

# A Prospective Survey of 474 Patients with Anorectal Abscess\*

DON R. READ, M.D.,† HERAND ABCARIAN, M.D.

PATIENTS WITH ANORECTAL ABSCESSES are seen by surgeons throughout the world, but a disproportionate number of these patients seem to present at certain institutions, such as Cook County Hospital. In an effort to learn more about our population of patients with anorectal abscesses, a prospective survey was undertaken in June 1974.

## Patients and Methods

A prospective study form was attached to each patient's chart upon admission for treatment of an anorectal abscess between June 1974, and April 1977. Patients with pilonidal abscesses were not included in this report. Data were obtained from 474 patients.

During this study, all patients were treated utilizing a standard protocol. All abscesses were drained by means of a single stab incision under local anesthesia shortly after arrival on the ward. The patients were then examined under regional (caudal or spinal) anesthesia in the operating room at the next regular operating period (normally less than 24 hours after admission). A careful search was made for the presence of an internal opening of an anal fistula. If a fistula was identified, a primary fistulotomy was performed. Adequate external drainage was established utilizing single or multiple radial incisions, depending upon the size of the abscess cavity. A narrow skin edge (0.5 cm) was excised from each margin of the incisions to prevent premature closure of the drainage sites. Hemostasis was secured by means of electrocautery. The abscess cavity was packed with Iodoform® gauze, which was removed in stages over the next day or two. In patients with large ischioanal or suprapleural cavities, five to seven days were required to remove all of the Iodoform gauze packing.

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† Current address: Suite 319, Medical City Dallas, 7777 Forest Lane, Dallas, Texas 75230.

Address reprint requests to Dr. Abcarian: Section of Colon-Rectal Surgery, Cook County Hospital, 1825 W. Harrison, Chicago, Illinois 60612.

*From the Section of Colon-Rectal Surgery,  
Cook County Hospital, and  
Department of Surgery,  
Abraham Lincoln School of Medicine,  
University of Illinois, Chicago, Illinois*

Sitz baths were begun on the first postoperative day and were continued until all the wounds were healed.

## Results

Among these 474 patients, the ethnic mixture closely reflects our patient population, over 90 per cent of the patients being black (Table 1). Almost two-thirds of the patients (64 per cent) were male. The patients' ages ranged from 15 to 81 years (patients under the age of 15 are admitted to the pediatric surgical service at Cook County Hospital and are, therefore, not included in this survey). Over half of the patients were under the age of 30, and over three quarters of them were under the age of 40 (Table 2). Only 0.4 per cent were over the age of 70 years.

Anorectal abscesses occurred almost exclusively in otherwise healthy young adults. Only 60 patients (12 per cent) had other medical problems, the most common being diabetes mellitus in 22 patients (4.6 per cent). Hypertension was present in 14 patients (3 per cent). Crohn's disease was present in two patients (0.4 per cent). Pulmonary tuberculosis was present in three patients (0.6 per cent). Two patients developed an anorectal abscess within four months following hemorrhoidectomy. Only 29 per cent of the patients were febrile on admission. Not more than 2 per cent of the patients had a demonstrable cause for their abscess (chicken bone, recent anorectal operation, associated anal fissure, thrombosed hemorrhoid, etc.).

Almost one-third (32 per cent) of patients gave a past history of anorectal or pilonidal abscess. Of this group, 72 per cent had had at least one prior abscess in the same location as the one that was present on admission. Half of this group (53 per cent) had had at least one incision and drainage of their prior abscess(es); 31 per cent had noted spontaneous rupture

of a prior abscess; and 24 per cent had undergone spontaneous remission.

The anatomic location of the anorectal abscesses in our patients is shown in Table 3. These abscesses were equally distributed between the anterior hemisphere and the posterior hemisphere. There was some predilection for abscesses to occur on the left side (53 per cent), rather than the right side (38 per cent). The abscess was bilateral in 9 per cent.

Excluding cases of hidradenitis suppurativa and gluteal abscess, an internal fistulous opening could be demonstrated in 34 per cent of the patients. Primary fistulotomy was performed in 97 per cent of this group. The incidence of fistula by anatomic location is shown in Table 4.

Complications occurred in the operating room in five patients (1 per cent): respiratory distress (two patients), hypotension, hypertension, and seizures. In all cases these complications appeared to have been produced, or aggravated, by the regional anesthesia, the prone jackknife position, or both.

Postoperative complications occurred in 11 patients (2 per cent). Five patients had minor medical problems: fever (two patients), chest pain, bradycardia, and difficulty in establishing a proper insulin dosage in a diabetic patient. Five patients had local wound problems: bleeding (two patients) and infection (three patients), with two of the latter requiring a secondary drainage procedure. One patient developed a metastatic paraspinal (psoas) abscess.

The hospital stay averaged 5.7 days for the entire group.

