

## Case Report

## A case of ovarian vein thrombosis in a patient with extensive stage small cell lung cancer with metastasis to the pancreas.

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### Abstract

Ovarian vein thrombosis is a well-known but rare entity, which is most often diagnosed during the postpartum period. It has also been reported to be associated with inflammatory and malignant processes within the abdomen and pelvis. We report an unusual case of ovarian vein thrombosis in a patient with extensive stage small cell lung cancer with metastasis to the pancreas. This diagnosis should be considered in the differential diagnosis for pelvic pain in a patient with primary or metastatic intra-abdominal/intra-pelvic malignancy.

**Keywords:** Ovarian vein thrombosis, pancreatic metastasis, small cell lung cancer.

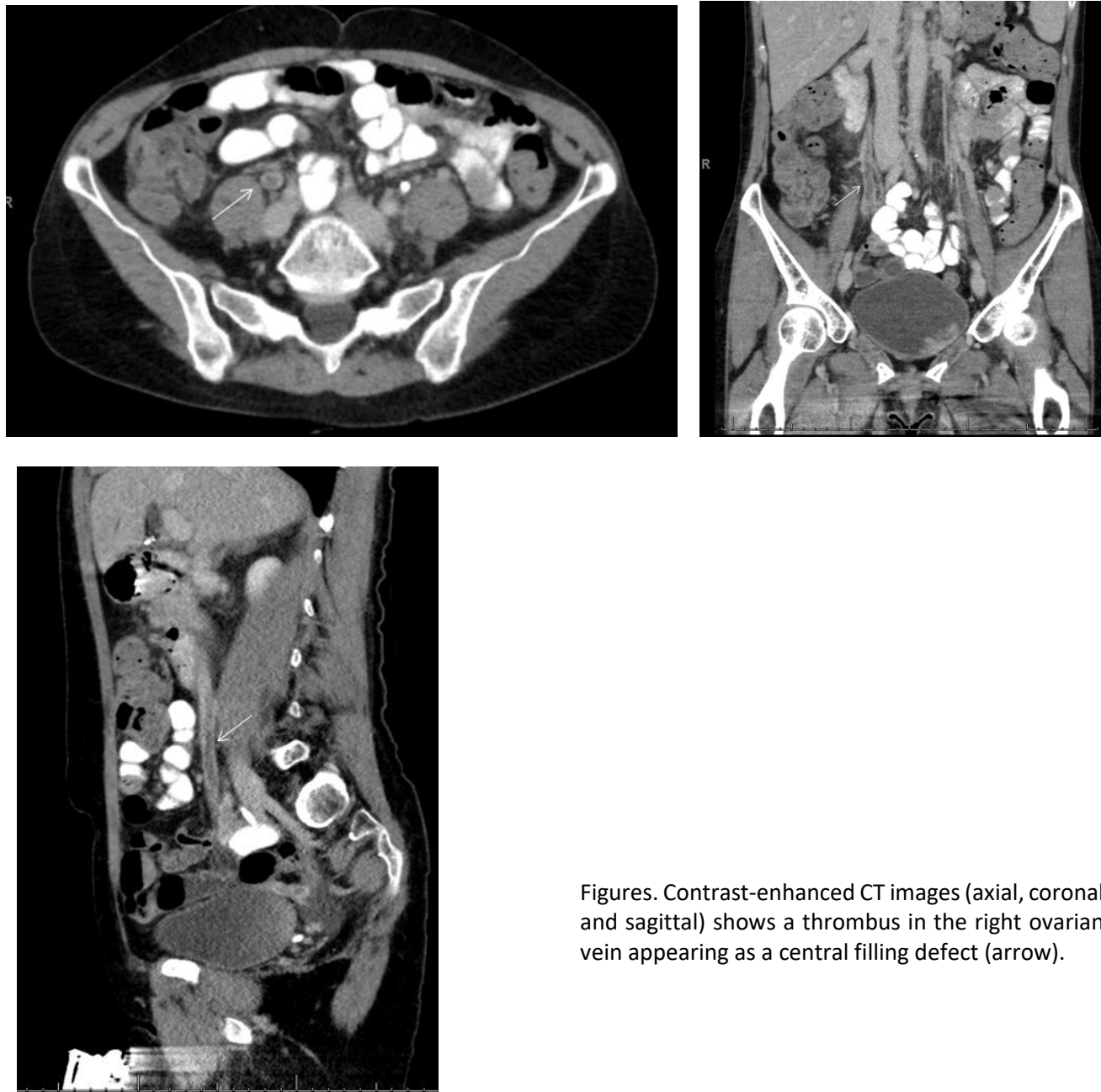
### Introduction

Ovarian vein thrombosis is a well-known but rare entity, which is most often diagnosed during the postpartum period. It has also been reported to be associated with inflammatory and malignant processes within the abdomen and pelvis. If left untreated, ovarian vein thrombosis can be a significant risk for complications such as sepsis and pulmonary embolism. We here report an unusual case of ovarian vein thrombosis in a patient with extensive stage small cell lung cancer with metastasis to the pancreas.

