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Case report

Novel management of ovarian vein thrombosis: A case report

Joseph Naoum [a], Amani Mohsen [b,*], Jihad Daher [c], Toufic Eid [d]

[a] Chief Division of Vascular and Endovascular Surgery, Lebanese American University (LAU) and Lebanese American University Medical Center Rizk Hospital (LAUMCRH), Beirut, Lebanon
[b] Obstetrics & Gynecology consultant at Médecins Sans Frontières (MSF), Beirut, Lebanon
[c] Chairman of the Radiology Department, Clemenceau Medical Center, Beirut, Lebanon
[d] Chairman of the Obstetrics and Gynecology Department, Clemenceau Medical Center, Beirut, Lebanon

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ABSTRACT

Ovarian vein thrombosis (OVT) is a rare serious diagnosis especially if extending to inferior vein cava (IVC). We present a case of 36-year- old female who was diagnosed with right OVT reaching the inferior vein cava following a supra-cervical hysterectomy that was performed in the postpartum period due to excessive bleeding from uterine fibroids. Using the new generation anti-coagulant "rivaroxaban" for six months followed by maintenance regimen of aspirin and sulodexide, complete resolution of the clot was noticed without any adverse event while using this regimen. This is the first OVT case which is completely treated with rivaroxaban without any adjunct invasive modality.

1. Introduction

Ovarian vein thrombosis (OVT) is a rare serious diagnosis which can be encountered at any time. It is more common in the postpartum period with an incidence reaching 1 in 2000–3000 deliveries (Rottenstreich et al., 2016; Dougan et al., 2016). More than 80% of the postpartum cases are in the right ovarian vein (Dougan et al., 2016). The classical clinical picture includes abdominal pain, fever, nausea, vomiting and malaise. Because these symptoms are vague, high degree of suspicion and imaging are necessary to establish the diagnosis and avoid any further catastrophic complications such as sepsis (13%), ovarian infarction, pulmonary embolism (33%) and mortality (4.4%) (Dunnihoo et al., 1991).

Management of cases of OVT warrants a multidisciplinary team including a vascular surgeon, obstetrician and hematologist. Anticoagulation is the mainstay treatment option. Recently, Low molecular weight heparin (LMWH) is recommended and warfarin used as an acceptable alternative if the patient does not favor injections (Dougan et al., 2016). However, warfarin necessitates strict monitoring of the international normalized ratio (INR) (Dougan et al., 2016). New generation oral anticoagulants (NOACs) are still understudied in treating OVT. In this report, we discuss a typical case of postpartum OVT which is successfully treated with NOACs then maintained on aspirin and sulodexide.

2. Case report

A 36 year old woman, G6P4A2, presented to emergency department with severe right lower quadrant pain eight weeks following her last cesarean delivery and two weeks post hysterectomy. Her postpartum period was complicated with episodes of severe postpartum bleeding due to multiple uterine fibroids for which she had supra-cervical hysterectomy two weeks prior to this presentation. Her pain was severe, colicky radiating to her back. It was not associated with any fever, chills, nausea and vomiting, diarrhea, urinary symptoms or abnormal vaginal secretions. She reported normal bowel habits. The patient was obese with body mass index of 31. She was afebrile, normotensive with mild tachycardia. Abdominal examination revealed a clean surgical incision, diffuse tenderness mainly on palpating the right para-umbilical area and the right lower quadrant. She had not received any anticoagulation post her cesarean delivery or after hysterectomy.

CT scan of the abdomen and pelvis showed extensive right ovarian vein thrombosis reaching the inferior vein cava (Fig. 1a and b). The D-Dimer value was 2697 ng/ml (normal 0–500) and workup

