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Percutaneous drainage of an infected endometrioma☆

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ABSTRACT

Endometrioma superinfection is uncommon and poorly described in the literature. This rarity has precluded agreement on optimal management, with most authors treating these lesions as endometriomas rather than abscesses and thus recommending laparoscopic or open cystectomy or oophorectomy. We present a minimally-invasive alternative, illustrated in the case of an infected endometrioma which was successfully managed via image-guided percutaneous drainage.

1. Introduction

Superinfection of an endometrioma occurs in 2.2–2.3% of cases and most commonly presents with lower abdominal pain and fever [1,2]. Imaging findings are not well-established but generally considered to overlap with those of abscesses elsewhere in the body. The rarity of their occurrence has precluded agreement on optimal treatment; although often referred to as tubo-ovarian abscesses, they are usually managed as endometriomas via either laparoscopic or open cystectomy or oophorectomy. We present a minimally-invasive alternative, illustrated in the case of an infected endometria which was successfully managed via image-guided percutaneous drainage.

2. Case report

Institutional review board exemption was granted for this case report. A 40-year-old G0 woman with endometriosis status post remote left ovarian cystectomy and more recently 10 months post bilateral ovarian cystectomy presented to the Emergency Department with ten days of fever, malaise, and lower abdominal discomfort. Symptoms began two days after undergoing saline infusion sonohysterogram at an outside hospital for evaluation of abnormal uterine bleeding (the results of which were not available); she received 48 h of doxycycline prophylaxis following the procedure. Vital signs on presentation were temperature 37.8 °C, pulse 115 beats per minute, blood pressure 112/74 mmHg, with oxygen saturation 100% on room air. Examination demonstrated lower abdominal tenderness, labs revealed leukocytosis to $16.2 \times 10^3/\mu L$, and ultrasound showed endometrial fluid. Endometritis was diagnosed, and IV ampicillin, clindamycin, and gentamicin started.

Initially the patient remained afebrile with downtrending white blood cell count (WBC; nadir $12.8 \times 10^3/\mu L$). However, on hospital day 5 she developed a fever to 39.2 °C and leukocytosis to $15.6 \times 10^3/\mu L$ despite continued antibiotic administration. A contrast-enhanced CT was obtained which, when compared to a recent pelvic MRI (Fig. 1A, B), showed increased size (maximum dimension 10.5 cm from 7.4 cm) and new rim enhancement of a left adnexal endometrioma, concerning for infection (Fig. 2). Given recurrence following recent laparoscopic management as well as expected technical difficulty secondary to previously visualized adhesive disease, Interventional Radiology was consulted by Gynecology for percutaneous drainage.

Under moderate sedation using CT guidance, a 19G × 20 cm needle was advanced via a left transgluteal approach into the endometrioma (Fig. 3) and then exchanged over a 0.035 Amplatz wire for a 10F drainage catheter (SKATER, Argon Medical, Frisco, Texas; Fig. 4). 600 mL of opaque brown fluid were removed (Fig. 5), which grew *Peptoniphilus harei*. Following the procedure, temperature and WBC normalized. Sensitivities showed resistance to clindamycin but sensitivity to penicillin G and metronidazole, so the patient was transitioned to IV Unasyn for the duration of her hospitalization. She was discharged

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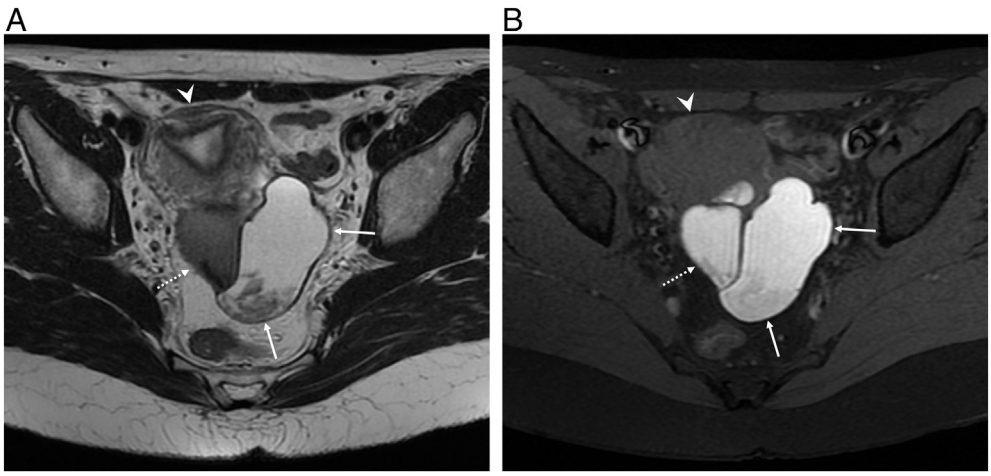

Fig. 1. Axial T2-weighted (A) and T1-weighted fat saturated (B) MR images obtained one month prior to presentation demonstrating left (solid arrows, 7.4 × 3.8 × 5.5 cm) larger than right (dashed arrows) endometriomas. The uterus is seen anteriorly (arrowheads).

