

## The radiology corner\*

# Psoas Abscess in Inflammatory Bowel Disease

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The inflammatory bowel disease (IBD) is sometimes complicated by the development of a psoas abscess. We recently encountered three patients of IBD with psoas abscess. Two patients had Crohn's ileocolitis and one with ulcerative colitis. During 1979-1984, 23 patients with psoas abscess due to a variety of underlying disease processes were seen at our institution. At the same time period, 483 cases of Crohn's disease and 283 cases of ulcerative colitis were encountered. Therefore, of 766 patients with IBD only three were complicated by psoas abscess (incidence ratio = 0.6%). Thus, psoas abscess was a very rare complication of IBD in patients seen at our institution. In our series of 23 psoas abscess patients, IBD was not a major causative factor. Additionally, to our knowledge, psoas abscess complicating ulcerative colitis has not been reported previously.

### INTRODUCTION

This paper focuses on the association between psoas abscess and inflammatory bowel disease (IBD). The generally held views that with marked decline of spinal tuberculosis in the Western countries, Crohn's disease has emerged as the most common cause of psoas abscess is not supported by our data. We believe this association is overrated and overemphasized in the literature. Psoas abscess is a rare complication of IBD. We present our data and the pertinent cases of IBD complicated by psoas abscess.

### MATERIALS AND METHODS

Medical records and radiographic studies of 23 patients with psoas abscess diagnosed and managed at the University of Michigan Hospital between 1979-1984 were reviewed retrospectively. The underlying pathological processes in these patients are summarized in Table 1. There were two patients with Crohn's ileocolitis and one with ulcerative colitis. This stimulated and prompted a further study to find incidence ratio and

association between IBD and psoas abscess. Therefore, a cross-reference search of medical records of 483 patients with Crohn's disease and 283 patients with ulcerative colitis seen during the same 5-year time period (1979-1984) was conducted.

### RESULTS

Only one more instance of retroperitoneal abscess in a patient with Crohn's disease without involvement of the ileo psoas was found. No other instances of psoas abscess were found in patients with ulcerative colitis. The case histories of three patients with true psoas abscess complicating IBD are briefly summarized.

### CASE REPORTS

#### *Case 1*

A 24-year-old man with known Crohn's disease of the right colon and terminal ileum of 6 years duration presented with crampy abdominal pain radiating to the left leg, fever, and weight loss. Three months earlier he had right hemicolectomy and resection of the terminal ileum for Crohn's disease with abscess formation in the right lower quadrant. Recurrence of Crohn's disease with acute exacerbation was suspected. A barium enema, upper gastrointestinal series with small bowel follow through and colonoscopy did not reveal recurrence of Crohn's disease. A CT scan of the abdomen revealed enlarged left psoas muscle with several areas of decreased attenuation indicative of an ileopsoas abscess (Fig. 1). The barium studies were reviewed again and no fistula to the retroperitoneum was found. The patient was explored surgically and a large left ileopsoas abscess was found which was extending from the level of the mid abdomen to the pelvis. The abscess was debrided, drained, and treated with antibiotics. The postoperative course was unremarkable. When last seen in December 1984, he was doing fine with no clinical evidence of recurrence of Crohn's disease.

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*Case II*

A 49-year-old woman with a chief complaint of low back pain radiating into the pelvis for the past 10–12 months was admitted to the University Hospital in January 1981. She was diagnosed as having Crohn's disease of the distal ileum 5 years previously. Since then she has had several episodes of acute exacerbations. She is also known to have ankylosing spondylitis since 1967. An upper gastrointestinal series with a small bowel follow through study revealed changes of Crohn's disease involving the terminal ileum with several interloopal bowel fistulae. Barium enema examination revealed a retrorectal extrinsic pressure effect by a presacral mass without intrinsic involvement of the rectum. A CT scan

TABLE I  
*Etiopathogenesis of Psoas Abscess in 23 Patients*

Conditions	No. of Patients
Diverticulitis of colon	5
Perforation of colon	3
Osteomyelitis of spine	3
Ruptured appendix	2
Pyonephrosis and perinephric abscess	2
Septicemia in diabetics	2
Hemorrhagic pancreatitis	2
Crohn's ileocolitis	2
Ulcerative colitis	1
Pelvic surgery	1
Total	23

showed a large right-sided psoas abscess extending from the level of upper abdomen to the presacral region (Fig. 2). The patient had been receiving steroids for the past 2 years. At surgical exploration a large right iliopsoas abscess extending from the upper abdomen to the presacral and retrorectal space was found. A fistulous track was identified from the terminal ileum to the presacral and right iliopsoas abscess. Resection of the distal ileum and cecum with primary anastomosis was performed. The postoperative course was unremarkable.

