Cureus
Part of SPRINGER NATURE

Open Access Case Report

Right Ovarian Vein Thrombosis After Elective Caesarean Section in a Multiparous Woman

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Review began 09/30/2026
Review ended 11/10/2026
Published 11/16/2026

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DOI: 10.7759/cureus.119778

Abstract

Ovarian vein thrombosis (OVT) is a rare but important cause of acute abdominal pain and can mimic common surgical conditions such as acute appendicitis. We report a case of a 34-year-old woman who presented with right iliac fossa pain seven weeks after an uncomplicated elective caesarean section. Her pregnancy had been complicated by gestational diabetes mellitus. Despite normal observations and a minimal inflammatory response, CT imaging performed for suspected appendicitis revealed right OVT. She was started on anticoagulation and recovered well. This case highlights the importance of considering OVT in postpartum women with unexplained right-sided abdominal pain, even when it occurs several weeks after delivery and without fever or raised inflammatory markers. A recent caesarean section was a relevant risk factor, whereas the contribution of gestational diabetes to maternal venous thromboembolism (VTE) remains uncertain. Timely imaging allowed prompt diagnosis and treatment. Although the optimal duration of anticoagulation for postpartum OVT is not well established, it can be guided by individual clinical assessment. Early recognition, together with attention to risk factors and prompt anticoagulation, led to appropriate management and a favourable outcome.

Categories: Obstetrics/Gynecology, Hematology
Keywords: abdominal pain, anticoagulation, caesarean section, ovarian vein thrombosis, postpartum period

Introduction

Ovarian vein thrombosis (OVT) is a rare condition, with a reported incidence of 0.01-0.05% of deliveries [1-2]. Up to 90% of cases occur in the postpartum period [3-4], particularly following caesarean section. It often presents with non-specific abdominal pain and may be associated with a minimal inflammatory response, making diagnosis challenging. Delayed diagnosis may result in serious complications, including thrombus extension to the inferior vena cava or renal vein, pulmonary embolism, and a reported mortality of up to 2.43% in treated individuals [3]. Right-sided OVT is significantly more common because of the right ovarian vein's anatomy: it is longer, contains more valves, and inserts at an acute angle into the inferior vena cava, making it more susceptible to compression and stasis [5-7]. Awareness of OVT as a differential diagnosis in postpartum women presenting with abdominal pain is therefore essential.

Case Presentation

A 34-year-old woman, para 2 with two previous caesarean sections and a BMI of 30 kg/m², presented to the emergency department with a three-day history of worsening right-sided lower abdominal pain. The pain was exacerbated by movement and localised to the right iliac fossa. She denied nausea, vomiting, urinary symptoms, bowel disturbance, per vaginal bleeding, offensive vaginal discharge, or fever.

She had undergone a planned, uncomplicated elective lower-segment caesarean section seven weeks earlier, with a blood loss of 650 mL. Her pregnancy had been complicated by diet-controlled gestational diabetes mellitus (GDM). She had no other significant issues, and her antenatal risk assessment for venous thromboembolism (VTE) scored 1 (low risk) using the Royal College of Obstetricians and Gynaecologists (RCOG) VTE risk scoring tool [8]. She was not breastfeeding and had received 10 days of postpartum prophylactic low-molecular-weight heparin, as her postnatal VTE score was 2 (1 for BMI and 1 for caesarean section) [8]. She was also taking oral ferrous fumarate for iron replacement following a postpartum haemoglobin (Hb) of 94 g/L.

On initial assessment, she was reviewed by the general surgical team because of concern for acute appendicitis. On examination, her abdomen was soft with lower abdominal tenderness, most marked in the right iliac fossa, and there was no guarding, rebound tenderness, or signs of peritonism. The Pfannenstiel incision had healed well with no signs of infection or masses. Cardiovascular and respiratory examinations were unremarkable, and she had no other complaints.

Investigations

Her observations were normal throughout, with a national early warning score (NEWS) of 0 on arrival at the ED and a pain score of 3 [9]. Her urinalysis was negative. Laboratory investigations demonstrated a normal

white cell count (7.6 × 10^9/L), an Hb of 137 g/L, and a low C-reactive protein level of 3 mg/L; all other blood tests were unremarkable. A CT scan of the abdomen and pelvis, performed on the day of presentation to investigate suspected appendicitis, showed right OVT. The left ovarian vein appeared normal, and there was no extension of the thrombus to the inferior vena cava or renal vein. The uterus was anteverted and had a mildly prominent endometrial cavity and a 28 mm focus of low attenuation, which was considered non-specific. The right ovary measured 27 mm and the left ovary 34 mm. A small volume of pelvic free fluid was noted. There were minimal atelectatic changes at the lung bases. The liver, spleen, pancreas, adrenal glands, kidneys, and bladder were normal. There was no evidence of appendicitis, diverticulitis, bowel obstruction, perforation, ascites, or significant lymphadenopathy. The portal, splenic, and superior mesenteric veins were patent.