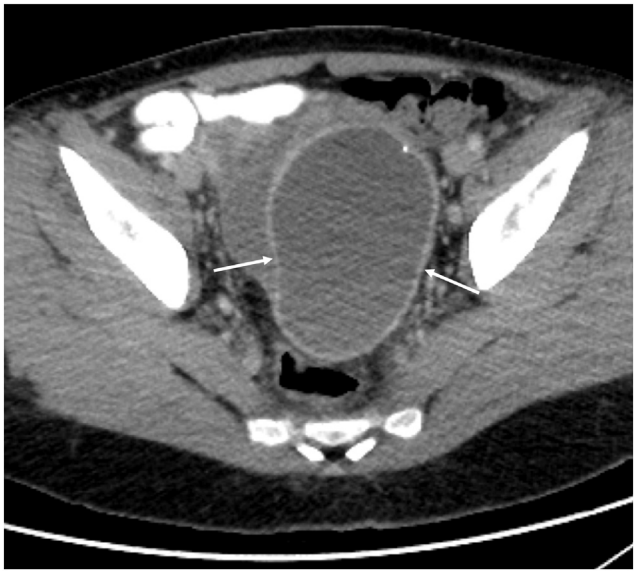

Fig. 2. Axial contrast-enhanced CT image demonstrating increased size and new rim enhancement of the left-sided endometrioma (arrows, 10.5 × 6.3 × 8.1 cm).

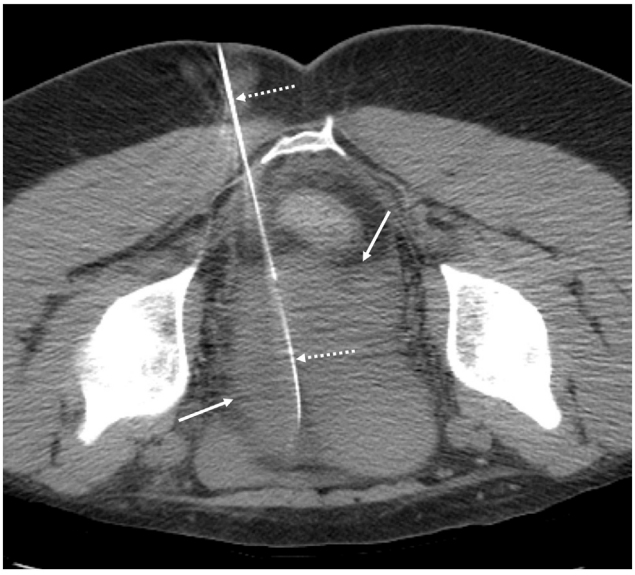

Fig. 3. Prone axial CT image showing a hollow needle and traversing wire (dashed arrows) within the infected endometrioma (solid arrows).

on post procedure day (PPD) 3 on Augmentin which she continued for 7 days before developing a rash and switching to levofloxacin and metronidazole for an additional 5 days. A pelvic MRI obtained on PPD 7 confirmed adequate drainage (Fig. 6), after which the catheter was removed. Clinical follow up for 9 months has shown no evidence of recurrence.

3. Discussion

The propensity of endometriomas to become infected has been attributed to locally reduced resistance to infection as well as to endometriotic blood products acting as an effective culture medium [1]. Potential routes of infection include direct inoculation, ascension via the lower genital tract, hematogenous/lymphatic spread, and/or extension from adjacent bowel [1]. In the current case, recent hysterosalpingography and isolation of a vaginal commensal suggest ascension as the infectious mechanism. Of note, in their series of 11 patients with infected endometriomas Schmidt et al. reported that three patients had undergone hysterosalpingogram within 1 month of the procedure, suggesting this as a common route of bacterial inoculation [2]. Older studies have reported pelvic inflammatory disease occurring in approximately 1–2% of patients following saline infusion hysterosalpingography and in 11% of patients with dilated fallopian tubes [3].

Management of infected endometriomas has traditionally mirrored that of non-infected endometriomas, consisting of laparoscopic cystectomy or, failing that, oophorectomy. To the author's knowledge, percutaneous drainage has not been reported. In contrast to tuboovarian abscesses, non-infected endometriomas are typically not subjected to isolated percutaneous drainage because of a reported recurrence rate of 28–100% [4]. However, the current case is distinct because of the presence of infection; the goal in this case was not to treat the endometrioma itself but rather the infection, which was successful.