### Discussion

The etiology of anorectal abscesses remains uncertain. Although Goligher<sup>1</sup> states that an obvious cause for the abscess may be present in perhaps 20 per cent of the cases, this was true in not more than 2 per cent of our cases. In the overwhelming majority of patients, no obvious cause for the abscess was identified. The possibility of the infection having arisen in the anal glands was suggested as long ago as 1929, by Lockhart-Mummery,<sup>2</sup> and it remains the most popular theory at the present time. According to this theory, most, if not all, anorectal abscesses originate in the anal glands located in the intersphincteric space. Extension of the resultant intersphincteric abscess to the adjacent perianal or ischioanal space produces the typical perianal or ischioanal abscess. Based on this theory, one might logically expect to find residual pus in the intersphincteric space of patients having perianal and ischioanal abscesses. However, Goligher, Ellis, and Pissidis<sup>3</sup> dissected the

TABLE 1. Ethnic Distribution of Patients

	Per Cent
Black	92
White	5
Hispanic	2
Oriental	1

TABLE 2. Age Distribution of Patients

Age (Years)	Per cent
15-19	20.1
20-29	41.2
30-39	15.9
40-49	11.8
50-59	5.9
60-69	4.7
70-79	0.2
80-89	0.2

TABLE 3. Location of Anorectal Abscesses

	Per Cent
Perianal	42
Ischioanal	20
Intersphincteric	11
Supralevator	7
Submucosal	2
Perianal Hidradenitis Suppurativa	12
Other (high intermuscular, gluteal, etc.)	6

TABLE 4. Location of Anal Fistulas

	Per Cent
Intersphincteric	53
Perianal	33
Submucosal	33
Ischioanal	26
Supralevator	22

intersphincteric region in 29 cases of perianal and ischioanal abscesses and were only able to demonstrate infection present in that location in eight patients (28 per cent). Thus the theory that the anal glands are the site of origin of most anorectal abscesses awaits further proof.

In 1975, McElwain *et al.*<sup>4</sup> reported their detailed experience with 1,000 cases of anorectal abscesses, collected over a period of more than 15 years. In their series, men were affected more often than women (3:1), and the peak incidence was in the fourth and fifth decades of life. Among our patients, men were also more commonly affected, but our male to female ratio (1.76:1) more nearly approximates the 2:1 ratio seen at Leeds by Ellis and Goligher.<sup>1</sup> Our patients were also much younger than McElwain's, with the peak incidence being in the third decade. The age distribution of our patients resembles that seen in a series of 82 anal fistulas reported by Ani and Solanke<sup>5</sup> from Idaban, Nigeria, suggesting that perhaps there is some racial or genetic reason for the occurrence of anorectal abscesses at an earlier age in our population than in McElwain's population.

Anatomically, perianal abscess was the most common type of abscess in our patients, as well as those of McElwain.<sup>4</sup> As with other series,<sup>7</sup> ischio-rectal abscess was our next most common type. Perianal hidradenitis was present in 12 per cent of our patients, reflecting the prevalence of perianal, pubic, and axillary hidradenitis suppurativa in our patient population.

The presence of supralelevator abscesses in 7 per cent of our patients reflects our practice of specifically looking for their presence. After drainage of an abscess involving the ischio-rectal space, a curved six-inch hemostat is gently inserted through the drainage wound to the apex of the abscess cavity, being careful not to penetrate the wall of the apex of the cavity. With a gloved finger in the rectum palpating the tip of the hemostat, one can easily determine whether the apex is above or below the level of the puborectalis and how much muscle is between the rectal mucosa and the tip of the hemostat. By this technique, it is not difficult to distinguish between cephalad displacement of the levator sling by a large ischio-rectal abscess and actual extension of the abscess into the supralelevator space. In none of the 36 patients was the supralelevator abscess secondary to demonstrable intra-abdominal or pelvic pathology, and only rarely was the abscess confined solely to the supralelevator space. Usually it was associated with an ischio-rectal abscess, and not infrequently it was associated with the bilateral ("horseshoe") variety of ischio-rectal abscess. Whether these abscesses began in the ischio-rectal space or in the supralelevator space cannot be determined with certainty. If one accepts the theory that all anorectal abscesses begin in anal glands, then one would have to assume that these supralelevator abscesses always represent upward extension of an ischio-rectal abscess. But one cannot exclude the possibility that an abscess might originate in the supralelevator space itself. Indeed, on rare occasions we have seen an isolated supralelevator abscess with no

demonstrable intra-abdominal, pelvic, ischio-rectal, or perianal infection.

Our method of treatment has worked well for our patient population. After an average hospital stay 5.7 days, most patients are able to return to work or school within two to three weeks, although sitz baths are continued until final wound healing at four to 12 weeks postoperatively, depending upon the size of the skin wounds. The in-hospital reoperation rate of 0.6 per cent supports the adequacy of drainage by our methods. We have not addressed the question of the long-term recurrence rate by our method of treatment. This problem will be addressed in a subsequent review of an expanded series.

In conclusion, at our institution anorectal abscesses are seen in a large number of patients. These patients are almost always young, healthy, and black, and are more often males than females. Our standardized method of treatment has proven to be safe and effective. The use of the operating room and regional anesthesia has facilitated the establishment of adequate drainage of these abscesses. A beneficial by-product of this method has been the sparing of a second operation by the utilization of primary fistulotomy in those 34 per cent of patients in whom a fistula can be identified.

### Summary

A prospective survey of patients with anorectal abscesses treated at Cook County Hospital over a 35-month period produced data on 474 patients. The peak incidence was in the third decade of life. Males were affected 1.76 times more frequently than females. Perianal abscess was the most common anatomic type (42 per cent), with ischio-rectal abscess (20 per cent) being second. The supralelevator space was involved in 7 per cent of the abscesses. Primary fistulotomy was performed when an anal fistula could be demonstrated (34 per cent).

Our standardized method of treatment, utilizing radial incisions for drainage, produced satisfactory results with a complication rate of 3 per cent, an in-hospital reoperation rate of 0.6 per cent, and an average hospital stay of 5.7 days.

### References

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