### Case Presentation

A 50-year-old post-menopausal woman who presented with persistent cough was found to have a

left sided hilar mass and left supraclavicular lymphadenopathy. The supraclavicular lymph node was biopsied and showed small cell lung cancer. She was treated with concurrent chemoradiation utilizing carboplatin and etoposide for limited stage small cell lung cancer which was followed by prophylactic cranial irradiation. 10 months after her initial diagnosis, she was found to have a 3cm mass in the distal pancreas and left cervical lymphadenopathy which were both fluorodeoxyglucose (FDG) avid on a positron emission tomography (PET) scan. She presented to our institution for a second opinion. Recurrent disease was confirmed from a left cervical lymph node biopsy. She subsequently enrolled onto a single arm clinical trial utilizing an experimental agent that is not known to be



Figures. Contrast-enhanced CT images (axial, coronal and sagittal) shows a thrombus in the right ovarian vein appearing as a central filling defect (arrow).

associated with an adverse event of thrombosis. A CT scan performed 6 weeks after starting treatment showed partial response of the tumor including in the pancreatic metastases, with a new finding of right sided ovarian vein thrombosis (Figure). She did not have any history of pulmonary embolism or deep vein thrombosis. She did not have history of arrhythmias such as atrial fibrillation. Her other medical conditions included hypothyroidism and anxiety disorder.

Levothyroxine, benzodiazepines and morphine were her only medications. In retrospect, she did have intermittent pelvic pain of unclear origin. She was started on full anticoagulation with fondaparinux. Her pelvic pain subsided with anticoagulation but she eventually had progression of her cancer. Four months later, she was taken off the study and offered palliative care.

## Discussion

Ovarian vein thrombosis is a well-known but rare entity, which has been most well described in the obstetrics and gynecology literature as a rare complication during the postpartum period (1). It has also been reported to be associated with inflammatory and malignant processes within the pelvis (2). The right ovarian vein directly drains into the inferior vena cava below the right renal vein while the left ovarian vein joins the left renal vein first. Greater length of the right ovarian vein compared with the left is often suggested as the reason ovarian vein thrombosis occurs most frequently on the right (3).

When found in postpartum patients, ovarian vein thrombosis manifests as abdominal pain and pyrexia presenting 2-15 days after delivery (4). Other gastrointestinal symptoms such as nausea and vomiting may occur, but are usually mild, which may help distinguish ovarian vein thrombosis from appendicitis as a differential of right lower quadrant pain. In contrast to postpartum patients, patients may be asymptomatic in malignancy associated ovarian vein thrombosis, with the diagnosis often made with incidental findings on imaging (2). Malignancy associated ovarian vein thrombosis has been reported predominantly in patients with intra-abdominal/intra-pelvic malignancies such as colon, pancreatic, peritoneal, ovarian and endometrial cancer although there are few cases reporting association with breast and lung cancer (5).

CT is currently recognized as the diagnostic modality of choice although magnetic resonance imaging (MRI) and ultrasonography have been used (2, 6, 7). Ultrasonography could be challenging in some cases due to gaseous distention of the bowel or body habitus of the patient. While MRI may have higher sensitivity and specificity, CT is considered more readily available and with lower cost compared to MRI.

There is no standard consensus on the length of anticoagulation therapy for postpartum ovarian vein thrombosis. As it can be a significant risk for complications such as sepsis and pulmonary embolism if left untreated, postpartum patients are usually treated with low molecular weight heparin, heparin or vitamin K antagonists for 3-6 months (8, 9).

The exact incidence of ovarian vein thromboses in patients with malignancies is not widely known and the management is also not well established. We here report an unusual case of ovarian vein thrombosis in a patient with extensive stage small cell lung cancer with metastasis to the pancreas. Small cell lung cancer has a tendency to spread to the liver, adrenals, bone, bone marrow, and brain. Pancreatic metastasis is a relatively infrequent site of metastasis from this cancer. Yoon et al reported 53 pathologically proven metastatic tumors of the pancreas. In their study, the primary malignancies most commonly reported were renal cell carcinoma ( $n = 14$ ), gastric cancer ( $n = 11$ ) and colorectal cancer ( $n = 5$ ) (10).

We can only speculate that the presence of pancreatic metastasis could have made this particular patient more vulnerable for ovarian vein thrombosis, a rare entity which has been associated with intra-abdominal/intra-pelvic malignancies. As short term anticoagulation is recommended especially for patients with symptomatic postpartum ovarian vein thrombosis (9), until further evidence is determined, symptomatic patients with ovarian vein thrombosis associated with malignancy should also be considered for anticoagulation.

## Conclusion

Ovarian vein thrombosis is a well-known but rare entity, which is most often diagnosed during the postpartum period but could also occur in patients with malignancies. To our knowledge this is the first instance of ovarian vein thrombosis reported in a small cell lung cancer patient with pancreatic metastasis.

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## Abbreviations

CT, computed tomography;  
FDG, fluorodeoxyglucose;  
MRI, magnetic resonance imaging;  
PET, positron emission tomography

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