*Case III*

A 29-year-old woman presented with 1-wk history of malaise, anorexia, nausea, vomiting, and upper abdominal and back pain in October 1983. She was diagnosed as having ulcerative colitis in 1975 by rectal biopsy and barium enema findings. Her past history consisted of a left nephrolithotomy in 1979. Physical examination revealed soft nondistended diffusely tender abdomen without any rebound tenderness. Pyoderma gangrenosa lesions were present on her left leg related to her chronic ulcerative colitis. Initially she received steroids in 1975, but her ulcerative colitis was adequately controlled with Azulfidine only. Laboratory data were unremarkable. A normal HIDA scan ruled out acute cholecystitis. An abdominal ultrasound showed fluid collection adjacent to the lower pole of the left kidney. A diagnosis of left perinephric abscess was suspected. A CT scan revealed enlarged left psoas muscle with a central area of de-

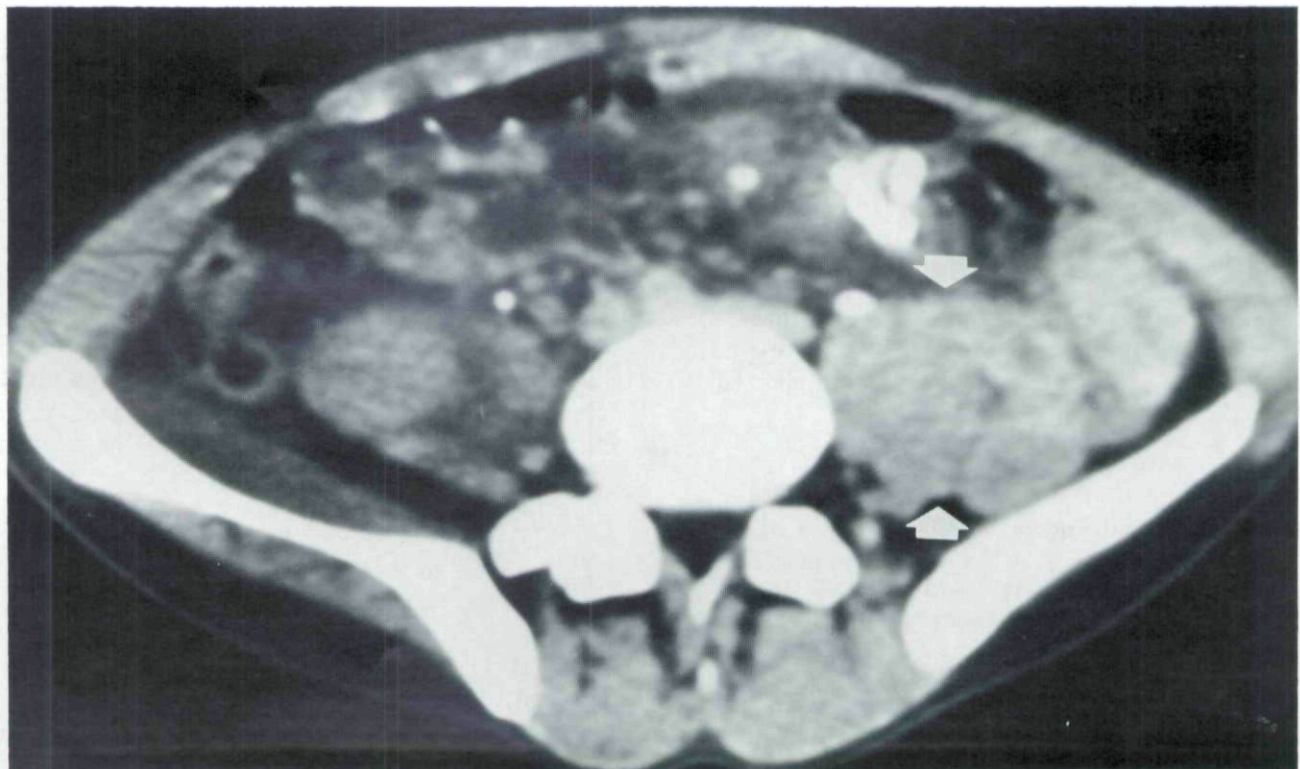


FIG. 1. A CT scan shows an enlarged left psoas muscle with several areas of decreased attenuation (arrows) consistent with a psoas abscess.



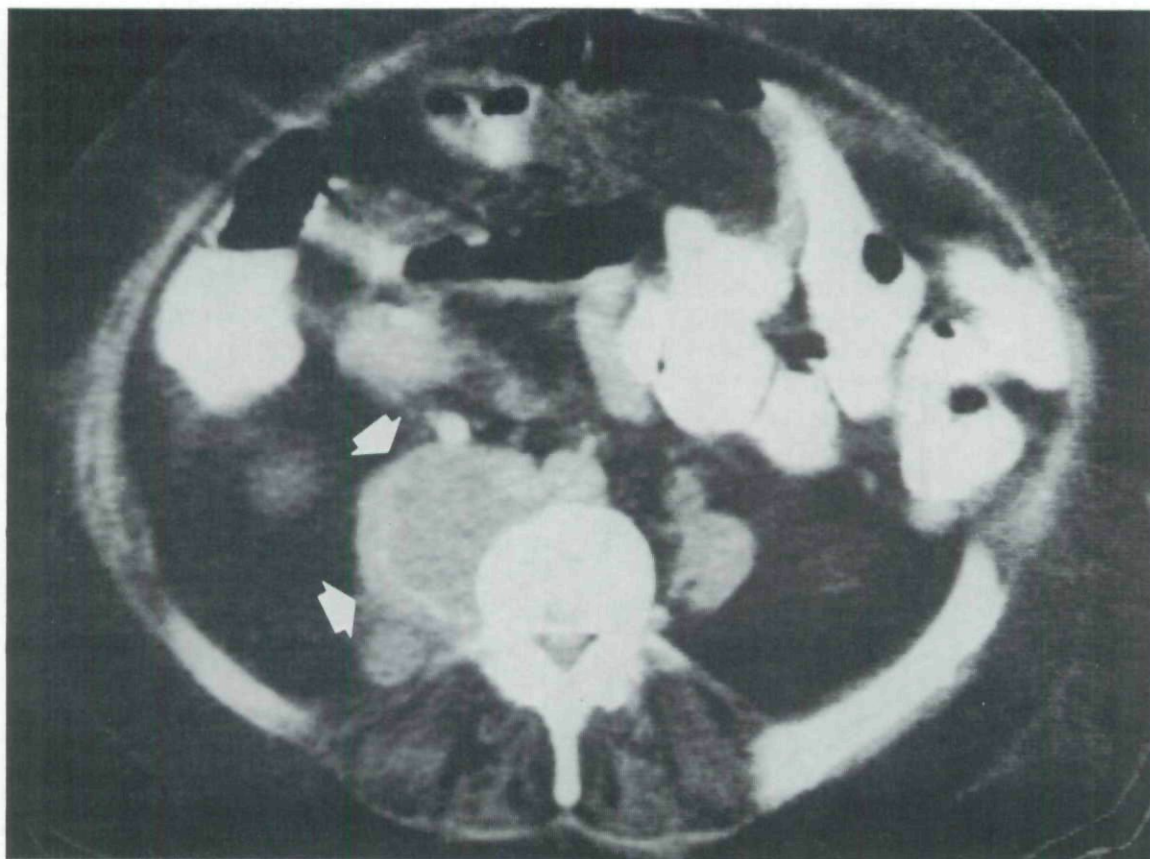


FIG. 2. A representative CT scan shows an enlarged right psoas muscle with a central area of decreased attenuation (arrows) consistent with a psoas abscess. Note thickened wall of the abscess indicating chronic nature of the abscess.

