The Role of Fistulography in Fistula-in-Ano

Report of Five Cases

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A retrospective review of 27 patients undergoing anal fistulography is presented. The etiology of the 27 fistulas studied are as follows: cryptoglandular infection in 18, IBD in 7 (Crohn's 6, CUC 1), iatrogenic in 1, and foreign body perforation in 1. Twenty-six fistulograms revealed either direct communication with the anus or rectum, or abscess cavities/tracts, or both. Two fistulograms revealed no radiographic evidence of fistula (one patient had two fistulograms). In 13 of the 27 patients (48 percent) information obtained from the fistulograms revealed either unexpected pathology (n = 7) or directly altered surgical management (n = 6). We conclude that anal fistulography in properly selected patients may add useful information for the definitive management of fistula-in-ano. [Key words: Anal fistula; Fistulography; Fistula-in-ano]

Preoperative identification and intraoperative management of fistula-in-ano usually relies on visual inspection, palpation, and probing to identify both the internal and external openings of the fistula tract, as well as its direction. Occasionally, injection of colored dyes (methylene blue, indigo carmine), mild, or hydrogen peroxide is used in order to establish the direction and openings of a fistula.[1] The preoperative use of radiographic contrast studies (fistulography) has not achieved widespread use. One study has found it not to be beneficial.[2] We report the use of preoperative fistulography in 27 patients treated for fistula-in-ano.

MATERIALS AND METHODS

A retrospective chart review was undertaken of 27 patients who underwent fistulography in their preoperative management of chronic fistula-in-ano between 1982 and 1987. These radiologic procedures were primarily performed on an outpatient basis using small caliber feeding tubes to intubate the external opening of the fistula after which contrast material was injected under minimal pressure. Radiographs were then obtained in anterior-posterior (AP), oblique, and lateral projections.

Twenty-seven patients (18 male, 9 female) with a mean age of 39.2 years (range 23–59 years) underwent fistulography before attempted definitive surgery. Etiologies of the fistula included: cryptoglandular infection in 18, inflammatory bowel disease in seven, iatrogenic in one, and foreign body perforation in one (Table 1).

Of the 18 patients with cryptoglandular infection, 13 had prior surgery for either abscess or fistula (five had both). The rest had been treated in various manners summarized in Table 2. Of the seven patients with inflammatory bowel disease, four had incision and drainage of an abscess, two had multiple fistulotomies and one developed a fistula after ileal pouch-anal anastomosis for chronic ulcerative colitis. An iatrogenic rectocutaneous fistula was seen after excision of a retrorectal cyst with a nonhealing sacral wound. This patient previously had a diverting colostomy before referral. The foreign body perforation had been treated on multiple occasions by drainage of the recurrent ischiorectal abscesses.

REPORT OF CASES

Case 1

A 28-year-old woman who had undergone multiple drainages of perirectal abscesses underwent fistulography (Fig. 1). This revealed a large retrorectal cavity (arrows), as well as a direct communication with the rectum. Staged fistulotomy, with placement of a seton, as well as wide drainage of the deep postanal space, led to complete healing.

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Diseases of the Colon & Rectum

Table 1.
Etiology of 27 Fistulas

Etiology	n
Cryptoglandular	18
Inflammatory bowel disease	7
Iatrogenic	1
Foreign body perforation	1

Table 2.
Previous Treatment Methods in 27 Patients Undergoing Fistulography

Etiology	n
Cryptoglandular (N = 18)	
I and D Abscess for Fistulotomy (Both) 5	13
Spontaneous Drainage	1
Excision of "Hidradenitis"	1
Antibiotics Alone	1
None	2
Inflammatory bowel disease (N = 7)	
I and D of Abscess	4
Multiple Fistulotomies	2
Diverting Ileostomy (Ileal J-Pouch)	1
Iatrogenic (N = 1)	
Diverting Colostomy (Retocutaneous fistula)	1
Foreign body perforation (N = 1)	
I and D	1

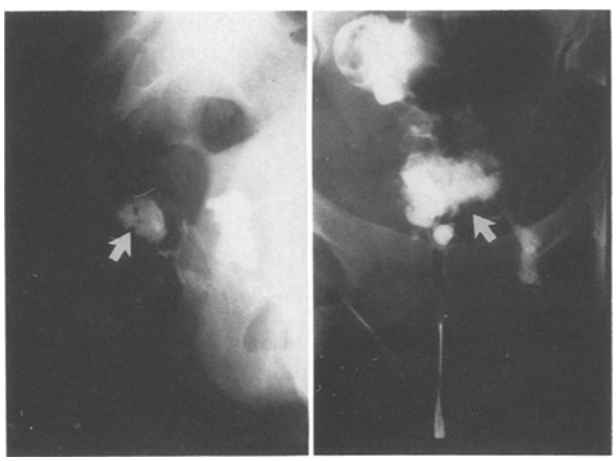

Figure 1. Fistulogram revealing large retrorectal cavity (arrows) in a 28-year-old woman.

