CASE REPORT

Ectopic Inferior Vena Cava Thrombus Secondary to a Tubo-Ovarian Abscess

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SUMMARY

Inferior vena cava (IVC) thrombosis typically arises distally from a thrombophlebitic extension in the pelvis or the lower extremities. It may also occur from propagation of an ovarian vein thrombosis as a result of gynaecological disorders such as pelvic inflammatory disease, endometritis or from pelvic surgeries. In this report, we present an interesting case of a tubo-ovarian abscess with an ectopic IVC thrombus. The approach to management in such cases is also highlighted.

KEY WORDS:
Ovary, abscess, inferior vena cava, thrombosis, right atrium, anti-coagulation

INTRODUCTION

Inferior vena cava (IVC) thrombosis typically occurs as a result of thrombophlebitic extension from the pelvis or lower extremities. It can also propagate from an ovarian vein thrombosis as a consequence of gynaecological pathologies such as pelvic inflammatory disease, endometritis or from pelvic surgeries. Here we describe an unusual case of a pelvic infection with an ectopic IVC thrombus in a 49 year old female presenting with fever and right iliac fossa pain secondary to a tubo-ovarian abscess.

CASE REPORT

Our patient is a 49 year old Malay lady, para 7 with her last childbirth via lower segment caesarean section in 1999. Her background history included hypertension, hyperlipidaemia and type 2 diabetes mellitus, for which she was on irbesartan, amlodipine, simvastatin and metformin. She previously had menorrhagia and underwent a hysteroscopy with dilatation and curettage (D&C) in 2010. A polyp was found and the histology was reported as a benign endometrial polyp.

She presented to the Department of Obstetrics and Gynaecology in January 2012 with fever and persistent right lower abdominal pain of three days' duration. She denied any associated nausea, vomiting, urinary symptoms or vaginal discharge. On arrival, patient was otherwise stable with a temperature of 37.5°C. Physical examination revealed a tender, non-mobile right iliac fossa mass that was confirmed on per vaginal examination. Ultrasound scan (USS) evaluation revealed a cystic mass of 8.7 x 6.9 x 5.8 cm in the right adnexa.

A high vaginal swab and relevant cultures (urine and blood) all did not isolate any organism. Her laboratory investigations were only remarkable for leukocytosis of 19.2 x 10^9/L (normal range 4 to 11.0) and a mildly elevated serum Carbohydrate antigen (CA) 125 of 42.64 U/ml (normal <36). Inflammatory markers were also elevated.

In view of the fever, leukocytosis and elevated inflammatory markers, the patient was started on intravenous cefuroxime (750 mg three times daily) and metronidazole (500 mg three times daily) for a right tubo-ovarian abscess.

A computed tomography (CT) scan of the abdomen and pelvis showed a low density tubo-cystic lesion in the right adnexa as seen on USS evaluation. The complex cystic mass was located anterolateral to the uterus and inferior to the ileocaecal junction (Figure 1a). Incidentally, a non-enhancing mass was seen in the IVC located just distal to the IVC-cardiac junction (Figure 1b and 1c). No other abnormalities such as hepatic lesions or ovarian vein thrombosis were seen. The differential diagnosis of the CT imaging findings included a right tubo-ovarian cystic neoplasm or abscess with coincidental IVC mass which could be a thrombus or myxoma. Further radiological investigation with Magnetic Resonance Imaging (MRI) scan was not performed as our radiologist did not think it was necessary at that time.

In view of the IVC findings, a cardiology opinion was sought. A transthoracic echocardiogram showed an echogenic focus in the proximal IVC. Otherwise, apart from left ventricular hypertrophy, the cardiac function and dimensions were all normal. The patient proceeded with a trans-oesophageal echocardiogram (TOE) for better definition of the IVC mass. This revealed the mass measuring 2.0 x 5.0 cm of variable echogenicity arising in the proximal IVC. It was attached to the medial IVC wall and protruding into the right atrium. Differential diagnosis at this point included a thrombus, a myxoma or a tumour mass. After extensive discussion, the decision was made to observe the patient first and to treat conservatively given the possibility of the mass being a

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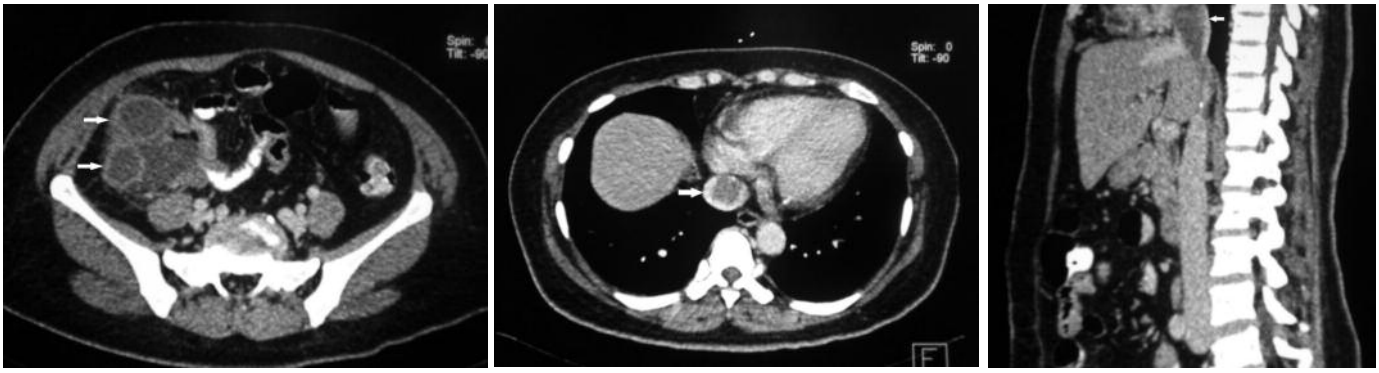

