CLINICAL VIGNETTE

Recognition of Ovarian Torsion: A Case Report

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Case Presentation

A 27-year-old female presents to urgent care with sub-acute severe pelvic pain. She describes the pain as sharp and constant and associated with nausea. The abdominal pain began one day prior and she denies fever and gastrointestinal symptoms, abnormal vaginal discharge, and dysuria. She reports no new sexual contacts and recently had STI testing that was negative one month prior to presentation. The patient has no significant past medical or surgical history. The only medicines are an oral contraceptive pill and an over the counter non-steroidal, anti-inflammatory drug as needed for pain. She reports no allergies noncontributory family history.

Her vital signs are within normal limits. The physical exam is notable for tenderness and guarding in the right lower quadrant of the abdomen. Bowel sounds are decreased and "Rovsing," and psoas signs are absent. The patient has no CVA tenderness. Because of the severe abdominal pain and poor pain control, she is transferred to the nearby hospital emergency department for further evaluation and treatment. In the emergency room, the patient has a genitourinary exam, which is only remarkable for cervical motion tenderness. Urinalysis is noted for moderately positive leukocyte esterase and a trace of blood. A CBC shows mild leukocytosis. A urine pregnancy, CMP, and lipase are all negative/normal. Transabdominal and transvaginal pelvic ultrasound show a 9 cm dilated tubular structure within the right adnexa that has no color flow on Doppler. These finding are concerning for a possible pyo-salpinx versus a complex hydro-salpinx. Adjacent to the lesion is another small focal ovoid echogenic structure, which is thought to be a dermoid cyst. Based on the image results, the patient is diagnosed with pelvic inflammatory disease (PID), and she is discharged the same day with instructions to take the antibiotics doxycycline and metronidazole for a total duration of fourteen days.

Ten days later, the patient sees her primary care provider, who notes the patient's pelvic pain is resolved. A review of labs done at the ED show repeat STI screening, including chlamydia and gonorrhea, are negative. Additional labs are only remarkable for a mildly elevated ESR and CRP. Genital bacterial and fungal cultures, a urine bacterial culture, and a tuberculosis gold quantiferon blood test are all negative. Repeat ultrasound now shows a 9.5 x 6.6 x 3.9 cm complex cystic right adnexal mass concerning for a dermoid or endometrioma ovarian neoplasm but no evidence of a hydro-salpinx. A MRI done two days later confirms the 8.5 x 8.5 cm mass is a dermoid cyst.

Given the findings of the repeat ultrasound and MRI, the patient is urgently referred to gynecology and twelve days after her initial presentation undergoes laparoscopic cystectomy. The patient is found to have a 12 cm right ruptured hemorrhagic dermoid cyst, a torsed necrotic right ovary, and extensive adhesions. Because the right ovary is mostly necrotic and unsalvageable, a majority of the ovary is resected except a small portion of the ovary that is adjacent to the still coiled right fallopian tube. Pathology reveals a benign dermoid cyst.

Discussion

A hydro-salpinx is an edematous fallopian tube, usually due to an infection. Although often asymptomatic, long-term complications can lead to infertility and/or chronic pelvic pain. Hydro-salpinx formation is most commonly due to pelvic inflammatory disease from gonorrhea or chlamydia. Other causes include endometriosis, adhesions typically from surgery, atypical infections including tuberculosis, and cancer of the fallopian tubes, ovaries, or surrounding genitourinary structures.

A dermoid cyst (also known as a mature cystic teratoma) is a benign germ cell tumor and is the most common ovarian tumor in the second and third decades of life. Dermoid cysts may contain elements derived from all three germ cell layers, with teeth, hair, and sebum commonly present. Patients with these tumors may experience pain secondary to ovarian enlargement, spillage of contents into the peritoneal cavity, or ovarian torsion.

Ovarian torsion refers to the complete or partial rotation of the ovary vascular pedicle, which in turn impedes the ovarian blood supply. Ovarian torsion is a common urgent gynecologic condition seen in women of all ages and typically presents with an abrupt onset of pelvic pain.[1] Urgent surgical treatment is required to avoid ischemic injury and loss of ovarian and tubal function. Risk of torsion is most significant in women of reproductive age, during pregnancy, and in women undergoing ovulation induction for treatment of infertility. Physiologic masses, including functional cysts, are more frequent with infertility treatment. The presence of an ovarian mass, especially greater than 5 cm, increases the likelihood for the ovary to rotate and become fixed in a twisted position. The most commonly reported mass is due to a mature cystic teratoma.[2] The right ovary appears to be more likely to torse than the left because the right utero-ovarian

ligament is longer than the left and is the most vulnerable to become twisted. Additionally, structural constraints from the sigmoid colon on the left side of the colon may help to prevent torsion of the left ovary.[3,4] Failure to correct the torsion and restore ovarian blood supply may result in ischemia and loss of ovarian function. Additional potential adverse effects are hemorrhage, abscess, or peritonitis.[5-8]

The typical presentation of ovarian torsion is acute onset of pelvic pain, often with nausea and vomiting, in a woman with an adnexal mass.[5,9,10] Of note, although the presence of an adnexal tumor is the most likely scenario, torsion can occur in the absence of an adnexal mass. A small percentage of patients may have fever or abnormal vaginal bleeding.[11-14] Unfortunately, the presentation can vary and many symptoms and signs that accompany torsion are also associated with other conditions including PID, tubal ovarian abscess, ovarian cyst rupture, appendicitis, and ectopic pregnancy. Thus, a high index of suspicion is required to make the torsion diagnosis. This is extremely important since torsion may result in the loss of ovarian use or other adverse sequelae if not promptly corrected.

Ultrasonography (US) is the main imaging tool for assessment of ovarian torsion. US features of ovarian torsion include a unilateral enlarged ovary, unvarying peripheral cystic structures, mass within the impacted ovary, free pelvic fluid, lack of blow flow, and a torsed vascular pedicle. The presence of flow with color Doppler imaging does not necessarily exclude torsion but does indicate that the ovary may be viable. Absence of flow in the twisted vascular pedicle likely indicates that the ovary is not viable. If ultrasound findings are uncertain or if the lesion is not clearly visualized, computerized tomography (CT) scan may be useful, though guidelines for use of CT in diagnosis of ovarian torsion are not well defined.[2]

As in the case of the patient described above, she likely had a previously un-identified ovarian dermoid cyst that caused her ovarian torsion. When the condition was not immediately reversed, the cyst ruptured next to the adjacent fallopian tube, and the ovary became ischemic. This caused formation of a complex hydro-salpinx or hemato-salpinx, which was identified on the patient's initial ultrasound in the emergency room. Over the course of the next 10 days, the ruptured ovarian dermoid cyst and ovary continued to necrose and formed surrounding adhesions in the affected fallopian tube. The damaged right ovary and fallopian tube may decrease the patient's ability to conceive in the future.

Conclusion

Ovarian torsion refers to the rotation of the ovary on its ligamentous supports, often resulting in compromised blood flow. Ovarian torsion is one of the most common gynecologic emergencies but can be easily misdiagnosed. Early recognition is important to preserve ovarian/fallopian tube function and prevent future complications. Diagnosis of ovarian torsion is challenging due to vague and non-specific clinical presentation. It is important for the clinician to have a high index of suspicion when evaluating female patients with acute pelvic pain.

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Submitted January 6, 2016