Of note, a significant potential risk to a percutaneous approach is intraperitoneal spillage of cyst contents, which could insight an inflammatory response leading to worsened pelvic pain, adhesions, and/or infertility. However, the significance of this outcome in this patient is doubtful given her known severe peritoneal disease, multiple prior intraabdominal interventions, and longstanding pelvic pain. Additionally, laparoscopic approaches can also result in some degree of spillage, although comparison of outcomes between techniques has not been

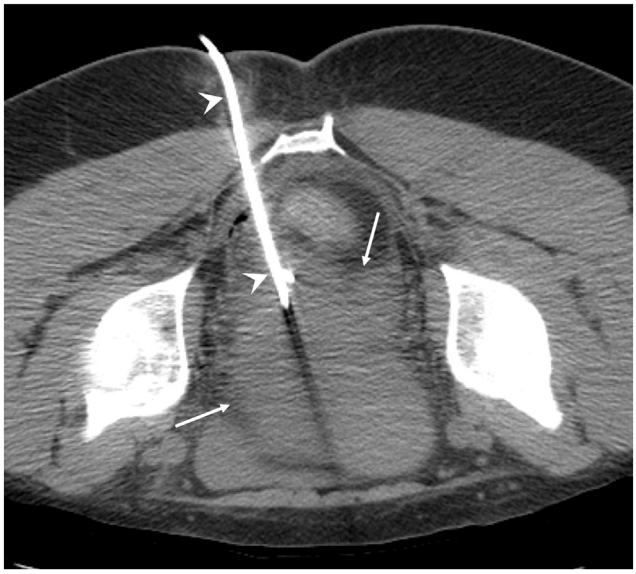

Fig. 4. Prone axial CT image showing the final position of the drainage catheter (arrowheads) in the endometrioma (solid arrows).

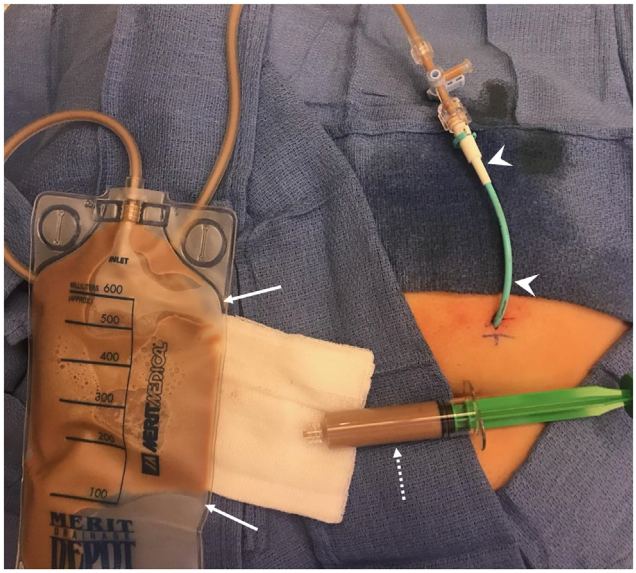

Fig. 5. Intraprocedural photograph showing the drainage catheter (arrowheads) with brown, purulent output in the collection bag (solid arrows) and a syringe (dashed arrow). (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

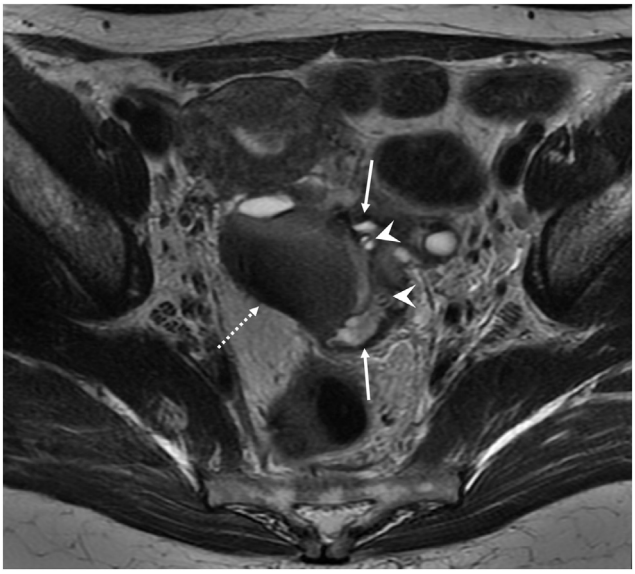

Fig. 6. Axial T2-weighted MR image showing the newly collapse left endometrioma (solid arrows) with drainage catheter in situ (arrowheads). The right endometrioma is again seen (dashed arrow).

made.

4. Conclusion

In conclusion, we report a case of an infected endometrioma which was successfully managed via image-guided percutaneous drainage. We believe this technique warrants further evaluation in patients with refractory superinfection and severe intraperitoneal disease.

Declaration of Competing Interest

The authors declare that they have no conflicts of interest and nothing to.

disclose.

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