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Case Report

Ovarian torsion after hysterectomy and oophoropexy

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ABSTRACT

Ovarian torsion (OT) is a medical emergency which can have significant clinical consequences. It is surgically treated by either detorsion with or without oophoropexy, or oophorectomy. In this report, a case of left OT is described after prior hysterectomy and bilateral prophylactic oophoropexy three years prior. The patient presented with progressive left flank and abdominal pain. The diagnosis of torsion was made using a combination of CT and MR imaging with confirmation at surgery and pathology. At laparoscopic surgery, the left ovary was found at the level of iliac crest posterior to the descending colon. The ovary was torsed with hemorrhagic infarction. It was successfully removed. The patient was discharged postoperative day one and is now free of symptoms and complaints. OT is rarely reported after hysterectomy and oophoropexy. This case demonstrates that OT should be kept in the differential even in patients post hysterectomy and/or oophoropexy.

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Background/Introduction

OT is a gynecologic emergency which can lead to infertility, hemoperitoneum, and peritonitis. It accounts for 2–3% of all gynecologic emergencies and remains clinically difficult to diagnose due to its nonspecific presentation [1]. Although the diagnosis can be made on imaging in concert with clinical and lab findings, OT is definitively diagnosed at surgery. OT after hysterectomy is rare [2]. Prior hysterectomy with ovarian conservation has not been associated with an increased risk for torsion [1], however, there is evidence suggesting that OT is more common after laparoscopic compared with open abdominal hysterectomy [2,3]. We present the imaging findings of a case of OT occurring post laparoscopic hysterectomy and

prophylactic oophoropexy with the ovaries in atypical location above the iliac crest.

Case presentation

A 37-year-old gravida 4 para 3 woman was admitted to the surgery service after presenting to the emergency department for left flank and abdominal pain progressively worsening over the last two days. The patient reported abdominal bloating and dark stools but did not have fever, nausea, urinary, or other relevant symptoms. The patient was afebrile with stable vital signs. Medical history was significant for cervical intraepithelial neoplasia grade III for which she

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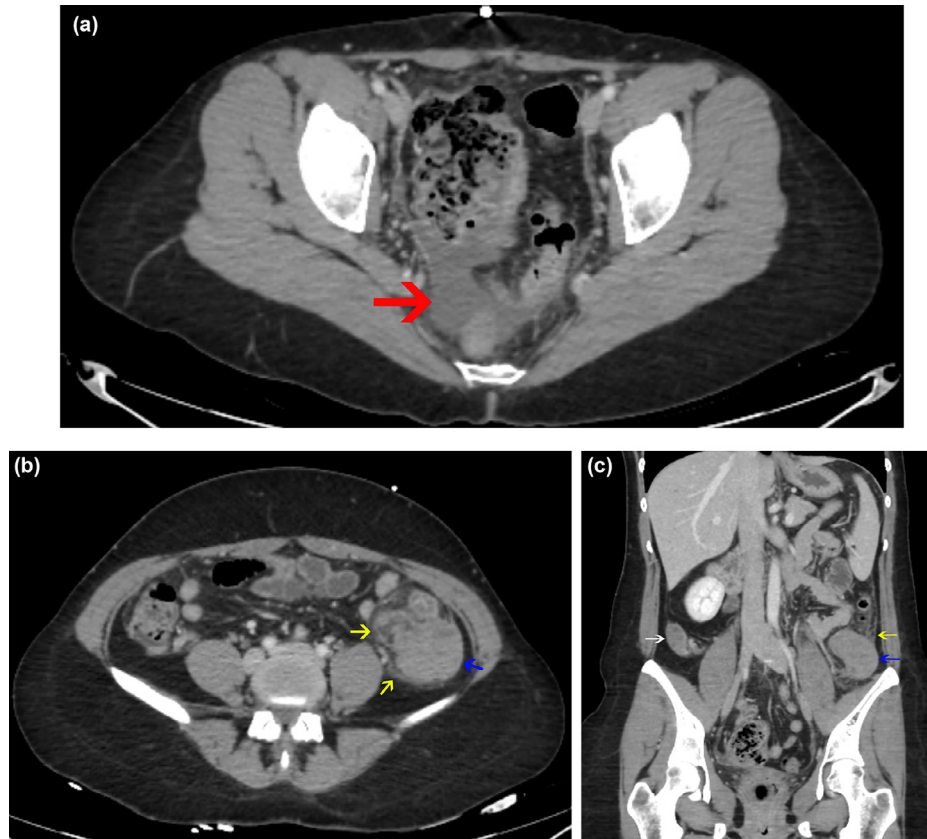


