

Case report**Inferior Vena Cava Filter: Is It a Way Out of Pulmonary Embolism in Gynaecological Cancer? - Case Report**Shafiee MN¹(✉), Ani Amelia Z¹, Rozman Z², Nur Azurah AG¹¹Department of Obstetrics and Gynaecology, ²Department of Radiology, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, Malaysia**Abstract**

Venous thromboembolism has a strong association with pelvic malignancy, whereby a failure in recognizing this event will lead to mortality. The best intervention depends on the individual basis with the availability of supporting service. We illustrate a case of gynaecological malignancy with concurrent deep vein thrombosis undergoing staging laparotomy and debulking surgery. Inferior vena cava filter was inserted after initial thrombolytic therapy and subsequently a long term treatment. Death from massive pulmonary embolism and major bleeding was prevented and synchronous primary ovarian and endometrial cancer prognosis was reassured in this case.

Keywords: Embolism, thrombosis, vena cava filters**Correspondence:**

Dr Mohamad Nasir Shafiee, Department of Obstetrics and Gynaecology, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaacob Latif, 56000 Cheras, Kuala Lumpur, Malaysia. Tel: +603-91455949, Fax: +60391738946 Email: nasirshafiee@hotmail.com

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Virchows' triad explains the pathogenesis of venous thromboembolism, contributed by hypercoagulability state, endothelial damage and venous stasis. The association between malignancy and venous thromboembolism is well known as the malignant cells can promote thrombus formation through the same mechanism (1). Tumour cells activate the clotting system directly by generating thrombin production and indirectly by stimulating mononuclear cell to produce and express pro-coagulant substance. All these factors ultimately resulting to hypercoagulability state leading to thrombosis. More so, immobility and extrinsic venous compression by the tumour results to stasis of the venous blood flow. Direct vascular invasion of the tumour cells together with direct injury from extrinsic factor such as venous catheter or chemotherapy can lead to endothelial damage.

Ovarian tumour with underlying deep vein thrombosis poses a great dilemma in optimal management, without jeopardizing patients' well beings. Such a patient is at high risk of pulmonary embolism especially during surgery causing mortality and thus would require anticoagulant. Treating the deep vein thrombosis with anticoagulant to reduce the size of the thrombus and the risk of embolism would delay the optimal debulking surgery, lead to a poorer prognosis. Even, there is an option of neoadjuvant chemotherapy in an inoperable disease, but staging laparotomy and debulking is still the mainstay of definitive treatment especially in apparent early stage disease.

Patients on anticoagulant at the time of surgery are also at risk of increased intra-operative blood loss and possible need of blood transfusion and mortality. There are scarce evidence on the optimal care in such cases and lack of case reports discussing on personal experience in handling this problematic cases.

Case report

A 41-year-old, single nulliparous lady, presented with prolonged, heavy menstrual bleeding associated with abdominal distension two months prior to the admission. Assessment revealed a suprapubic mass equivalent to 22 weeks sized uterus. It was well defined margin with solid and cystic in consistency and restricted mobility with no ascites or hepatosplenomegaly. Incidentally, she was noted to have a swollen and tender left leg and a Doppler flow study confirmed distal femoral and popliteal vein thrombosis.

A pelvic ultrasound scan revealed a left adnaeal mass measuring 14.2 x15.5 x19.2 cm, multiloculated with solid and cystic appearance. The right ovary was normal in size and minimal free fluid noted at cul-de-sac. The uterine size was 8.4 x5.2 cm with endometrial thickness of 18 mm. An abdominal and pelvic computed tomography (CT) scan further confirmed the findings and there were no peritoneal nodules or lymphadenopathy noted. Serum CA 125 level was significantly raised to 1782 IU/ml.

A temporary inferior vena cava (IVC) filter was inserted following two days of therapeutic anticoagulation with heparin. A staging laparotomy and tumour debulking was then performed on the following day and a left ovarian tumour measuring 15x15cm with bulky uterus and minimal ascites was found. An optimal debulking which includes total hysterectomy with bilateral salpingo-oophorectomy, omentectomy and pelvic lymphadenectomy was performed following peritoneal washing for cytology. The IVC filter was kept until three weeks postoperatively while warfarinization continued for the next six months.

The pathological examination revealed an interesting finding. Even with negative peritoneal fluid cytology for malignancy, no evidence of myometrial invasion or lymphovascular space infiltration, both endometrium and ovary demonstrate a similar pattern of proliferative type endometrial glands, with nuclear stratification and papillary growth. Hence, it was unlikely metastasis of ovarian cancer to endometrium or vice-versa. A diagnosis of synchronous primary ovarian and endometrial cancer was made with difficulty.

Following surgery, she received six cycles of adjuvant chemotherapy, a combination of carboplatin and paclitaxel with no evidence of tumour recurrence.

Discussion

Management of deep vein thrombosis in patient requiring surgery is difficult. Issues related to this case include risk of massive pulmonary embolism causing death, bleeding at surgery due to thrombolytic agent used and delaying treatment leading to possible distant metastasis. In general, there are three options to combat risk of pulmonary embolism in such patient which include preoperative anticoagulation, preoperative inferior vena cava (IVC) filter insertion or intraoperative IVC ligation. This case highlights an optimal outcome following IVC filter insertion before major gynaecological surgery. This intervention is relatively new and Cohen et al reported a low complication rate with good outcome to those receiving this intervention (2).

The standard treatment for deep vein thrombosis is still five to ten days of heparinization either unfractionated or low molecular weight heparin followed by three to six months of anticoagulant using warfarin (3). Studies show that low molecular weight heparin was an effective and convenient alternative to intravenous heparin (3). The problem with heparin compared to IVC filter is that it delays surgical intervention and thus could affect the prognosis of the patient. Furthermore it is less effective in the presence of extrinsic mass compression and it induces thrombocytopenia which would result in further intraoperative blood loss. Hoffman et al reviewed all the three options and recommended that therapeutic heparinization and preoperative placement of IVC filter should be offered to almost all gynaecological malignancy patients with venous thrombosis (4).

Conclusion

IVC filter is relatively new and reliable modality in preventing pulmonary embolism in patient with venous thrombosis before undergoing staging laparotomy and debulking. However, careful assessment is mandatory in weighing the benefit of this invasive procedure especially in a frail patient which surgery itself is not justified.

References

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