

Transrectal Endoscopic Ultrasound-Guided Drainage of a Tubo-Ovarian Abscess Via a Lumen-Apposing Metal Stent

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ABSTRACT

Tubo-ovarian abscess (TOA) is a potentially lethal condition, often requiring a combination of medical and surgical interventions. Endoscopic ultrasound (EUS)-guided drainage is a known modality for safe and effective management of pelvic fluid collections, but its role for the treatment of TOA is not well documented. We report the first known case of successful treatment of a large TOA with EUS-guided transrectal drainage using a lumen-apposing metal stent.

INTRODUCTION

Tubo-ovarian abscesses (TOA) constitute less than 10% of all forms of pelvic inflammatory disease (PID) with severe cases requiring prompt treatment because of high morbidity and mortality. One in 3 women hospitalized with PID will develop a TOA.¹ Endoscopic ultrasound (EUS)-guided drainage of pelvic collections has been established as a low-risk alternative to surgical interventions, especially for collections greater than 4 cm and within a 1-2 cm reach of the EUS transducer.^{2,3} The use of a lumen-apposing metal stent (LAMS) can further facilitate drainage through a wider conduit, promoting rapid evacuation and source control.

CASE REPORT

A 45-year-old woman was hospitalized with a 4-day history of left lower quadrant abdominal pain and fevers. She had a history of a right-sided TOA treated with antibiotics 1 year ago, type II diabetes mellitus, and obesity. She was febrile, tachycardic, and tachypneic on arrival. White blood cell count was 36.4 K/uL, and sedimentation rate was 89 mm/h. Computed tomography (CT) scan revealed a 11.3 × 10.3 × 9.4 cm complex cystic structure within the left adnexa consistent with a TOA (Figure 1). Surgical management was considered much higher risk because of extreme obesity (weight 131.1 kg; BMI 54.6 kg/m²). Because of worsening leukocytosis, fever, and pain, interventional radiology was consulted but could not find a safe window for percutaneous drainage.

Gastroenterological consultation was requested, and the patient underwent a rectal EUS revealing a 50 × 45 mm abscess 20 cm from the anal verge (Figure 2). A 19-gauge EUS FNA needle was advanced into the fluid cavity with aspiration of 5 cc turbid fluid. After injection of 15 cc ionic contrast to delineate the abscess and to confirm positioning, EUS-guided transrectal drainage of the TOA with placement of a 15 × 10 mm AXIOS stent (Boston Scientific, Marlborough, MA) was successfully performed. The distal flange was deployed within the abscess cavity and the proximal flange was deployed within the rectal lumen with copious amounts of purulent drainage through the AXIOS stent (Figure 3). The patient experienced complete resolution of her symptoms and tolerated a regular diet. She was discharged home on 4 weeks of meropenem. Repeat CT performed 1 week later revealed significant interval decrease in TOA size and secure LAMS positioning (Figure 4). One month after EUS-guided drainage of the left-sided TOA, the patient presented with a recurrence of her right-sided TOA managed medically 1 year ago. Imaging demonstrated a complete resolution of her recently treated left-sided TOA. Because of her comorbidities and TOA recurrence, a decision to pursue a bilateral salpingo-oophorectomy was made. The patient

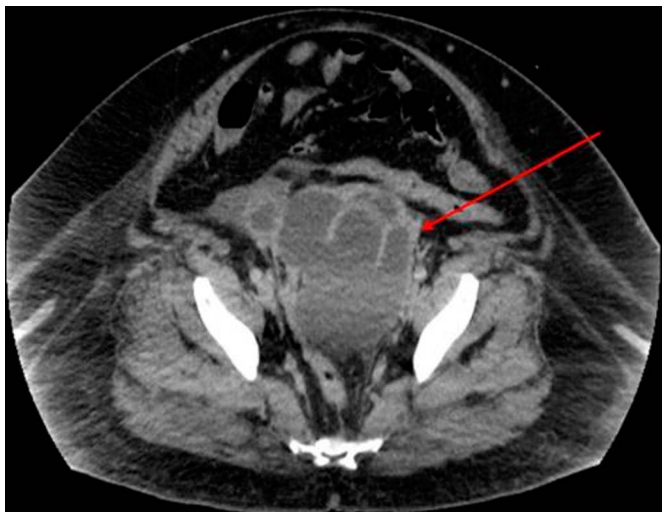


Figure 1. Contrast-enhanced computed tomography scan showing tubo-ovarian abscess in the left adnexa (arrow).

subsequently underwent flexible sigmoidoscopy with a successful LAMS removal before the procedure. The abscess cavity and fistula post stent removal were completely collapsed therefore mucosal closure was not required.