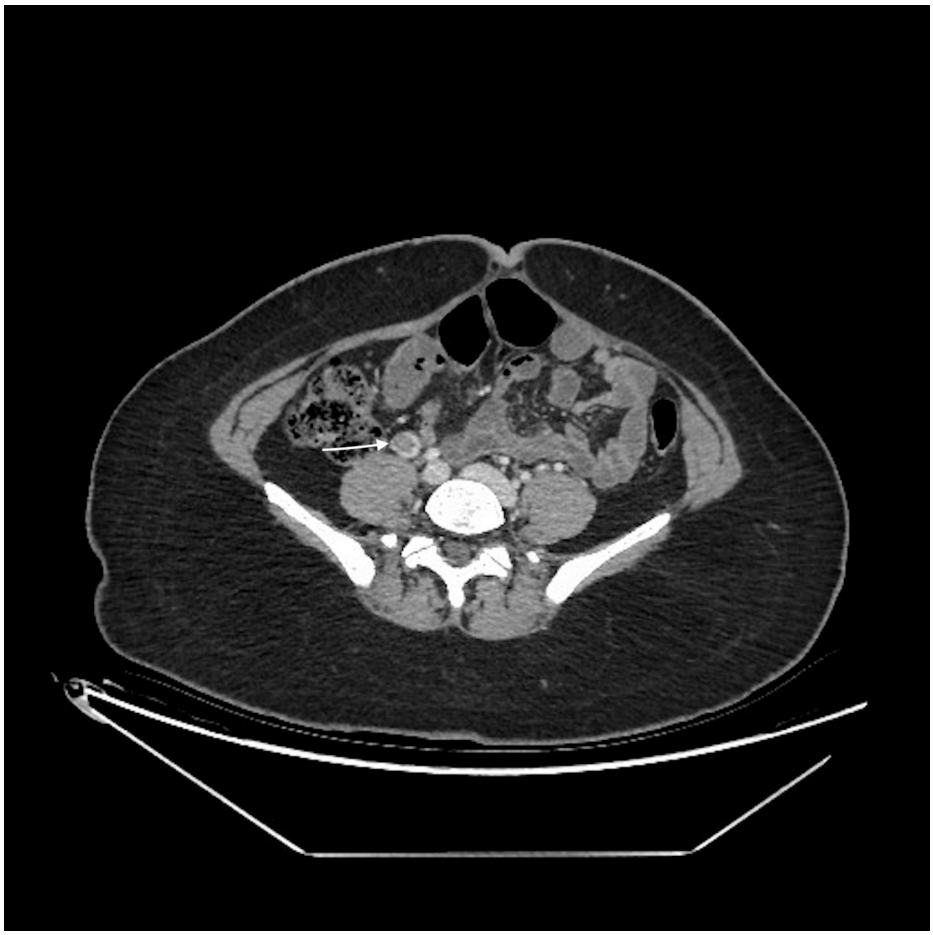


FIGURE 1: CT with contrast cross-sectional axial image of the pelvis, showing diagnosis of right ovarian thrombosis

Image showing dilated ovarian vein and filling defect

CT: computed tomography

Differential diagnosis

In this case, the initial working diagnosis was appendicitis, given the right iliac fossa pain and tenderness on abdominal examination. However, her inflammatory markers remained normal, and she had no other associated symptoms. Her CT scan showed no evidence of appendicitis or any other pathology but confirmed right ovarian thrombosis. Given the radiological and clinical findings, right ovarian thrombosis was considered the most likely diagnosis.

Treatment

The patient was commenced on therapeutic anticoagulation with dalteparin 12,500 IU once daily as an inpatient, in accordance with her weight (62 kg) and local guidelines. Her admission creatinine was 59 µmol/L, with a creatinine clearance of 117 mL/min. She received counselling regarding hydration, mobilisation, and the avoidance of prolonged immobility, including during long-haul travel. The use of thromboembolic deterrent stockings at home was also advised. Contraceptive counselling was provided,

including discussion of the contraindication to combined oral contraceptive pills. The patient was using barrier contraception, with plans to consider a progestogen-only method following completion of anticoagulation. Paracetamol and codeine phosphate were prescribed for pain relief, with an improvement in her symptoms following their use and the initiation of dalteparin. Three days later, anticoagulation was transitioned to apixaban, at a dose of 10 mg twice daily for one week, followed by 5 mg twice daily. Dalteparin was then discontinued.

