Case Report

Postoperative Ovarian Vein Thrombosis and Treatment with Direct Oral Anticoagulant

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Abstract

Postoperative ovarian vein thrombosis (OVT) is a rare complication following hysterectomy. Due to its ambiguous presentation, most frequently presenting as a fever with no known source and lower quadrant abdominal pain, OVTs are commonly diagnosed incidentally on computed tomography as a low-attenuation thrombus in place of the ovarian vein. The cornerstones of OVT treatment include anticoagulation and antibiotic therapy; however, there are no current guidelines to inform provider decision-making regarding specific anticoagulant agents, dosing, or length of therapy. We present a patient with a history of deep-vein thrombosis, who presented to the emergency department with OVT following a laparoscopic hysterectomy. She was treated with apixaban, a direct oral anticoagulant (DOAC), and experienced repeated episodes of vaginal bleeding and hematoma expansion. We present this case to instill a high index of suspicion for OVT after laparoscopic hysterectomy, and to discuss the role of DOACs in patients with thromboembolic disease and concurrent bleeding.

Keywords: Anticoagulation, hematoma, laparoscopic hysterectomy, venous thrombosis

Introduction

Postoperative ovarian vein thrombosis (OVT) is rare, with prior investigations reporting a crude incidence of 0.10%, 0.13%, and 0.24% in vaginal, laparoscopic, and abdominal approaches, respectively.[1] In a retrospective cohort study, Wysokinska *et al*. found that patients with OVT experience a similar recurrence rate for venous thrombi as patients with lower extremity deep-vein thrombosis (DVT; 3 vs. 2.2/100 patient-years, respectively).[2] Therefore, long-term anticoagulation therapy is essential when treating patients with OVT. Nevertheless, no such guidelines exist for this patient population, rendering physicians to adhere to anticoagulation guidelines for other thromboembolic diseases such as DVT and atrial fibrillation.

We describe a 46-year-old female with a history of DVT, who presented to the emergency department with a postoperative OVT and was treated with a direct oral anticoagulant (DOAC). Over her postoperative course, our patient experienced recurrent hematoma with concomitant thrombosis, complicating decisions regarding her anticoagulation therapy. This case highlights a need for future research elucidating the role of DOACs in the treatment of OVT among high-risk patients, and to establish guidelines for DOAC application in patients with concomitant bleeding. Therefore, we present this case to instill a high index of suspicion for OVT after laparoscopic hysterectomy and to discuss the management of patients with thromboembolic disease and concurrent bleeding.

Case Report

A 46-year-old female with a past medical history significant for diabetes, hypertension, and a previous DVT presented to the

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emergency department with fever, profuse vaginal bleeding, and severe abdominal pain for the past 5 days. Two weeks prior, she had undergone a total laparoscopic hysterectomy, bilateral salpingectomy, and right oophorectomy for chronic pelvic pain at a large, urban, academic hospital system. She experienced no complications in the perioperative period and was discharged home on the same day in stable condition.

Soon after arrival, the diagnostic ultrasound revealed a fluid collection between the urinary bladder and vaginal cuff measuring 5.7 (length) cm × 4.4 (height) cm × 7.5 (width) cm, narrowing our differential diagnosis to postoperative hematoma or abscess formation. Due to concern for postoperative infection (maximum temperature = 38.6°C) in a high-risk patient, antibiotic therapy with gentamicin, ampicillin, and clindamycin was initiated and she was admitted to further management. Computed tomography (CT) with intravenous contrast showed the rim-enhancing nature of the fluid collection, confirming our diagnosis of pelvic abscess [Figure 1]. Our patient's antibiotic regimen was modified to ceftriaxone and metronidazole for broader coverage. On hospital day 2, follow-up CT demonstrated an incidental finding of nonocclusive right OVT [Figure 2]. After consultation with vascular surgery, she was discharged home with a DOAC apixaban (5 mg twice daily) and a 10-day course of trimethoprim/sulfamethoxazole. Three days later, our patient was readmitted for heavy bleeding, abdominal cramping, and passage of large blood clots for the past 2 days. Diagnostic CT exhibited increased size of her pelvic abscess (6.8 cm × 6.2 cm × 9.0 cm) and decreased size of her thrombus. Interventional radiology performed ultrasound-guided aspiration of the abscess and described the internal hyperdensity of the fluid collection, indicative of postoperative hematoma. Her laboratory results demonstrated acute-onset anemia with a hemoglobin drop from 13 to 7.8 g/dL, necessitating blood transfusion with two units of packed red blood cells. Her hemoglobin failed to improve with transfusion, concerning for continued intraperitoneal bleeding.

Our patient's concomitant bleeding and thrombosis precluded treatment with either antifibrinolytics or anticoagulation. Therefore, she was taken back to the operating room by the same surgeon for laparoscopic evacuation of the OVT and vaginal dehiscence repair. Her postoperative course was complicated by superficial cephalic vein thrombosis in her left arm and recurrent anemia, treated with a series of additional transfusions. On postoperative day 4, our patient was deemed medically stable and discharged home with the resumption of her apixaban and instructions to follow-up outpatient with hematology for hypercoagulability workup.