DISCUSSION

TOA is a life-threatening sequela of severe PID. Common etiologies include direct hematogenous or lymphatic spread of bacteria into the ovaries or fallopian tubes, inflammatory bowel disease, diverticulitis, appendicitis, or rarely, iatrogenic introduction of infection after pelvic surgeries.⁴ It is estimated that PID affects approximately 1 million US women and progresses to TOA in nearly 10% of cases. Complications such as abscess rupture and septic shock must be managed promptly because of high morbidity and mortality rates.^{1,2} Total abdominal hysterectomy with bilateral salpingo-oophorectomy is currently the preferred surgical treatment for patients who do not respond to medical management.³

Image-guided drainage of pelvic collections using transabdominal, transvaginal, and transgluteal approaches have shown good outcomes but are associated with significant pain in nearly 20% of patients.³ Moreover, percutaneous drainage does not permit intraluminal stent placement and requires drainage through external catheters.⁵ Percutaneous drainage of pelvic collections is also anatomically challenging because of the vicinity of surrounding structures such as the urinary bladder, rectum, or uterus. In an observational study analyzing the success rates of patients undergoing CT and ultrasound-guided TOA drainage, nearly a fourth of the 57 cases ultimately required salpingo-oophorectomy. In a case series showing the safety and effectiveness of EUS-guided drainage of pelvic abscesses not accessible for percutaneous drainage, Hadithi et al showed that EUS-guided placement of pigtail stents was successful in 100% of patients.⁶ Another study highlighted similar results and even considered EUS-guided

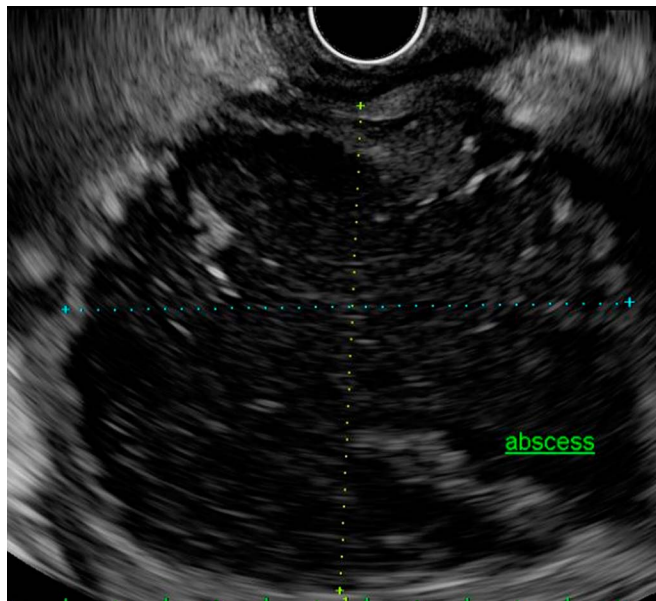


Figure 2. Hypoechoic lesion with internal debris on endoscopic ultrasound suggestive of an abscess measuring 50 × 45 mm.

transrectal drainage of pelvic collections as a first-line procedure at their institution.⁷

With advances in EUS techniques and scopes, experienced endoscopists can effectively aid in the management of pelvic collections. However, the role of EUS in the management of TOAs specifically has not been studied yet. Previous case reports have documented successful EUS-guided drainage of pelvic collections through techniques such as placement of plastic stents, drainage catheters, or aspiration.^{8–10} A two-center series studying the long-term outcomes of EUS-guided pelvic drainage for perirectal or perisigmoid abscesses demonstrated technical and clinical success rates of 100% and 92%,