Case 2

A 47-year-old man had undergone excision of what was presumed to be hidradenitis suppurative of the anterior perineum. He presented with an external opening in the anterior midline at the base of the scrotum 4 cm from the anus. Fistulography revealed a direct communication with the rectum (Fig. 2). Staged fistulotomy with placement of a seton resulted in complete healing.

Case 3

A 23-year-old woman had undergone a parasacrococcygeal excision of a retrorectal cyst with the development of a rectocutaneous fistula. Previous barium enemas before referral had demonstrated the fistula. Fistuolography revealed only a subcutaneous cavity, but no communication with the rectum (Fig. 3). Excision of the sinus tract resulted in complete healing.

Case 4

A fistulogram, which was immediately followed by a barium enema, was taken in a 32-year-old woman with significant anorectal Crohn's disease and multiple external openings. The radiograph revealed multiple fistulous tracts and led to the decision to perform a proctectomy, which resulted in complete control of the disease.

Case 5

A 44-year-old woman with Crohn's ileitis and a normal anorectum was seen with a presumed high fistula. Fistulography revealed a simple fistula. Conventional fistulotomy was performed and resulted in complete healing.

RESULTS

Twenty-eight fistulograms were obtained in 27 patients (one patient had repeat fistulography after the development of a recurrent fistula after initial surgical management). Seventeen fistulograms (in

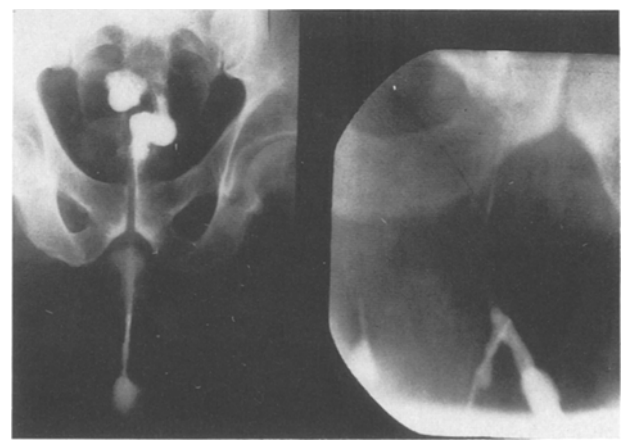

Figure 2. Fistulogram revealing direct rectal communication in a 47-year-old man with "hidradenitis."

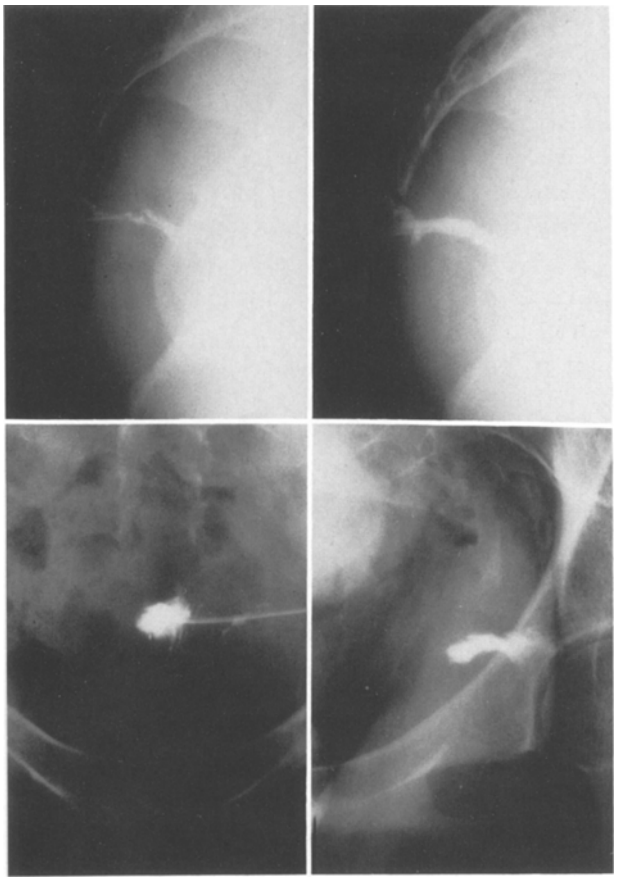

Figure 3. Fistulogram revealing a subcutaneous cavity in a 23-year-old woman after excision of a retrorectal cyst.