Fig. 1 – (A) Axial post IV contrast CT image through the pelvis demonstrating small volume free fluid (red arrow) with HU 35 concerning for hemoperitoneum. **(B).** Axial post IV contrast CT image at the level of the iliac crest demonstrating enlarged left ovary (blue arrow) posterior to the descending colon with adjacent periovarian edema (yellow arrows) **(C).** Coronal post IV contrast CT image through the abdomen and pelvis demonstrating the enlarged left ovary (blue arrow), periovarian edema (yellow arrow), and normal contralateral right ovary is visualized for comparison (white arrow).

underwent laparoscopic hysterectomy, bilateral salpingectomy, and concomitant bilateral oophorectomy 3 years prior to admission.

Pertinent lab work revealed negative b-human chorionic gonadotrophin. Her complete blood count and chemistry panel were within normal limits. CT scan of the abdomen and pelvis was performed (Fig. 1). This identified a 6.6×4.1 cm mass posterior to the descending colon with surrounding inflammatory edema, small volume moderate density free fluid in the pelvis concerning for hemoperitoneum, and confirmed the patient was post hysterectomy. Subsequent MR abdomen (Fig. 2) was performed. The left paracolic mass contained peripheral follicles confirming it to be an enlarged ovary. It redemonstrated the surrounding edema seen on CT as well as demonstrated a lack of ovarian post contrast enhancement consistent with torsion.

Gynecology subsequently took the patient for laparoscopic surgery. This revealed a torsed left ovary status post prior oophorectomy just above the left iliac crest posterior and adhered to the descending colon. A small approximately 1cm functional/hemorrhagic cyst was present. The normal appearing right ovary was identified oophorectomized contralaterally. The left ovary was surgically excised, and pathology revealed an ovary “with extensive interstitial hemorrhage consistent

with torsion.” The patient was discharged in good condition on postoperative day one.

Discussion

OT occurs when the ovary twists about its vascular pedicle leading to vascular compromise that may result in ovarian edema, ischemia or infarction and/or necrosis [1]. It is a gynecologic emergency which can lead to infertility, peritonitis, or intra-abdominal hemorrhage. OT most commonly presents in women of reproductive age as acute or intermittent abdominal pain, fever, nausea, or emesis [4]. The imaging findings of OT include an enlarged ovary with or without intrinsic mass, periovarian edema, a twisted vascular pedicle, absence of flow on color doppler US within the ovary, decreased or absent contrast enhancement on CT or MR within the ovary, failure to identify normal bilateral ovaries, intra-ovarian hemorrhage, and ascites and/or hemoperitoneum [5,6].

Unilateral OT has a reported incidence of 2.5% to 7.4% of female patients undergoing surgery for pelvic pain [7]. OT rarely occurs after hysterectomy with a reported prevalence of