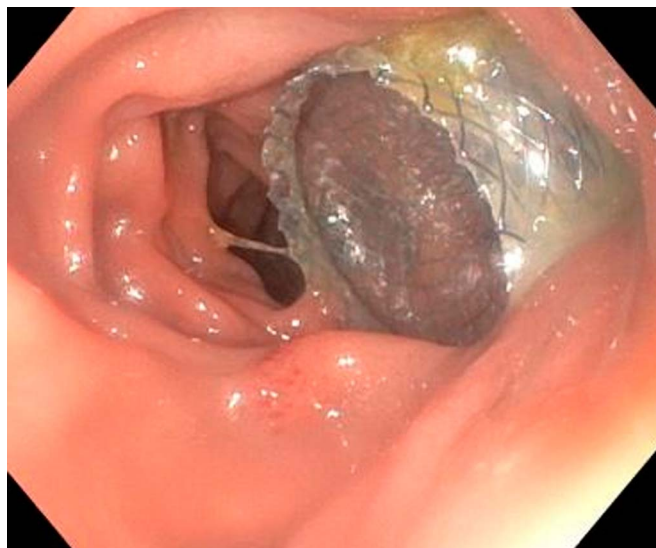


Figure 3. AXIOS stent with successful deployment of proximal flange within the lumen of the rectum.

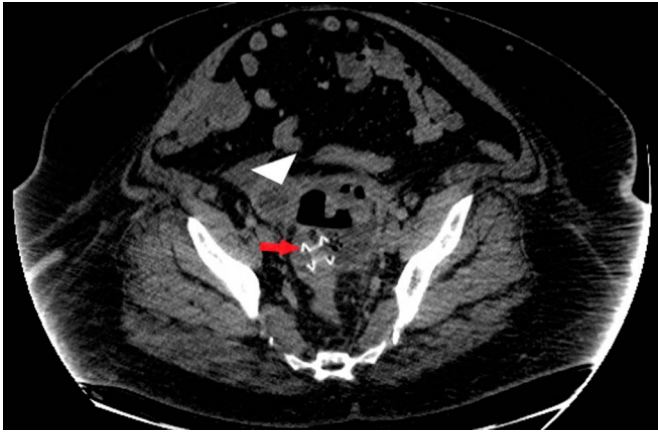


Figure 4. Marked interval decrease in tubovarian abscess size (arrowhead) with secure AXIOS placement (red arrow).

respectively. Abscess resolution without recurrence or need for surgery was achieved in 86.5% of patients. In this series, however, there were only 4 cases (of 37 patients) of LAMS use for the management of pelvic collections.⁵ In our experience, EUS-guided drainage of TOAs via a LAMS is similar in approach to drainage of other pericolic abscesses. After stent placement, diet modifications are not necessary in asymptomatic patients. Stent removal can be performed endoscopically when follow-up CT demonstrates abscess resolution. If the abscess cavity collapses on LAMS removal, mucosal closure of the temporary fistulous tract is not necessary.

The therapeutic role of LAMS has transformed the EUS realm because they permit the passage of endoscopic instruments and provide a wider conduit for intraluminal drainage and source control.^{11–14} EUS-guided drainage of pelvic collections is established as a lower-risk alternative to surgical interventions and other image-guided techniques for collections greater than 4 cm and within a 1–2 cm reach of the EUS transducer. In TOA, cases where surgical management is very high risk, EUS-guided drainage can be considered an alternative and may even be preferred to percutaneous drainage. To our knowledge, this is the first reported case of successful EUS-guided transrectal drainage of a TOA using a LAMS.

DISCLOSURE

Author contributions: RN Shah wrote the manuscript and is the article guarantor. S. West, M. Mehta, and DL Diehl wrote the manuscript and revised the manuscript for intellectual content. KM Sweeney revised the manuscript for intellectual content.

Previous presentation: This case was presented at the American College of Gastroenterology Annual Scientific Meeting; October 25–30, 2019; San Antonio, Texas.

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Informed consent was obtained for this case report.

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