creased attenuation indicative of psoas abscess (Fig. 3A). A CT guided needle aspiration from the left psoas abscess cultured *Escherichia coli* and anaerobic organisms. A double contrast barium enema revealed changes of chronic ulcerative colitis, but no fistula was found from the colon to the retroperitoneum (Fig. 3B). Surgical drainage of the left psoas abscess was performed. Postoperatively a rectovaginal fistula was found. Biopsies of the rectum were negative for Crohn's disease and again typical changes of chronic ulcerative colitis were noted. Because of severe stenosis of the rectosigmoid and rectovaginal fistula, a total colectomy and ileostomy were performed. Her postoperative course was unremarkable. Her psoas abscess has healed and she is managing her ileostomy well.

#### DISCUSSION

The psoas muscle arises from the lateral surface of the 12th thoracic and all lumbar vertebra and traverses distally over the brim of the pelvis and blends with the iliacus muscle. It then passes beneath the inguinal ligament and inserts on the lesser trochanter of the femur. Several important structures are closely associated with the psoas muscle. The renal pelvis and ureter anterior to the muscle; on the right it is crossed by the terminal

ileum and appendix, and on the left by the jejunum and sigmoid colon. However, the most closely related structure is the spine. Approximately 5% of all patients with spinal and sacroiliac tuberculosis also have psoas abscess. With the decline of spinal tuberculosis in the Western countries, psoas abscess is most commonly due to gastrointestinal tract inflammatory disease processes such as diverticulitis and ruptured appendicitis (1). Other causes include actinomycosis, carcinoma of the colon, and renal or perirenal infection. Rarely infection due to penetrating renal calculi or adjacent tumors into the psoas muscle or infected traumatic hematoma within the muscle may produce psoas abscess (2-5).

#### *Crohn's disease and psoas abscess*

The first report of Crohn's disease complicated by psoas abscess was published by Van Patter *et al.* (6) from The Mayo Clinic in 1954. Since then there have been few scattered reports (7-16). The transmural inflammatory process characteristic of Crohn's disease of the bowel predisposes to fistula formation to other parts of the bowel, urinary bladder, perineum, anterior abdominal wall, and the umbilicus. The sinus tracts and fistulae may penetrate into the mesentery via the retroperitoneal space into the psoas sheath resulting in a



