



Tubo-Ovarian Abscess in Second Trimester of Pregnancy after Transvaginal Oocyte Retrieval: Challenges in Management

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Abstract

A 39-year-old primigravida female presented at 16 weeks gestation, with new onset of severe abdominal pain with nausea and vomiting. Her medical history was significant for infertility and ovarian endometrioma during oocyte retrieval. Current gestation was complicated by an emergent laparoscopy with drainage of a ruptured endometrioma in the first trimester. On examination, she had acute abdomen and sonogram showed a viable pregnancy and a 10 cm left adnexal mass. Emergent laparoscopy was performed with aspiration of abdominopelvic pus, ovarian cystectomy and lysis of adhesions. She delivered a live infant at 39.4 weeks via cesarean delivery secondary to arrest of dilation. We believe that when surgical intervention is required, laparoscopy should be considered in the management of tubo-ovarian abscess in pregnancy in the hands of a skilled laparoscopic surgeon.

10 × 5 cm left adnexal cyst, highly suspicious for ovarian torsion. Additionally, the viability of the intrauterine pregnancy was confirmed. Her medical history was significant for infertility and endometriosis. Interestingly, an ovarian endometrioma had been noted at the time of oocyte retrieval. As previously mentioned, current gestation had been complicated by an emergent diagnostic laparoscopy with drainage of a ruptured endometrioma in the first trimester at an outside facility. Given the patient's history and clinical

Introduction

Development of tubo-ovarian abscess (TOA) in pregnancy secondary to transvaginal oocyte retrieval (TVOR) constitutes a very rare entity, with incidence ranging from 0.03-0.5% [1]. A preexisting endometrioma at the time of oocyte retrieval appears to be a predisposing factor to pelvic inflammatory disease and subsequent development of pelvic abscess. The approach and management of such complication can be challenging given the severity of the disease and the existing pregnancy. We present a rare case of a large TOA in pregnancy, in a patient with a pre-existing endometrioma during TVOR, which was managed successfully using a laparoscopic approach followed by antibiotic therapy.

Case Report

A 39-year-old nulliparous presented at 16 weeks of gestation of IVF pregnancy to the emergency room with new onset of severe, diffuse, lower abdominal pain associated with nausea and vomiting. She was afebrile and hemodynamically stable. On examination, a gravid 16-week size uterus was noted and bilateral lower abdominal tenderness was appreciated with no rebound or guarding. Pertinent laboratory and radiographic findings included leukocytosis (WBC of $20.9 \times 10^3/\mu\text{L}$), and a bedside pelvic sonogram significant for a

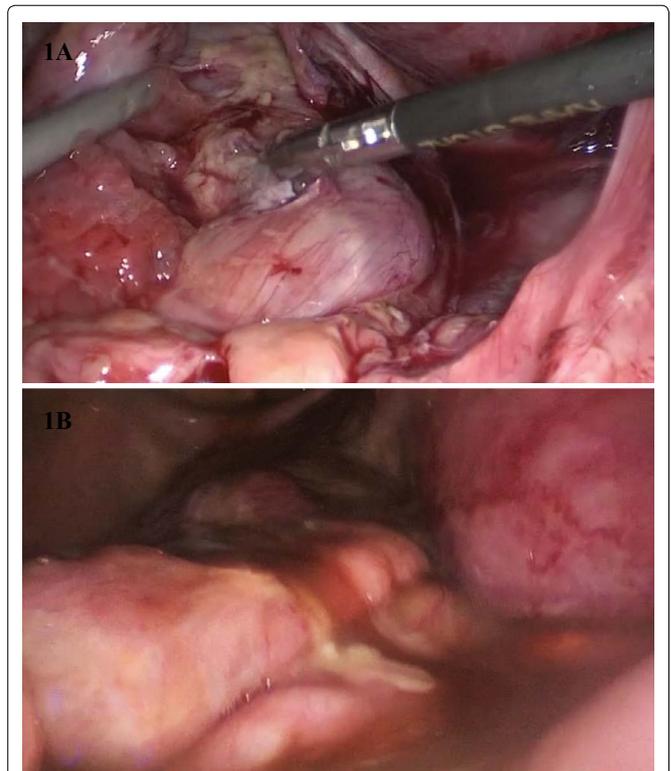


Figure 1: Left tubo-ovarian abscess with 3 Litres of pus leaking into the peritoneal cavity.

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presentation, the decision was made for an emergency exploratory laparoscopy with presumed diagnosis of ovarian torsion.