Five days later, our patient was readmitted for a third episode of heavy vaginal bleeding and passage of clots (hemoglobin 11 g/dL). Apixaban was discontinued and hematology performed a complete laboratory workup that revealed no coagulation abnormalities. On hospital day 2, her condition had stabilized and she was discharged home without resumption of her anticoagulation therapy; instead, she was scheduled for frequent follow-up with obstetrics and gynecology and hematology with interval CT scans to monitor the OVT. She was amenable to this treatment plan and has not experienced any further bleeding or thrombotic episodes.

Discussion

OVT is an extremely rare complication of minimally invasive gynecologic surgery and is most commonly reported in the postpartum setting. Other risk factors include malignancy, pelvic inflammatory disease, sepsis, and recent

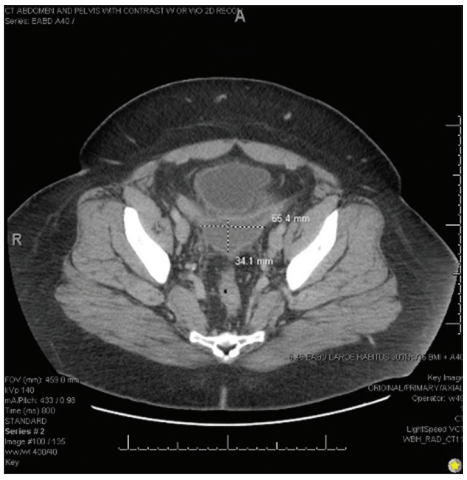

Figure 1: Pelvic computed tomography with intravenous contrast demonstrating a rim-enhancing fluid collection between the bladder and rectosigmoid colon measuring 6.5 cm × 3.4 cm

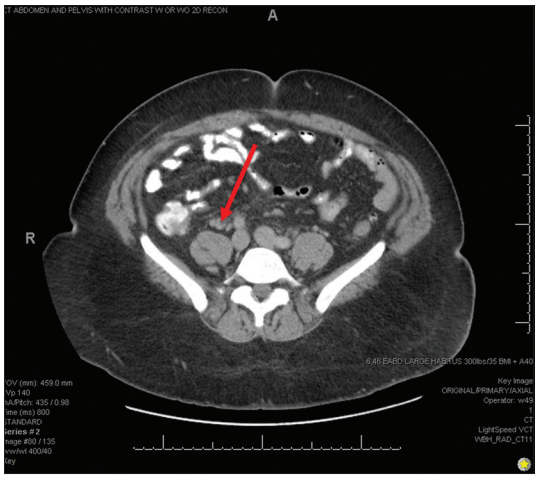

Figure 2: Pelvic computed tomography with intravenous contrast demonstrating a nonocclusive thrombus in the right gonadal vein (see arrow)

pelvic or abdominal surgery.[2,3] The presentation of OVT is pernicious, often presenting as a fever unresponsive to antibiotics.[2] As such, diagnosis requires a high index of suspicion and comprehensive workup including a pelvic CT with intravenous contrast. Prompt diagnosis is imperative to prevent fatal complications such as pulmonary embolism, gastrointestinal fistula formation, and sepsis.[2]

The cornerstones of OVT treatment include anticoagulation and antibiotic therapy; however, there are no current guidelines to inform provider decision-making regarding specific anticoagulant agents, dosing, or length of therapy.[4] As such, physicians frequently revert to guidelines for symptomatic DVT: at least 3 months of anticoagulation either with warfarin, a Vitamin K antagonist, or a DOAC that directly inhibits either thrombin (factor IIa) or factor Xa.[5] DOACs have been quickly gaining traction as the agents of choice due to the convenience of administering fixed daily doses without any necessary monitoring.[6,7]

This high-risk patient with a history of DVT presented with a symptomatic OVT and experienced recurrent episodes of profuse bleeding, hematoma expansion, and hemostatic discoordination upon DOAC resumption. In retrospect, the authors recommend observation of patients who are at risk of bleeding, such as our patient with prior hematoma, for 24–48 h with a DOAC onboard before discharge. Current recommendations for bleeding on DOACs are limited and include stopping the agent, supportive measures such as transfusion of packed red blood cells, and clinically assessing a patient's coagulation and volume status to inform possible administration of a reversal agent.[8,9] Furthermore, there are no set guidelines for the decision to resume anticoagulation after bleeding resolution or in the postoperative setting.[8] Since patients with atrial fibrillation are advised to stop DOACs before surgery with prompt resumption postoperatively to prevent thromboembolic events, our patient was discharged on a DOAC following bleeding resolution.[8] Given her clinical course including readmission for hematoma recurrence, further investigation into the risks and benefits of prompt DOAC resumption is essential to develop evidence-based guidelines for patients with rarer thromboembolic diseases such as OVT.

With the advent of DOACs as a substitute for warfarin in long-term anticoagulation therapy, further investigation into their safety, efficacy, and reversal has become increasingly pertinent. We present this case to present a rare case of postoperative OVT and to highlight the need for further research on anticoagulation guidelines for patients with DOAC-related bleeding and concomitant thrombosis.

Declaration of patient consent

The patient in this article consented to the composition of this case report, her medical images being used, and submission to this journal for publication. This study is in accordance with the Helsinki Declaration of 1975 as revised in 2013. Due to its retrospective nature and inclusion of three or less patients, our Institutional Review Board confirmed that this study was exempt from review.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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