* Corresponding author at: Clemenceau Medical Center, 4th floor, Clemenceau St, Beirut, Lebanon.
E-mail addresses: Joseph.naoum@laumcrh.com (J. Naoum), dr-amanimohsen@hotmail.com, dramohsen86@gmail.com (A. Mohsen), jihad.daher@cmc.com.lb (J. Daher), toufic.eid@cmc.com.lb (T. Eid).
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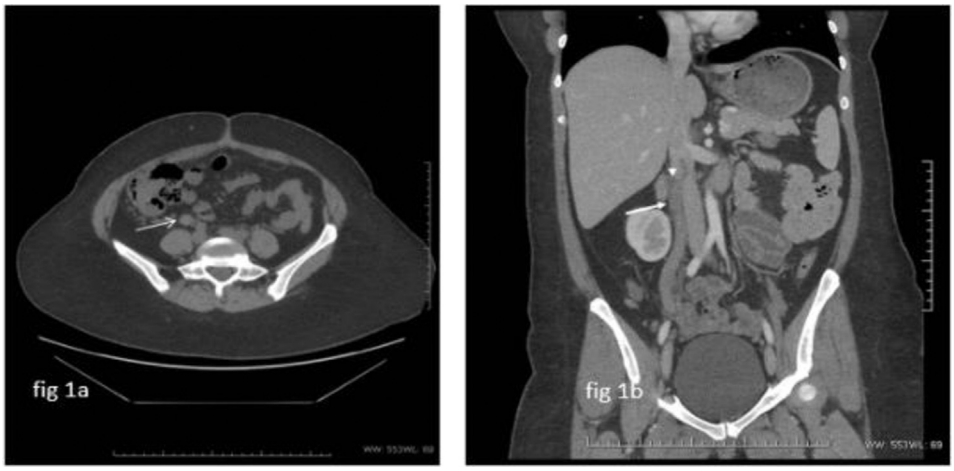

Fig. 1. (a) Dilated hyperdense right ovarian vein (arrow) due to the presence of blood clot is seen on axial CT obtained before IV contrast administration. (b) Coronal CT post contrast administration shows extensive thrombosis of the entire right ovarian vein (arrow). The thrombus is protruding into the inferior vena cava (arrowhead). On post contrast imaging, the thrombus appears hypodense relative to the enhancing vascular lumen.

for inherited and acquired thrombophilia was obtained and later proved unremarkable. Anticoagulation was started immediately with Tinzaparin 0.7 ml (18,000 Units) (Innohep, LEO Pharma, Denmark) subcutaneous injection daily in the first week then she was maintained on rivaroxaban 20 mg (Xarelto, Bayer AG, Germany) daily. Repeat CT scan at 6 months showed resolution of the thrombus and normalization of the D-Dimer serum value. Rivaroxaban was discontinued and the patient was maintained on Aspirin 100 mg daily and Sulodexide 250LSU (Vessel Due F, Alfa Wassermann, Italy) twice a day. At one year follow up, a CT scan revealed complete resolution of the previous thrombus (Fig. 2a and b). A signed consent was obtained from our patient to allow writing this report.

3. Discussion

Our case is a typical patient with multiple risk factors for venous thromboembolism including obesity, cesarean delivery and further supra-cervical hysterectomy six weeks postpartum which contributed to increased risk of thromboembolism in comparison with laparoscopic approach (Barber et al., 2015). In a retrospective review of 74 cases of OVT, 81.1% of the cases were pregnancy related. Thrombophilia workup revealed pathology in only 20% of pregnancy related OVT (Rottenstreich et al., 2016).

Computed tomography (CT) is the diagnostic test of choice with sensitivity 78–100% and specificity 63–99%. The diagnosis is based on the presence of the Zerhouni criteria: enlarged vein, low-density vein lumen and well defined vessel wall with perivascular inflammatory stranding (Klima and Snyder, 2008). Magnetic resonance imaging (MRI) is similar to CT without the need of contrast and exposure to ionizing radiation but MRI is time consuming and less readily available than CT (Dougan et al., 2016).

The mainstay treatment of ovarian vein thrombophlebitis is combination of anticoagulation and antibiotics when indicated (Dougan et al., 2016; Klima and Snyder, 2008). In our case, a supurative thrombophlebitis was excluded due to the lack of hallmarks for infection. Unfractionated heparin followed by LMWH or warfarin are common anticoagulation regimen treatment that could range between three and six months.