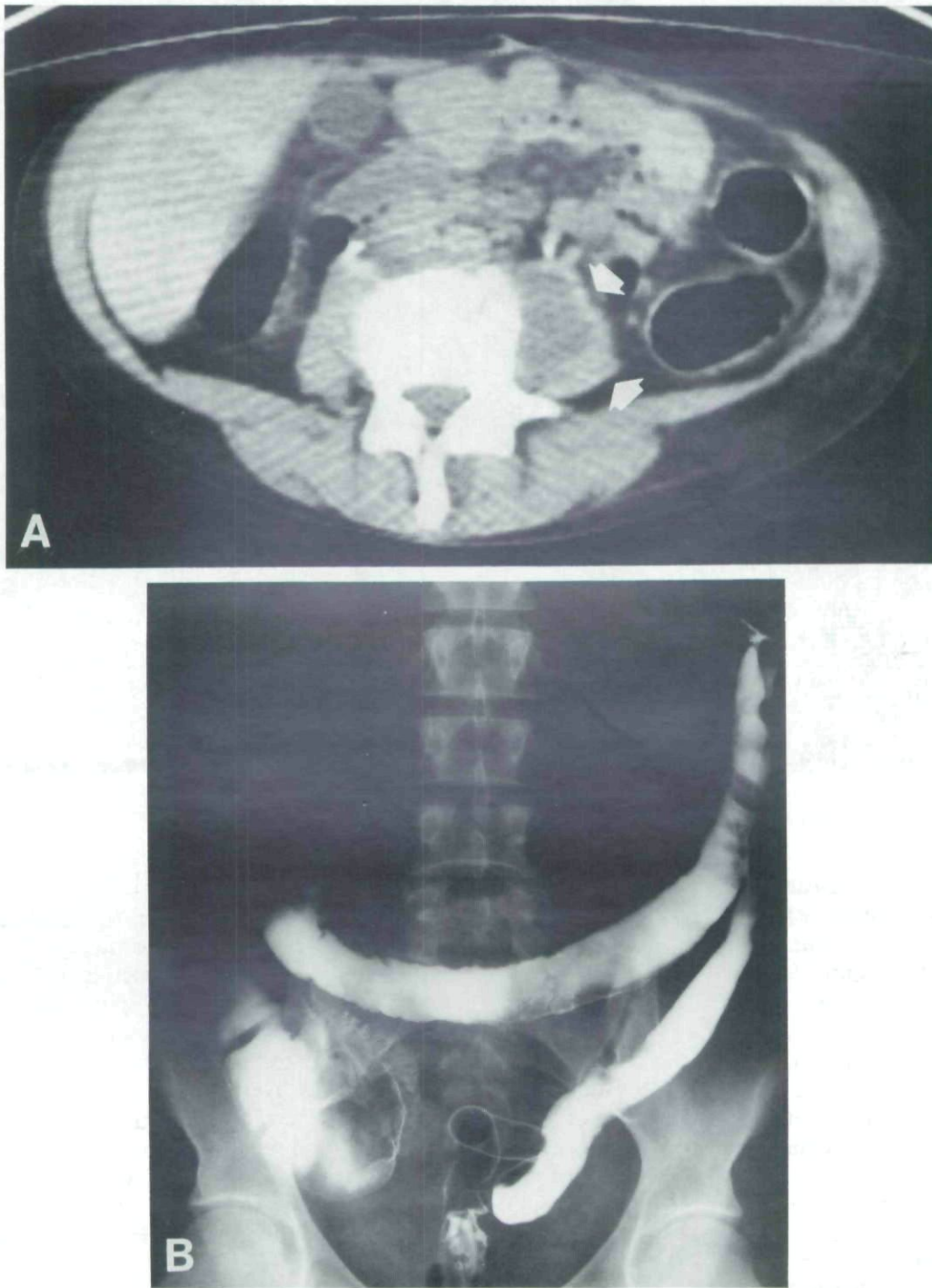


FIG. 3. *A*, a representative CT scan shows a left psoas abscess (*arrows*). *B*, a double contrast barium enema showing changes of chronic ulcerative colitis. No fistula to the retroperitoneum is seen.

psoas abscess. An abscess may destroy part of the psoas muscle but is likely to be confined within the psoas fascia. A psoas abscess due to Crohn's disease is the result of direct contact of any fissure in ulcerated bowel penetrating backward, on the right from the terminal ileum and on the left from jejunum or sigmoid colon. The pathogens in the abscess are usually a mixture of *E. coli* and anaerobic bacteria. This is in contrast to

spontaneous nontuberculous psoas abscess in which the organism usually is staphylococcus (13).

Most patients of Crohn's disease with psoas abscess usually have severe disease of over 5 years duration. Many patients had been receiving large doses of steroids (7). It has been noted that psoas abscess is more common in patients with ileal or ileocolonic disease than only colonic involvement by Crohn's disease. Ramus

and Shorey (13) reported a patient who presented with acute psoas abscess and was found to have ileocolonic Crohn's disease. Greenstein *et al.* (14) reported a 5% incidence of psoas abscess in their 231 cases of Crohn's disease. In our patient population psoas abscess has been a rare complication. Both patients did have advanced ileocolonic disease of over 5 years duration and one patient (case II) was receiving steroid therapy at the time of detection of the psoas abscess.

#### *Ulcerative colitis and psoas abscess*

Psoas abscess complicating ulcerative colitis has not been reported previously. The mechanism of psoas abscess in our patient with ulcerative colitis is not clear. However, there are several factors to be considered. The patient did have a left renal calculus with nephrolithotomy in the past but at the time of development of left psoas abscess the left kidney had no signs of a calculus, infection, or inflammation. Ultrasound detected a fluid collection along the lower pole of left perirenal space. A CT guided aspiration of the left perirenal/psoas abscess revealed *E. coli* and anaerobic organism indicating bowel origin of the bacteria. Surgically, there was no evidence of perinephric abscess and the psoas abscess was drained with complete resolution. To our knowledge this is the first reported case of ulcerative colitis complicated by psoas abscess.

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