Outcome and follow-up

The patient was followed up in the gynaecology and haematology clinics and continued apixaban 5 mg twice daily, with a total treatment duration of six months. Her blood tests, including renal function, remained normal. During follow-up, she reported posterior right calf and thigh pain, which prompted further clinical review. She underwent an ultrasound compression venography of the right lower limb, which showed no deep vein thrombosis, and her symptoms subsequently settled. Monitoring during direct oral anticoagulant therapy included a baseline full blood count and renal and liver function tests, with repeat blood tests at three weeks and assessment of bleeding risk. Dose reduction or specialist review was planned if bleeding risk increased or renal function declined. Her follow-up CT scan showed partial recanalisation of the right ovarian vein and no further thrombus.

Discussion

OVT is an uncommon but potentially serious postpartum complication, with limited data available regarding its true incidence and prevalence. The literature suggests a clear association with the mode of delivery, with significantly higher rates reported following caesarean section (1-2%) compared with vaginal delivery (0.05-0.18%) [10]. This case highlights the diagnostic challenges posed by OVT due to its non-specific clinical presentation. Abdominal pain, often localised to the right side, is frequently the only presenting symptom, as demonstrated in this patient, who had normal observations, minimal pain scores, and unremarkable inflammatory markers. The absence of systemic features, such as fever, may lead to delayed diagnosis or misdiagnosis of more common surgical conditions, such as appendicitis. This reinforces the importance of maintaining a high index of suspicion for OVT in postpartum women presenting with unexplained abdominal pain, even several weeks after delivery [7].

Cross-sectional imaging, particularly contrast-enhanced CT of the abdomen and pelvis, plays an important role in diagnosis. In this case, CT imaging performed to exclude appendicitis identified right OVT, allowing prompt initiation of anticoagulation and helping to prevent further complications. Although ultrasound may be used as an initial imaging modality, it is operator-dependent and may have limited sensitivity, particularly in the postpartum period. CT therefore remains the diagnostic modality of choice when the diagnosis is uncertain [5,11,12].

Several recognised risk factors for OVT were present in this patient. The postpartum state itself is associated with Virchow's triad of physiological hypercoagulability, venous stasis, and endothelial injury. Caesarean section further increases thrombotic risk through surgical trauma and relative immobility. Additionally, this patient had a BMI of over 30 kg/m², placing her in obesity class I, which is an independent risk factor for VTE [13-15]. Another relevant factor was her history of GDM. Emerging evidence suggests that GDM contributes to a prothrombotic and hypofibrinolytic state, with increased inflammation, endothelial dysfunction, and vascular strain, all of which may predispose to thrombosis. However, whether GDM contributed to the thrombotic risk in this patient remains uncertain and cannot be established from this case alone [16-18].

Early initiation of therapeutic anticoagulation is the cornerstone of management and is associated with excellent outcomes when commenced promptly. In this case, treatment with low-molecular-weight heparin, followed by a transition to a direct oral anticoagulant, resulted in clinical improvement, without clinically apparent pulmonary embolism or other documented thromboembolic complications. Multidisciplinary follow-up involving gynaecology and haematology ensured appropriate monitoring and patient counselling [19].

This case highlights several important learning points. OVT is a rare but important cause of postpartum abdominal pain and can closely mimic common surgical conditions, such as appendicitis, even in the absence of systemic symptoms or raised inflammatory markers. A high index of suspicion is required in postpartum women presenting with unexplained right-sided abdominal pain, particularly following caesarean section. Risk factors such as obesity and multiparity, alongside the potential contribution of gestational diabetes, should be considered when assessing postpartum thrombotic risk. Early cross-sectional imaging and prompt initiation of anticoagulation are key to preventing serious complications and ensuring favourable outcomes.

Conclusions

This case report underscores the importance of considering OVT as a differential diagnosis in postpartum women presenting with isolated abdominal pain, particularly following a caesarean section and in the presence of additional risk factors such as obesity. Increased awareness among clinicians, timely imaging,

and prompt anticoagulation are essential to reduce morbidity and prevent potentially life-threatening complications.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

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Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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