

Diagnostic challenge of a case of ovarian vein thrombophlebitis

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Introduction

The hypercoagulable state in pregnancy is a physiological response in preparation for delivery. Venous thromboembolism (VTE) is a well-known complication of pregnancy – the incidence of which is estimated to be 7-10 times higher than the incidence in age-matched controls¹.

OVT was first described by Austin in 1958¹, an infrequent phenomenon in the post-partum or puerperal period. It is a challenging diagnosis requiring a high index of suspicion, and carries with it significant morbidity and mortality. The right ovarian vein is more commonly involved than the left (70 to 90 percent) with bilateral involvement occurs in up to 14 percent of cases¹.

In this case report, we discuss a case of OVT in a patient who initially presented with septic retained product of conception (RPOC); and the course which led to this challenging diagnosis.

Case Report

A 33-year-old female first presented with fever, lower abdominal cramping and PV bleeding 2-days after a medical termination of pregnancy (TOP). She was hemodynamically unstable at presentation, and admitted to the Intensive Care Unit (ICU) on arrival. On examination, her abdomen was soft, non-tender, with no evidence of peritonism. Her speculum and vaginal examination were unremarkable, with no evidence of foul-smelling discharge, cervical excitation or adnexal tenderness.

Her initial inflammatory markers showed: leukocytosis of $17.77 \times 10^9/L$ with left shift (95.5% neutrophils) C-reactive protein 108 mg/L, procalcitonin 7.4 UG/L

She was started on broad spectrum empirical antibiotics.

Computed Tomography (CT) Abdomen and Pelvis (AP) performed on admission found: *An enlarged uterus with multiple large lesions compatible with pre-existing fibroids showing cystic degeneration. No evidence of overt uterine perforation. The endometrium is not significantly dilated or distended. No overt evidence of intra-abdominal abscess or source of infection otherwise.*

A dedicated gynecological ultrasound (US) performed on Day 6 of revealed the following: *Endometrium measures 12.1mm and appears echogenic with few cystic spaces seen within. Color imaging demonstrates some flow in upper endometrium. Unable to exclude the presence of RPOC.*

A surgical TOP was performed on Day 8 of admission with 40mls of retained products of conception (RPOC) evacuated. However, the patient continued to spike high grade temperatures despite a surgical TOP.

In view of persistent fever spikes with no clear localizing sources of infection, a repeat CTAP was performed on Day 16 of admission in view of persistent fever spikes, which described the following: *Interval filling defect in the right ovarian vein with surrounding inflammatory changes, in keeping with Right ovarian vein thrombophlebitis.*

In consultation with a haematologist, anticoagulation therapy was initiated with subcutaneous low molecular weight heparin (LMWH) and subsequently a Novel Oral Anticoagulant (NOAC, Rivaroxaban). She was continued on antibiotics in view of recent infected RPOC. Following initiation of anticoagulation therapy, fever lysed and symptoms gradually improved. She was discharged home the day after, having been afebrile for more than 48 hours.



Abdominal CT scan showing ovarian vein thrombosis

Outcome and Follow Up

The patient was discharged with a 6-week course of antibiotics and 3-month course of Rivaroxaban. She was given depot leuporelin acetate due to menorrhagia while on anticoagulation. A repeat US pelvis 6 months later showed several leiomyomata 2.8cm to 3.4cm. Both ovaries were unremarkable.

Discussion

The Misdiagnoses and Diagnosis of OVT

The common presentation described for OVT is fever, abdominal or flank pain, a deep palpable tender mass and leukocytosis – given the non-specific nature of presentation, diagnosing ovarian vein thrombosis requires a high index of suspicion. The common misdiagnoses of OVT include acute appendicitis, pyelonephritis, endometritis, tubo-ovarian abscesses and intestinal volvulus.^{1,2,3}

Before the development of modern imaging techniques, up to 80 percent of diagnosis was made on-table, with the usual pre-operative diagnosis of appendicitis.⁶

The most challenging part of diagnosis OVT is to first *suspect it* as a possible differential. Thereafter, several imaging modalities have been introduced to support the diagnosis.^{1,4} Several well-documented disadvantages of US in the diagnosis of OVT include its operator-dependence, and presence of bowel gas which might compromise the diagnosis. As such, a spiral CT or MRI should be ordered even in the presence of a negative ultrasound if the clinical suspicion is high⁷.

Pathophysiology

OVT has been described as a complication in up to 1 in 600 to 1 in 2000 deliveries^{1,2}. Pregnancy has long been recognized as a risk factor for VTE, with the underlying pathophysiology closely following the Virchow's Triad of (1) Venous Stasis, (2) Activation of Coagulation Factors and (3) Endothelial damage. OVT specifically have been associated with pregnancy, pelvic inflammatory disease, malignancy and pelvic surgery. Idiopathic OVT is a much rarer entity, with only 2 case reports that we have found in the existing literature⁴. While postpartum OVT is an increasingly researched topic, what is less commonly discussed is the increased incidence of OVT following septic abortions – with up to 1 in 200 being complicated by OVT¹. A case report in 2019⁵ describes a similar case of OVT following a septic abortion – in that particular case, the author described the resulting uterine hemorrhage and endometritis to be the predisposing factor to the thromboembolic event.

Treatment

In the past, surgical intervention of ovarian vein thrombosis was the therapeutic approach of choice⁴. More recently, we have moved towards medical treatment with anticoagulation therapy for OVT. While the duration of anticoagulation therapy has not been widely agreed upon, the general consensus recommends at least 3-6 months of anticoagulation therapy with OVT.⁶ Extensive investigation for thrombophilia in these patients are usually not recommended if OVT remains the only site of disease.⁶ Antibiotics were recommended in earlier studies, which primarily included patients with refractory febrile disease⁴. More recent studies have suggested that antibiotics may not be required if there are no clear signs of infection^{1,2}.

Conclusion

While OVT is a challenging diagnosis, early recognition and treatment is important due to its potentially severe complications. Advancements in imaging technologies like ultrasonography, spiral CT and MRI have aided the diagnosis of OVT. While treatment duration is less well-defined, a 3–6-month course of anticoagulation therapy is typically recommended.

References

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