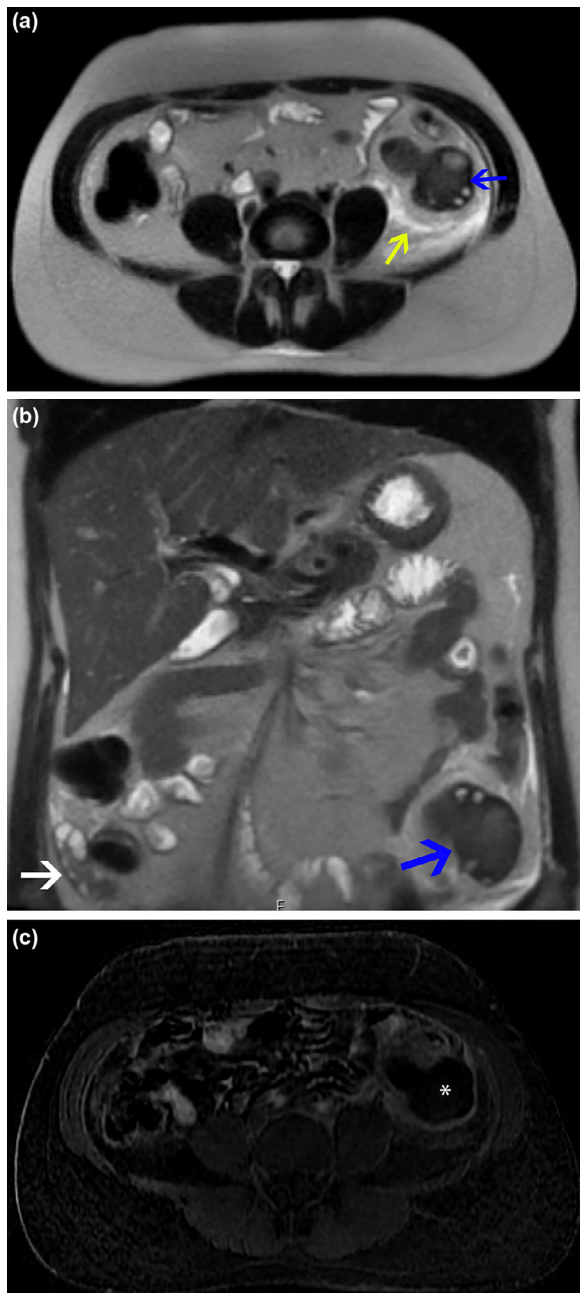


Fig. 2 – (A) Axial fast spin echo MR sequence through the abdomen demonstrating the enlarged left ovary (blue arrow). Note the peripheral follicles. Edema is again demonstrated in the adjacent retroperitoneum (yellow arrow). **(B).** Coronal fast spin echo MR sequence through the abdomen demonstrating the enlarged left ovary (blue arrow). Note the peripheral follicles. Normal contralateral right ovary is visualized for comparison (white arrow). **(C).** Axial T1 weighted subtraction image through the ovarian mass (white asterisk) demonstrating no post contrast enhancement of the ovary.

<8 per 1000 patients [2]. Hysterectomy is therefore itself not considered a risk factor for OT, however, there has been evidence suggesting that OT may more frequently occur after laparoscopic hysterectomy compared with open abdominal approach [2,3]. This discrepancy is hypothesized to be secondary to the decreased frequency of adhesions generated with laparoscopic surgery compared with open surgery which may allow more free movement of the ovary to twist. This has led some researchers to recommend that all patients undergoing laparoscopic hysterectomy should perform prophylactic oophorectomy at the time of surgery [8].

Oophorectomy previously was the standard treatment for torsion, however, ovarian sparing treatment via surgical detorsion with or without oophorectomy has become the commonly utilized management. Oophorectomy encompasses a wide variety of procedures whose goal is to fix an ovary in a secure position to prevent torsion. These procedures include, but are not limited to, utero-ovarian ligament plication, ovarian fixation to the pelvic sidewall, fixation of the ovary to the uterus, plication of the utero-ovarian ligament to the round ligament, or rarely as in this reported case fixation of the ovaries higher or laterally within the abdomen [9,10]. Ovarian position in these cases may mimic ovarian transposition where the ovaries are mobilized to be excluded from a pelvic radiation treatment field in certain malignancies. No published data is available on the rate of OT after prophylactic oophorectomy post hysterectomy. Less than 30 cases of OT post hysterectomy have been reported in the literature, however, the type of hysterectomy, whether oophorectomy was concomitantly performed, and whether a mass was present was not consistently reported across these studies limiting generalizability [2,3,8,11-14].

This reported case demonstrates that radiologists, gynecologists and other emergent care physicians must keep OT in the differential diagnosis for any patient presenting with acute or intermittent pelvic pain. This remains true for all patients with retained ovaries including those that have undergone hysterectomy and/or oophorectomy.

Credit author statement

CB prepared and wrote the original manuscript. CB was involved in managing the patient. BT and MKG revised and edited the manuscript. All authors have access to the manuscript and agreed to publish in the current form.

Patient consent statement

The images included in this report are anonymous and do not allow for identification of the patient. The overseeing institutional review board waves the need for informed consent in case reports which do not include identifying information.

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