Other full case

Postpartum ovarian vein thrombosis presenting as ureteral obstruction

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Summary

Ovarian vein thrombosis (OVT) is a relatively uncommon but serious postpartum complication. Although infrequent, OVT may progress to involve the inferior vena cava, the renal vein or may cause sepsis and septic pulmonary embolism, all of which are potentially life-threatening. Clinical misdiagnosis is common, and, unfortunately, most affected women undergo laparotomy for possible appendicitis. We present an interesting case of OVT presenting as ureteral obstruction in a postpartum woman who was in her early 20s. Knowledge of this entity and clinical suspicion for its occurrence, in a puerperal patient with fever and abdominal pain not responding to antibiotics, should guide clinicians to appropriate diagnosis and treatment, avoiding misdiagnosis, unnecessary laparotomy and potential complications.

BACKGROUND

Ovarian vein thrombosis (OVT) is a relatively uncommon but serious postpartum complication. The incidence varies from 0.15% to 0.18% of pregnancies, and in 90% of the cases it occurs in the right ovarian vein.¹ Although infrequent, OVT may progress to involve the inferior vena cava and the renal vein, or may cause sepsis and septic pulmonary embolism, all of which are potentially life-threatening.² Patients typically present with the clinical

triad of fever, abdominal pain and abdominal mass within the first postpartum week.³ Differential diagnosis is extensive and includes appendicitis, pyelonephritis, endometritis, tubo-ovarian abscess and adnexal torsion, intussusception, volvulus and cholecystitis. Clinical misdiagnosis is common, and unfortunately most affected women undergo laparotomy because of the confusion in the differential diagnosis.⁴ We present an interesting case of postpartum OVT presenting as ureteral obstruction.

Figure 1 Initial CT scan of abdomen and pelvis showing right hydronephrosis. LK, left kidney; RK, right kidney.

Figure 2 Repeat CT scan of the abdomen and pelvis (36 h after initial scan) showing right-ovarian-vein thrombus as a filling defect. LK, left kidney; RK, right kidney; OVT, ovarian vein thrombus; US, ureteral stent.

CASE PRESENTATION

A primigravida in her early 20s presented with gradual onset of right flank and lower abdominal pain 2 days following uncomplicated vaginal delivery. This was associated with nausea, vomiting and fever with rigors. Physical examination revealed fever of 102.4 °F and right-flank tenderness. There was no palpable abdominal mass.

INVESTIGATIONS

In the initial work-up the white cell count was 19 500/mm³ with 88% neutrophils and 12% bands. Urinalysis was normal. Blood and urine cultures were negative. Initial CT scan (figure 1) of the abdomen and pelvis showed a considerable delay in the function of right kidney with hydronephrosis and hydroureter.

CT scan of abdomen and pelvis (figure 2) was repeated 36 h after initial scan because right-flank pain and fever persisted despite treatment for ureteral obstruction and possible urinary infection, and blood cultures remained sterile. This CT scan revealed right-ovarian-vein thrombosis.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis at presentation is extensive and includes appendicitis, pyelonephritis, endometritis, tubo-ovarian abscess and adnexal torsion, intussusception, volvulus and cholecystitis. The final diagnosis of ovarian vein thrombosis is confirmed by CT scan.

TREATMENT

After initial evaluation, patient was put on broad-spectrum antibiotics (ampicillin and gentamicin) to treat for possible urinary infection, and a urological evaluation was made. Cystoscopy was performed, and a right ureteral stent was placed to relieve obstruction.

However, right-flank pain and fever persisted, and blood cultures remained sterile. A repeat CT scan was performed which confirmed the diagnosis of right-ovarian-vein thrombosis. Intravenous heparin was commenced to thrombolysse the clot.

OUTCOME AND FOLLOW-UP

Within 36 h of beginning heparin treatment, the fever subsided and pain improved. Ureteral stent was removed, and patient was discharged the following day with plan for anticoagulation (warfarin) for 3 months and antibiotics (augmentin) for 1 week.

