Endoscopic ultrasound guided drainage of a complex perirectal abscess via fine needle aspiration without transmural stent placement

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CASE PRESENTATION

A 27-year-old male presented with lower pelvic pain after developing diarrhea and low-grade fevers one week after undergoing an uncomplicated laparoscopic appendectomy due to acute appendicitis. The patient’s appendix was not perforated during the procedure and recovery from the appendectomy was unremarkable prior to this point. He presented for repeat evaluation eleven days postoperatively with low pelvic pain and a perception of bladder pressure. He continued to experience fevers up to 101.2 degrees Fahrenheit. A CT scan was obtained and identified a rim enhancing, complex fluid collection consistent with a low pelvic abscess within the rectovesicular region measuring 6.6 \times 5.7 \times 6.0 \text{ cm} with apparent adjacent reactive sigmoid colitis. (Figures 1a and 1b) The patient was admitted for intravenous antibiotic administration and consideration of percutaneous drain placement via interventional radiology.

Interventional radiology was consulted regarding a drain but they determined that there was no safe window to access the abscess cavity. Due to his recent surgery and presumed postoperative pelvic adhesions it was felt that an operative attempt to reach the abscess would be suboptimal. Intravenous antibiotics were started but were felt to be inadequate for definitive therapy given the size of

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Figure 1a. CT scan of abdomen and pelvis image showing a large perirectal abscess.

Figure 1b. Additional image from the same CT scan showing severe rectal wall thickening.
the abscess. At this point gastroenterology was consulted regarding possible endoscopic ultrasound (EUS) guided transrectal drainage of the abscess.

During his EUS procedure, a hypoechoic and heterogeneous lesion concordant with the abscess seen on previous CT scans was identified in the anterior perirectal space in a retrovesicular position. The adjacent colon was profoundly edematous and friable adjacent to the abscess and transmural drainage with stents was deferred in the interests of safety. A decision was made to attempt to aspirate the abscess completely using a FNA needle without subsequent stent placement. Using a 19-gauge needle a transrectal aspiration was performed. (Figure 2) The fluid collected was opaque, purulent, and thick and consistent with abscess contents. The abscess was aspirated completely to the point of collapse after which no further fluid could be obtained. Following EUS FNA, the patient had a marked improvement in symptoms with essential resolution of pain, bladder pressure, and fevers. He was continued on antibiotics for another week.

Follow up CT scan performed seventeen days after EUS-guided aspiration revealed markedly improved retrovesicular inflammation with a small residual peripherally enhancing focus measuring 1.5 × 1.2 cm with a scant amount of internal fluid felt to represent the collapsed abscess cavity. (Figures 3a and 3b) There was improvement of inflammation in the right lower quadrant/right paracolic gutter. The patient was asymptomatic and has done well thereafter.

**DISCUSSION**

Pelvic abscesses are commonly the end-stage of a variety of infectious processes, including post-surgical infections and diverticulitis. Endoscopic ultrasonography (EUS) is a valuable tool for the diagnosis and management of luminal and extraluminal lesions of the mediastinum, retroperitoneum and pelvis, both benign and malignant, and including pelvic abscesses.

The complex relationships between key anatomic structures of the pelvis such as the rectum, urinary bladder, uterus, vagina, prostate, and sciatic nerve can complicate access to an abscess for treatment. EUS has been

![Figure 2](image-url). 7.5 MHz EUS image of 22 gauge aspiration needle in abscess cavity.

![Figure 3a](image-url). Follow up CT scan showing essential resolution of abscess with only remnant collapsed abscess cavity visible.

![Figure 3b](image-url). Additional image from the same follow up CT scan showing resolution of bowel wall thickening.
shown to be able to access and drain pelvic abscesses in a variety of locations, usually via transcolonic or transrectal approaches, and has proven to be a safe alternative to other drainage procedures such as US and CT-guided aspiration and catheter drainage. Most reports of EUS guided drainage of pelvic abscesses have focused on transmural drainage with access to the abscess obtained via either needle knife or a 19 gauge FNA needle, followed by irrigation and the placement of straight or double-pigtail plastic stents in a manner similar to that used in treating pancreatic pseudocysts.

The literature on EUS guided drainage of pelvic abscesses is limited. Giovannini reported EUS guided drainage of pelvic abscesses in 12 patients. Aspiration only was performed in 3 patients. Complete drainage with no relapse was achieved in only 1 of these 3 patients. Transmural stent placement through the rectum was successful in 9 of the 12 patients. A straight 8.5 French stent was placed in 5 patients and a 10F double-pigtail stent was inserted in 3 patients and both types of stents were placed in 1 patient. No procedure-related complications were observed and complete resolution of the abscess was obtained in 8 out of 9 patients. Abdominal surgery resulted in 1 patient in which stent placement was unsuccessful. Average duration of stent placement was 4.3 months.[3]

In a study by Trevino et al, 4 patients underwent EUS-guided drainage of pelvic abscesses in which drainage by US and/or CT guidance was not applicable. The abscesses were drained though EUS guided placement of a10F drainage catheter and one or two 7F double-pigtail stents. The drainage catheter was periodically flushed and aspirated for 36 hours after placement. The drainage catheter was removed after follow-up CT imaging confirmed resolution of the abscess. Treatment was considered successful in all 4 patients. The mean size of the abscess was 93 x 61 mm. There were no known complications. At a follow-up of 221 days all 4 patients were symptom free of a pelvic-abscess recurrence.[2]

Varaharajulu and Drelichman reported 25 patients with pelvic abscesses who underwent EUS-guided drainage. 7F transrectal stents were placed though EUS guidance in the patients in whom the abscess measured less than 8 cm. A10F drainage catheter was placed in addition in patients with an abscess measuring greater than 8 cm. All patients under went CT scans 36 hours after stent and/or catheter placement to assess the abscess. The drainage catheter was removed in patients in whom the abscess had decreased at least 50%. The stents were removed in all patients by sigmoidoscopy 2 weeks later. The procedure was successful technically in all 25 patients. Clinical success was achieved in 24 of 25 patients. A drainage catheter in addition to stents was placed in 10 patients. There were no complications. At a mean follow-up of 189 days all patients were doing well and were free of an abscess recurrence.[3]

Piraka reported two cases of intraabdominal abscesses treated by placing transcolonic stents though an EUS-guided procedure. Complete resolution of the abscesses was achieved without procedural complications.[4]

Our case deviated from most prior reports in that our patient had a large abscess and was treated successfully via simple aspiration without stent placement. Interventional radiology attempted to place a catheter drain but found no safe window for percutaneous access to the abscess cavity. Stent placement was not felt to be feasible in our patient given the severely edematous and friable rectosigmoid mucosa and concerns about causing a free perforation. Subsequent CT imaging showed resolution of the abscess in short order.

This case report suggests that not all perirectal abscesses treated by EUS approaches require a transmural stent placement and that simple aspiration may be adequate in the milieu of appropriate antibiotic coverage. Simple aspiration may be warranted as a first step with transmural drainage reserved for patients in whom an inadequate result is obtained. Further studies are warranted to compare simple aspiration to transmural approaches.

REFERENCES