Fig. 1: a) Axial CT image showing a right tubo-ovarian complex cystic mass with surround fat strandings (white arrows), b) Axial CT image showing a non-enhancing mass in the IVC (white arrow), and c) Reconstructed sagittal view showing the mass located just below the heart.

thrombus. She was commenced on fondaparinux which was later changed to warfarin, as per patient's preference upon discharge.

A TOE was repeated after three weeks of anti-coagulation therapy but there was no significant change in the character and size of the mass which now measured 1.8 x 4.6 cm. The patient was planned for an excision of the IVC mass with a primary concern of it being a myxoma. A pre-surgery coronary angiogram was carried out and this incidentally revealed a 99% occlusion of the left anterior descending (LAD) artery. Hence, the patient subsequently underwent excision of the mass and cardiac bypass at the same time. The coronary bypass and excision of the IVC mass were carried out without complication. Histopathology examination of the excised mass revealed it to be an organised thrombus and no evidence of myxoma or other neoplasm. The patient was continued on warfarin for six months and subsequent USS showed completed resolution of the right tubo-ovarian abscess. Follow-up transthoracic echocardiogram did not show recurrence of the IVC thrombus.

DISCUSSION

IVC thrombosis is an uncommon condition that usually arises from the superior extension of thrombophlebitis originating in the lower extremities or the pelvis. This occurs in the presence of predisposing factors such as localised inflammation, pelvic inflammatory disease, coagulopathy, sepsis, dehydration, recent surgery, heart failure, and immobility.[1, 2] Virchow's triad of endothelial damage, hypercoagulability and abnormal blood flow emphasised the importance of these factors in the pathogenesis of thrombosis.

IVC thrombus extending from an ovarian vein thrombosis as a result of gynaecological pathologies has been described. The most common causes being pelvic inflammatory disease, malignancies and pelvic surgical procedures, and rare but serious, in the postpartum state.[3] However, in such cases, the thrombi are in the distal IVC close to the pelvis. In our case, there was no radiological evidence of ovarian vein thrombosis and the thrombus was located in the proximal IVC with extension into the right atrium. An interesting aspect of this case was that there was no continuation of the IVC thrombus from the site of pathology, which was located in the right adnexa.

We postulate that the ectopic IVC thrombus may have occurred as a result of bacterial seeding from the pelvic infection or the pro-thrombotic state of sepsis leading to formation of a clot in the proximal IVC. Presence of underlying endothelial abnormality may have been present. The absence of an ovarian vein thrombosis and the discontinuity of the IVC thrombus strongly suggest that it was unlikely that the said thrombus was a caudal extension of an existing thrombophlebitis in the pelvis.

Diagnosis of IVC thrombus is generally straightforward if there is continuation of the thrombus or close proximity to the septic focus. However, in such case as ours, definite diagnosis is more difficult. In this case, we had treated the patient with anti-coagulation and antibiotic therapies while keeping in mind the other possibilities such as a myxoma, and the rare possibility of a vessel tumour. Our patient proceeded with surgical intervention after failure of resolution with anti-coagulation therapy. On hindsight, a longer duration of anti-coagulation treatment, together with a closer interval monitoring with transthoracic echocardiogram should have been considered. In our case, there was a slight reduction in the size of the mass but at that time, this was not felt to be adequate to continue with further observation. In addition, an MRI scan may have been helpful to provide additional information as it may help to accurately delineate the thrombus, its extension and even its age.[4] Furthermore, it can be used to assess the morphological variation of the thrombus while patient is on anti-coagulation treatment. Nevertheless, fortunately for our patient, the decision to proceed with surgery led to the incidental diagnosis of additional pathology, a. near complete occlusion of the LAD artery that was managed with coronary bypass.

In summary, our report highlights an interesting and rare case of ectopic proximal IVC thrombus secondary to tubo-ovarian abscess. We opted for surgical intervention after failure of anti-coagulation therapy and with myxoma as a

differential diagnosis. The definite diagnosis of a thrombus was only made after histological examination of the resected mass. On hindsight, an MRI scan and a longer anti-coagulation treatment should have been considered. Nonetheless, in cases where suspected thrombus fails to respond to conservative treatment, surgical intervention should be considered.

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