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Case Report

Ovarian Vein Thrombosis after Pelvic Surgery in Patient with Recent Coronavirus Disease

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ABSTRACT An abundance of literature has demonstrated that coronavirus disease (COVID-19) contributes to a hypercoagulable state that is associated with venous thromboembolic events. Data on postoperative complications after a mild COVID-19 infection are limited. We report a case of ovarian vein thrombosis after pelvic surgery in a patient with a recent mild COVID-19 infection. The patient presented with complaints of fever and worsening right-sided abdominal pain postoperatively and was found to have a right ovarian vein thrombosis. Thrombophilia workup was negative. The hypercoagulable state of patients with COVID-19 may have implications on postoperative complications after gynecologic surgery even in cases of mild infection. Further research is needed to determine the optimal thromboembolic prophylaxis for patients undergoing pelvic surgery after a COVID-19 infection. *Journal of Minimally Invasive Gynecology* (2021) 28, 1951–1952. © 2021 AAGL. All rights reserved.

Keywords: Septic pelvic thrombophlebitis; Hysterectomy; Robotic surgery; Hypercoagulability

Coronavirus disease (COVID-19) has been associated with increased rates of venous thromboembolic events (VTEs): up to 27% in patients with severe COVID-19 infections [1,2]. This risk has been well established in patients with severe COVID-19, but there are limited data on the risk of VTEs after a mild COVID-19 infection. Studies have found a higher rate of morbidity and mortality, and a higher rate of VTEs in patients undergoing surgery with a recent diagnosis of COVID-19 [3]. We present a unique case in which a patient with a recent mild COVID-19 infection developed ovarian vein thrombosis (OVT) after a robotic-assisted laparoscopic hysterectomy.

Case

A 46-year-old para 2 presented to the emergency department on postoperative day 6 with complaints of abdominal pain, fevers, chills, and emesis. The patient underwent an uncomplicated robotic-assisted total laparoscopic hysterectomy, uterosacral ligament fixation, and tension-free

vaginal tape sling for pelvic organ prolapse, symptomatic myoma uterus, and stress urinary incontinence. The patient had a history of COVID-19 infection, diagnosed 6 weeks preoperatively, that did not require hospitalization. The hospital policy dictated that a positive COVID-19 result within 90 days does not warrant repeat testing. Therefore, preoperative COVID-19 testing was not performed. Patient's medical history included asthma and gastroesophageal reflux disease without any prior surgical history. Patient's body mass index was 26. The physical examination revealed a temperature of 99.5°F, normal sinus rhythm (heart rate 91 beats per minute), and oxygen saturation of 97% on room air. Moderate right lower quadrant tenderness was noted with deep palpation. Labs were significant for leukocytosis (white blood cell count of 12 600 mm³ with 84% neutrophils). A complete metabolic panel was within normal limits. Computed tomography of the abdomen and pelvis showed thrombosis of the right ovarian vein (Fig. 1). The diagnosis of OVT was made, and the patient was started on intravenous gentamicin and clindamycin and therapeutic enoxaparin (1 mg/kg). During her hospital stay, her abdominal pain improved significantly, she remained afebrile, and leukocytosis resolved. She was discharged on hospital day 4 on oral amoxicillin/clavulanic acid for 7 days, and oral apixaban to be continued for 6 weeks. The results for thrombophilia workup including Factor V Leiden R506Q mutation, anticardiolipin antibodies, beta-2 glycoprotein antibodies, and lupus anticoagulant were negative.

The authors declare that they have no conflict of interest.

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Fig. 1

Abdomen and pelvis CT depicting the right ovarian vein thrombosis (red arrow). CT = computed tomography.



Discussion

Septic pelvic thrombophlebitis (SPT) is a subset of VTE that is often described as a rare complication of the postpartum period. It more rarely occurs in nonpregnant women; however, it can be associated with pelvic surgery, pelvic infections, leiomyomas, and underlying malignancy [4]. SPT can be further classified by 2 subset diagnoses: OVT and deep SPT (DSPT). OVT typically presents within 1 week postpartum or postoperatively with abdominal pain, localized to the affected side, fever, and nausea [5]. Approximately 70% to 90% of OVT cases involve the right ovarian vein [5]. The incidence of OVT after vaginal or cesarean delivery has been estimated to be 1 out of 3000 deliveries [4]. The incidence of OVT after gynecologic surgery is unknown. Regarding minimally invasive surgery, there is only 1 case report of SPT after laparoscopic hysterectomy [6].

The hypercoagulable state present with COVID-19 is known as COVID-19–associated coagulopathy (CAC). CAC is associated with an increased rate of VTEs, most notably in critically ill patients hospitalized with COVID-19. CAC is thought to result from endothelial injury, immobilization, and an increase in circulating prothrombotic factors [7]. This is particularly concerning for COVID-19 surgical patients. Studies have shown an increased rate of VTE in patients undergoing surgery in the setting of COVID-19 [3]. Little is known about VTE in patients with a mild COVID-19 infection; however, the rate of VTEs in patients after discharge who required an inpatient admission for COVID-19 has been estimated to be 0.48% to 1.6% [8,9]. In a study that looked at 1877 COVID-19 hospital discharges, the diagnosis of VTE was made after 16 to 51 days with a median of 29 days after discharge [8].

Our patient had no risk factors for VTE, beyond a COVID-19 infection diagnosed 6 weeks preoperatively.

The risk of VTE after minimally invasive hysterectomy is estimated to be 0.3%. This risk may be increased by a recent COVID-19 infection. To assess the need for VTE prophylaxis, a Caprini Risk score was calculated preoperatively. The Caprini score includes 20 variables that are used to stratify a patient's risk of postoperative VTE into low, moderate, and high risk [10]. According to risk stratification with the Caprini scoring system, our patient was classified as low risk, and only mechanical VTE prophylaxis was indicated. Nonetheless, we cannot suggest causation based on our understanding of COVID-19 at this present time.

Currently, there are no statistical models for thrombosis risk that account for young, healthy women undergoing minimally invasive surgery after a recent COVID-19 infection. This case raises the question as to whether we should lower the threshold for thromboprophylaxis in patients with a recent COVID-19 infection, including those with mild symptomatology. On the basis of this case, we recommend waiting >6 weeks after a COVID-19 infection to proceed with elective surgery. We would also suggest obtaining a negative COVID-19 test result before elective surgery. Ultimately, further research is needed to determine the duration of hypercoagulability after COVID-19 infection and its implications on gynecologic surgery.

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