Table 3.
Fistulography Findings

Finding	n
Communication with rectum	17*
Fistulous tract or subcutaneous cavity	9
Non-diagnostic	2

* One patient had two fistulograms—both showing communication with the rectum.

Table 4.
Effect of Fistulography on Surgical Management

Effect	n
None	14
Significant	13
Unexpected findings	7
Altered surgical management	6

Table 5.
Operative Treatment of 27 Patients After Fistulography

Treatment	n
Staged fistulotomy with seton	9
Fistulotomy with drainage, associated abscess	8
Fistulotomy alone	6
Proctectomy	2
Excision of fistulous tract	1
Transsphincteric (York Mason) approach	1

16 patients) revealed a communication with the anus or rectum, nine showed evidence of a fistulous tract or a subcutaneous cavity without definitive anal or rectal communication, and two were nondiagnostic (Table 3).

Twenty-five of the 28 fistulograms actually demonstrated the true nature of the fistulas (23 true positive and 2 true negative) confirmed at surgery. Three false negative fistulograms were obtained, however, these did not change after the surgical management of the patients.

No patient developed an iatrogenic complication due to the fistulography and this can be attributed to the choice of the blue-tipped catheter (small feeding tube) and the low pressure used to inject the dye.

The surgical management of 14 of these patients was straight forward, and was not altered by the additional information afforded by the fistulograms. However, in seven patients, an unexpected finding was seen during fistulography. These included large subcutaneous cavities, multiple or exceptionally long fistulous tracts, or noncommunication with the rectum in a previously documented fistula. All of these were not appreciated during physical examination. In six additional patients, the results of the fistulogram directly altered the ultimate surgical management. These included identification of previously unappreciated suprasphincteric fistula in two patients, multiple complex fistula in two patients with anorectal Crohn's disease, and two straight-forward cryptoglandular fistulas in patients with inflammatory bowel disease, one who had Crohn's disease not involving the anorectum, and another with chronic ulcerative colitis who developed a pouch-anal fistula after a pull-through ileoanal anastomosis. Thus, in 13 of 27 patients (48 percent), the information obtained from preoperative fistulography was considered significant and useful (Table 4).

Operative techniques carried out in these 27 patients is summarized in Table 5. Nine patients needed staged fistulotomy (with placement of a seton); one patient required a three-stage procedure. All healed with no recurrence. Eight patients underwent fistulotomy and drainage of associated

abscesses with one recurrence (persistence). Six patients (including three with Crohn's disease not involving the anorectum) had simple fistulotomies with good results. Two patients with extensive anorectal Crohn's disease and multiple high fistulas underwent proctectomy.

Excision of the fistulous tract and a transphincteric approach for a suprasphincteric fistula were required in one patient each.

DISCUSSION

Most fistulas-in-ano can be preoperatively or intraoperatively assessed with traditional diagnostic maneuvers. Inspection and palpation of the external and internal openings, as well as the fistulous tract itself are the mainstays of evaluation. Anoscopy and proctoscopy aid in this evaluation, as is the application of Goodsall's rule. Occasionally operative identification of the primary opening of the fistula-in-ano can be difficult. Injection of colored liquids or effervescent solutions can help identify the fistulous tract.[1]

Recurrent fistulas-in-ano pose more difficult problems in assessment and management, not the least of which is due to the alteration in the normal perianal anatomy due to the disease process itself or previous attempted surgical management. It was primarily in these patients that we found fistulography helpful in assessing the nature and extent of the fistula-in-ano and allowing us to correctly treat our patients.

Patients with inflammatory bowel disease present unique problems of fistula-in-ano. Many of these patients have involvement of the anorectum with inflammatory bowel disease as the cause of their fistula, and definitive surgical management of the fistula can be difficult, if not impossible. In some cases, the anorectal inflammatory bowel disease can be so extensive that nothing short of proctectomy will control the disease. The clinical decision to offer a proctectomy can be difficult, and fistulography may offer further evidence to support that decision.

Some patients with inflammatory bowel disease in the gastrointestinal tract outside of the anorectum have fistula-in-ano due to cryptoglandular infection. Traditional surgical techniques can cure these patients of their disease, and fistulography can be helpful in selecting these patients.

Finally, as more experience is obtained with ileal pouch-anal anastomosis for chronic ulcerative colitis, more and more patients will be seen who have perianal fistulas. Surgical decision making for these patients can be very difficult, especially when the necessity for pouch excision is among the surgical options. Fistulography may be very useful in identifying that small group of patients who can be treated with conventional surgical techniques.

In conclusion, a more extensive experience with fistulography for fistulas-in-ano needs to be accumulated, but our early results support the benefits of fistulography in the preoperative evaluation of chronic fistulas-in-ano in patients with recurrent cryptoglandular disease, and in selected patients with inflammatory bowel disease.

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