Rivaroxaban is a new generation oral anticoagulant which was approved for treatment of deep vein thrombosis and pulmonary embolism by the European Medicines Agency and United States

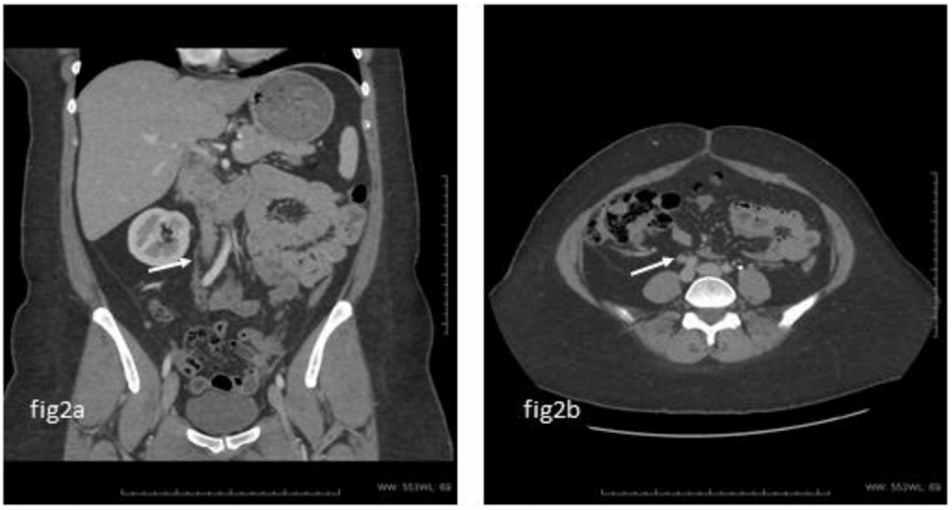

Fig. 2. (a and b) The right ovarian vein (arrows) regained its normal diameter after resolution of the thrombus on this CT obtained following therapy.

Food and Drug Agency (Vanassche and Verhamme, 2013). However, its use is still understudied in treating OVT (Dougan et al., 2016). The latest guidelines issued by the American College of Chest Physicians suggested Rivaroxaban to be used over vitamin K antagonist and LMWH as long term anticoagulation for treating venous thromboembolism (VTE) in patients without malignancy (Kearon et al., 2016). In our patient; rivaroxaban was used for 6 months without any bleeding or any relevant side effect.

At 6 month follow up, the D-Dimer had returned to normal and a CT scan had shown clot resolution. She was then maintained on Aspirin and sulodexide. The effect of Aspirin in reducing the recurrence of VTE was evaluated in the WARFASA and ASPIRE trials with the pooled results of the two trials showing that Aspirin was associated with a 32% reduction in the rate of recurrence of VTE (HR, 0.68; 95% confidence interval [CI], 0.51–0.90) and 34% lower risk of major vascular adverse events (Prandoni et al., 2013).

The beneficial effect of Sulodexide in preventing VTE recurrence rate has been proved (Andreozzi et al., 2015). In a multi-centric study, oral sulodexide was associated with 2.42 times lower risk of recurrent deep vein thrombosis (DVT) after 2 years of follow up knowing that patients were treated initially with LMWH for 6 months followed by oral sulodexide. Our patient was treated with NOAC mainly rivaroxaban followed by combination of Aspirin and Sulodexide. Our management lead to complete clot resolution and may have prevented recurrence of the OVT.

There is only one case of OVT that was treated with Rivaroxaban successfully (Cook et al., 2014). In the reported case as well in our case, rivaroxaban was used successfully without any documented side effect or excessive bleeding. However, in Cook's and colleagues report, early surgical intervention and thrombolysis were used. In our case, LMWH followed by Rivaroxaban were solely used to treat and allow re-canalization followed by Aspirin and Sulodexide to decrease the risk of recurrence.

Because cases of ovarian vein thrombosis are rare, our new experience highlights the use of NOAC to treat thrombosis followed by maintenance therapy to help prevent recurrence.

Conflict of interest

We do not have any conflict of interests to declare. No financial or commercial support from any pharmaceutical company or any sponsor. Patient was informed and signed the proper consent for this report. No color is needed for any figure in print.

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