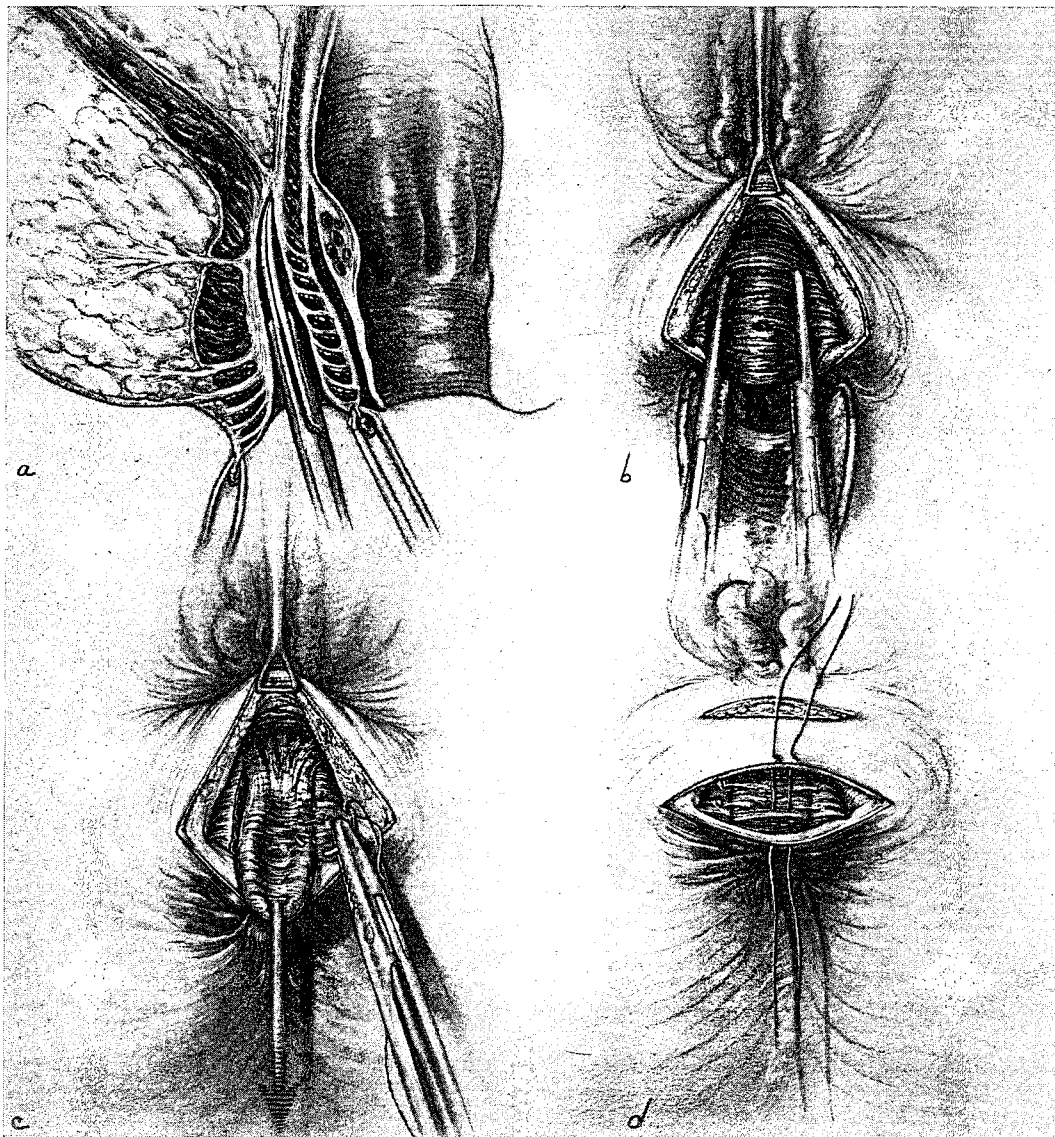


FIG. 4a. By dissection, entire anterior portion of internal sphincter is separated from deep external sphincter. *b*. Clamps are applied along full length of segment of internal sphincter containing fistula and muscle is incised lateral to clamps. *c*. Segment containing fistula is advanced until internal opening is brought to site of skin incision. *d*. Closure of wound. Internal sphincter, anal crypts and adjacent infected tissue are removed at fistula site.

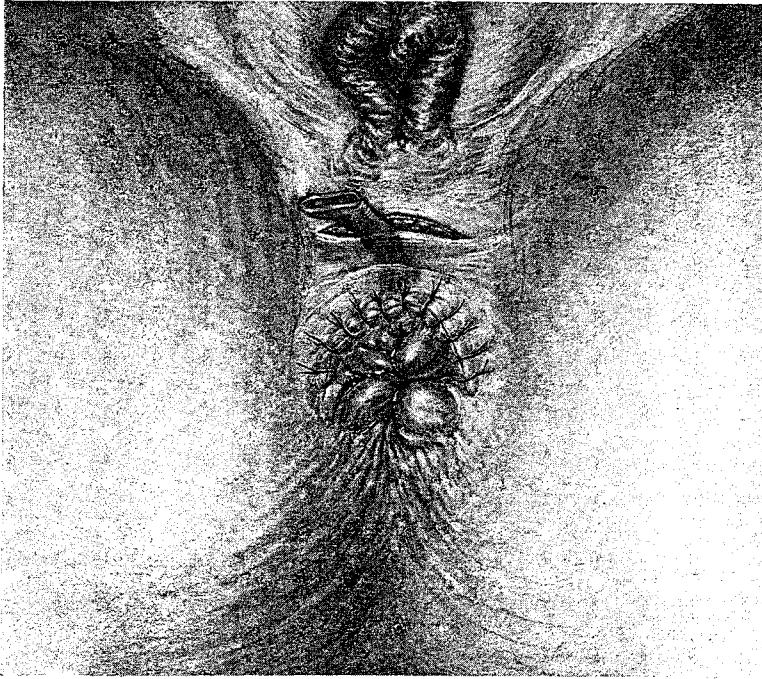


FIG. 5. Space between tissue flap and vagina is drained through transverse midperineal incision.

Ten of 30 patients with anorectal vaginal fistulas were treated by the method described and all had good results. Other technics were employed on the other 20 patients. Eight of the early operations consisted of fistulectomy and drainage. In these cases, partial incontinence required a second operation. Eight patients treated by advancement of the anterior rectal wall obtained good results, despite the fact that they had undergone previous unsuccessful operations and two had also had hemorrhoidectomies. In four patients, mucosal

flap repairs were performed and of these, there was one failure.

#### References

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