DISCUSSION

OVT during the puerperium is a rare pathology that is characterised by inflammation or thrombosis of one or both ovarian veins.² It occurs in the right ovarian vein in 80% to 90% of the cases.⁵ This is believed to be due, in part, to the commonly occurring dextrotorsion of the enlarging uterus, which causes compression of the right ovarian vein and right ureter as they cross the pelvic brim or to the incompetent valves of the right ovarian vein that are a cause for stasis.¹ The right ovarian vein is also longer than the left and has many valves which may act as niduses for thrombus formation.¹ In addition, during pregnancy there is an increase in the retrograde drainage from the left to right ovarian vein, which results in a greater number of bacteria entering the right ovarian vein.⁶ Furthermore, due to hormonal and mechanical changes that occur during gestation, a state of hypercoagulability persists from pregnancy up to 6 weeks after delivery.³ The typical presentation of OVT includes severe lower abdominal or flank pain on the affected side, fever and an abdominal mass. The mass is usually described as a firm, rope-like tender structure varying from 2 to 8 cm in

diameter that extends along the adnexal lumbar gutter. Such a mass was found in 67% of the cases in one case series.⁶ Leukocytosis of more than 12 000/mm³ occurs in 70% to 100% of the cases.^{6,7} Patients usually present within 1 week of delivery. The presence of nausea, vomiting and ileus has also been reported. First case of postpartum OVT presenting as ureteral obstruction was reported in 1974.⁸ Differential diagnosis is extensive and includes appendicitis, pyelonephritis, endometritis, tubo-ovarian abscess and adnexal torsion, intussusception, volvulus and cholecystitis.

Prior to the advent of modern imaging tools, the only definitive way to diagnose OVT was by surgery, but the mortality was high.³ Ultrasound with Doppler is a useful, inexpensive tool for initial and follow-up examinations. A tubular mass is usually seen adjacent to the psoas muscle without evidence of blood flow.⁹ However, ultrasound is operator dependent and is limited by body habitus, abdominal tenderness and obscuring bowel gas. MRI has also been used to diagnose OVT but is of less value as patients are often unstable and is not as cost-effective as other imaging modalities. Contrast-enhanced CT scan is a reliable and accurate method for diagnosing OVT. Visualisation of the thrombus is improved with intravenous contrast where the thrombus is seen as a low-density area within an contrast-enhanced vessel lumen, clearly showing in some cases vena caval involvement.¹⁰ The sensitivities of ultrasound, MRI and CT for diagnosing OVT are 52%, 92% and 100%, respectively.^{1,11}

OVT is treated initially with broad-spectrum antibiotics and intravenous heparin. Prompt resolution of symptoms, within 24 to 72 h, has been reported with therapeutic heparin therapy^{2,5}, as in our case. Once thrombolysis has begun, warfarin is introduced and continued for 3 weeks to 3 months. Antibiotics are continued for at least 1 week.^{12,13} Historically, early laparotomy for diagnosis and treatment was recommended once OVT was suspected. Currently, surgery is indicated in some cases after failure of conservative therapy or when the risk of pulmonary embolism is high.⁶ Potential serious complications of OVT include progression of thrombus in to the inferior vena cava, or the renal vein, and pulmonary embolism. Pulmonary embolism may complicate OVT in up to 13% of cases and has a mortality of approximately 4%.⁵

Learning points

- ▶ Ovarian-vein thrombosis (OVT) is an uncommon disorder during pregnancy and puerperium, so a high index of suspicion is required to diagnose it.
- ▶ Knowledge of this entity should guide to appropriate diagnosis and treatment, avoiding misdiagnosis, unnecessary laparotomy and potential complications.
- ▶ Imaging modalities such as ultrasound, MRI and CT are useful for diagnosing OVT (with sensitivities of 52%, 92% and 100% respectively).
- ▶ The mainstay of treatment is anticoagulation.

Competing interests None.

Patient consent No action.

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