Operative technique

Under general endotracheal anesthesia, the patient was placed in the dorsal lithotomy position in the Allen stirrups. Abdominal left upper quadrant entry was employed, using a 5 mm trocar [2]. Laparoscopy revealed approximately 3 liters of pus throughout the abdomino-pelvic cavity, which was evacuated. A leaking 10 cm left ovarian abscess (Figure 1A and Figure 1B) as well as a 5 cm right sided ovarian endometrioma and severe pelvic adhesions were noted. Additional ports were placed and after extensive adhesiolysis was performed, the bilateral ovarian cysts were aspirated followed by ovarian cystectomies. Operative time was 74 min, with an estimated blood loss 20 mL.

Post-operatively, the patient was closely monitored in the intensive care unit secondary to development of persistent tachycardia and tachypnea. She received intravenous antibiotics (Vancomycin, Cefepim and Flagyl) and also supportive care for possible Systemic Inflammatory Response Syndrome. She was discharged home on post-operative day 8. The pathology reports on the left ovarian cyst confirmed the presence of acute inflammation and necrosis and the cultures of the purulent discharge revealed *Gemella Morbillorum*. She subsequently had an uneventful pregnancy, and delivered a viable male infant at 39 4/7 weeks via cesarean delivery secondary to arrest of dilation.

Comment

TOA after oocyte retrieval is a well described, very rare but potentially life threatening complication. There have been only 12 case reports in the literature of this complication [1]. In our case, the patient presented with lower abdominal pain, nausea and vomiting. All 12 patients in the literature presented with similar complaints. Eight of those, as in our case, had a history of endometrioma. The timing of presentation of TOA status post TVOR has ranged in the literature from a few weeks to months after the procedure. In our case, the TOA developed in early second trimester and the risks factor include presence of endometrioma during TVOR as well as recent laparoscopic drainage of the rupture endometrioma. In terms of management, most cases underwent exploratory laparotomy and drainage of the abscess. Our case was managed successfully via laparoscopy and the patient had a successful delivery at term. To our knowledge this is one of very few cases of term delivery following TOA complication of TVOR that was treated laparoscopically.

Laparoscopy versus Laparotomy

The management of pelvic abscess in pregnancy varies according to the clinical scenario. Conservative management can be undertaken with intravenous antibiotics and close monitoring, or ultrasound guided aspiration can be attempted, which however is associated with high risk for further surgical intervention. Most of the cases reported in the literature were managed surgically with laparotomy. In our case, the decision was made to proceed with evacuation of the intraperitoneal purulent exudate, drainage of the abscess and bilateral ovarian cystectomies, following exploratory laparoscopy for presumed ovarian torsion. Safety of laparoscopy in pregnancy has been well described over the past two decades not only in the first but also second trimester [3].

Laparoscopy in pregnancy enables accurate diagnosis and differential diagnosis of causes of acute abdomen, faster recovery, minimal risk for thromboembolic disease related to pregnancy, decrease the rate of fetal depression secondary to decreased narcotic use, fewer incisional hernias and scar and fewer post operative adhesions. Risks during pregnancy however should always be taken into account [3,4]: First, trocar placement can lead to uterine injuries due to the enlarged uterine size. Thus, direct trocar placement under direct visualization rather than insufflation with Veress needle or open laparoscopic approach using the Hasson cannula is suggested. Additionally, increased intra-abdominal pressure can decrease

cardiac output in pregnancy. Left lateral position of the mother is of utmost importance especially in late second trimester. Finally, the potential risk of hypercarbia and acidosis can be decreased by maintaining the intra-abdominal pressure to less than 12-15 mmHg.

Specifically, open laparoscopic management of TOA can be challenging. Except from the potential pregnancy risk, dense adhesions can be a technical challenge and an experienced laparoscopic surgeon skilled in advanced techniques is required. In a retrospective study of 69 cases of clinically suspicious TOA, Yang et al. highlighted the advantages of laparoscopic approach versus laparotomy for management of TOA [5]. We believe that laparoscopy should be considered in all cases of first and second trimester of pregnancy for the management of TOA, in the hands of a skilled laparoscopic surgeon.

Conclusion

TOA in pregnancy is a very rare complication after oocyte retrieval. However, the clinician should always consider it in the differential diagnosis, especially when the patient has a history of endometriosis and IVF pregnancy. However, we believe that when surgical intervention is required, laparoscopy should be considered in all cases up to second trimester in pregnancy for the management of TOA in the hands of a skilled laparoscopic surgeon.

Disclosure Statement

None of the authors report any potential conflict of interest.

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