

Endoscopic ultrasound-guided drainage of pelvic abscesses with lumen-apposing metal stents

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The development of pelvic abscesses is a well-described complication of abdominal and pelvic surgery and is associated with numerous medical conditions including diverticulitis, inflammatory bowel disease, ischemic colitis, and pelvic inflammatory disease.^[1] Numerous therapeutic modalities have been described in the literature, including percutaneous, surgical, transrectal, transvaginal, and transgluteal drainage.^[2-4] Complex pelvic anatomy and presence of loculations are often barriers to successful percutaneous drainage and historically required surgical management.

Recently, endoscopic ultrasound (EUS)-guided drainage has been described as a minimally invasive alternative to management of pelvic abscesses. Previously reported case series employed numerous techniques, including abscess aspiration, dilation with aspiration, and the use of drainage catheters with or without placement of plastic stents.^[5-9]

Novel therapeutic applications of lumen-apposing self-expanding metal stents (LAMS) remain an active area of investigation. We recently reported a single case of successful perirectal abscess drainage with a LAMS.^[10] Based on our initial experience, the use of LAMS for EUS-guided drainage of pelvic abscesses is a safe and highly efficacious alternative to percutaneous,

surgical, and non-LAMS EUS-guided drainage. We are currently preparing a manuscript of a multicenter case series describing our initial experience using LAMS for pelvic abscess drainage in fifteen patients. Our technical and clinical success rates were 100%, and we encountered a single adverse event in our study cohort. A pediatric patient who developed a pelvic abscess secondary to perforated appendicitis developed clinically insignificant rectal bleeding after LAMS placement. The stent was subsequently removed 3 days after placement with clinical and radiographic resolution of the abscess. No abscess recurrence was noted in our study population, and none of the patients required repeat procedures for definitive abscess drainage. To date, there are no published case series of EUS-guided LAMS drainage of pelvic abscesses.

With regard to the procedure, cross-sectional imaging is initially reviewed to approximate the abscess size and confirm perisigmoid or perirectal abscess location. Flexible sigmoidoscopy is used to approximate the location of the abscess, typically associated with extrinsic compression noted in the rectum or sigmoid colon. Examination with a linear-array echoendoscope is then performed to identify the abscess. Attempts at LAMS placement

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are reserved for abscesses with a minimum diameter of 4 cm. A 19-gauge fine-needle aspiration needle is used to puncture the abscess under EUS guidance. Aspiration of purulent fluid is performed to confirm the presence of an abscess. The 19-gauge needle is then withdrawn and the abscess cavity is then punctured with an electrocautery-enhanced, lumen-apposing metal stent (AXIOS, Boston Scientific). The LAMS is then deployed under EUS and endoscopic guidance, with or without fluoroscopic guidance. Successful stent deployment is confirmed by the drainage of purulent material through the distal phalange into the rectosigmoid colon. Antibiotics are continued and surveillance computed tomography scans are obtained. After clinical and radiographic resolution, repeat flexible sigmoidoscopy is performed and the stent is subsequently removed.

Our unpublished data suggest that EUS-guided LAMS drainage of pelvic abscesses is more efficacious and has a more favorable safety profile when compared to EUS-guided drainage with catheters and plastic stents. In the largest published series of 26 patients describing EUS-guided drainage without LAMS, abscesses larger than 4 cm were managed with tract dilation and pigtail stent placement for enhanced drainage. The need for repeat endoscopic or surgical drainage was 16% in this cohort.^[6] Two patients required stent replacement due to stent migration.^[6] While endoscopic drainage with pigtail stent placement was highly effective overall in the study cohort, there was a relatively high incidence of repeat therapeutic procedures required to achieve clinical resolution. In other published case series, infrequent complications of pigtail stent placement included stent dislodgement, occlusion, as well as migration that ranged from 6% to 15%.^[5,6,8] A wide range of duration to abscess resolution was noted; between 1 and 6 weeks following endoscopic drainage.

In contrast, we observed no instances of stent migration or occlusion with LAMS, and no patients required repeat therapeutic procedures for definitive abscess drainage. With the exception of clinically

insignificant rectal bleeding in a pediatric patient, which we speculate was related to the size of the LAMS, no additional adverse events were noted. In addition, the median time to abscess resolution in our patient cohort was 9 days, which is substantially shorter than the average reported time to abscess resolution in published case series employing EUS-guided drainage without LAMS.

Our initial experience supports the use of LAMS for EUS-guided pelvic abscess drainage as a viable alternative to conventional EUS-guided and percutaneous drainage techniques. Larger, prospective studies are needed to evaluate the comparative effectiveness of LAMS and more conventional drainage modalities, optimal stent indwelling time, incidence of adverse events, and the cost-effectiveness of LAMS placement, both with respect to procedure-related costs and effects on length of stay.

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