

# Idiopathic Pulmonary Vein Thrombosis: A Case Report and Review of the Literature

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## Citation

M Taha, J Weinberger, M Shokr, A Soubani. *Idiopathic Pulmonary Vein Thrombosis: A Case Report and Review of the Literature*. The Internet Journal of Pulmonary Medicine. 2019 Volume 19 Number 1.

DOI: [10.5580/IJPM.54070](https://doi.org/10.5580/IJPM.54070)

## Abstract

Pulmonary vein thrombosis (PVT) is a rare but potentially serious condition. Known etiologies of PVT include intrapulmonary neoplasm, postoperative complications after lobectomy, lung transplantation, as a complication of radiofrequency ablation and hypercoagulable state. Here, we describe an extremely rare case of idiopathic pulmonary venous thrombosis (PVT) in addition to reviewing the previously reported cases.

## INTRODUCTION

Pulmonary vein thrombosis (PVT) is a rare but potentially serious condition. Known etiologies of PVT include intrapulmonary neoplasm, postoperative complications after lobectomy, lung transplantation, as a complication of radiofrequency ablation and hypercoagulable state. Here, we describe an extremely rare case of idiopathic pulmonary venous thrombosis (PVT) in addition to reviewing the previously reported cases.

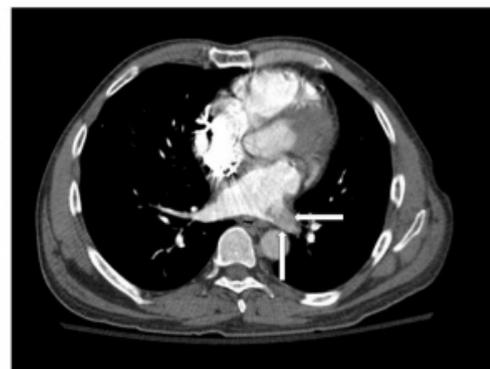
## CASE REPORT

A 65-year-old male with past medical history of coronary artery disease, heart failure with preserved ejection fraction, symptomatic bradycardia status post permanent pacemaker, history of provoked deep venous thrombosis and pulmonary embolism (DVT/PE), seizure disorder and bilateral blindness due to glaucoma presented with syncopal episode. The patient was on his way to the bathroom when he started to feel sweaty and hot and then passed out. He denied any chest pain, palpitation, shortness of breath, nausea or abdominal pain. He denied any shaking movements, passing urine or tongue biting. His medications were aspirin, atorvastatin, levetiracetam, lisinopril and metoprolol. He has no family history of clotting disorders. Other than bilateral blindness, his physical exam was unremarkable including cardiovascular, neurological and respiratory exam. Blood work was unremarkable. EKG showed normal sinus rhythm. Echo was normal. Chest x-ray was within normal limits. Pacemaker interrogation showed no arrhythmias. A

subsequent CT pulmonary angiogram (CTA) (figure 1) revealed filling defect in the left lower pulmonary vein suspicious for thrombus. The patient was unable to have an MRI as he had a pacemaker. The patient was discharged on warfarin with a plan to repeat CTA and screen for thrombophilia, but the patient was lost to follow up.

## Figure 1

The CT angiography reveals a well-defined filling defect in left lower pulmonary vein.



## DISCUSSION

After reviewing the literature, we found only eight cases of idiopathic PVT have been reported, including the current case (see Table 1). Presenting symptoms in the series are not specific but mostly chest pain and shortness of breath. Disease can occur in young and elderly. Males and females are equally affected. There are two reported complications related to idiopathic PVT: infarction of spleen and lung

necrosis. CXR findings are not specific but may show infiltrate in lower lobes. Most of the cases diagnosed with using CTA. Other modalities used to confirm diagnoses are transesophageal echocardiography (TEE) and cardiac gated magnetic resonance imaging (MRI). Most of thrombus occur in right or left lower pulmonary veins compared to upper pulmonary veins. The appropriate treatment for PVT remains unclear but oral anti-coagulation appears to be the proper treatment. Duration of anticoagulation is unknown but among the eight cases, three had repeated CTA done. One of them showed resolution of thrombus after 3 months but the other two cases showed only partial resolution after 2 months.

**CONCLUSION**

Idiopathic PVT is rare disease with nonspecific presentation and potentially major complications. The best modality used for diagnosis is CTA. Most of the cases treated with oral anticoagulation but the duration remains unknown.

**Table 1**

Author	Age/Gender	PMH	Presenting symptoms/signs	Thrombophilia markers	CXR	Investigation	Imaging	Location	Treatment	Repeat imaging
Dentler J	35 F	Unknown	Subacute thoracic chest pain	Positive for D-dimer	Isolated infiltrate in lower lobes	None	CT angiography (CTA) chest	right lower pulmonary vein	Oral anticoagulation	Repeat CTA after 3 months showed partial resolution
Scholar-Schickel J	20F	None	Acute left sided abdominal pain, nausea and vomiting	Unknown	normalization in right lower lobes	infarction of spleen	Chest and abdominal CT (with oral and IV contrast)	right lower pulmonary vein extending to left atrium	Oral anticoagulation	Repeat CTA after 2 months showed partial resolution
Aravindan et al.	47F	Unknown	Acute chest pain and dyspnea with hemoptysis	Unknown	normalization of left lower lobe	lung wedge	CT (high-resolution) scan confirmed intrapulmonary	Left inferior pulmonary vein	Oral anticoagulation	Left lower lobe infarction. No long term treatment
Samuels et al.	57M	Obstructive pulmonary disease, coronary artery disease and congestive heart failure	Chest pain with hemoptysis	Negative	not reported	None	CT chest, venogram angiogram by MRA	Multiple lower pulmonary veins	Oral anticoagulation	Repeat CTA after 3 months showed complete resolution
Wu JP	38M	Unknown	chronic chest pain	Negative	unknown	None	CT angiography (CTA) chest	Left atrial vein	Oral anticoagulation	Left atrial vein resolution and left lower pulmonary vein extending to atrium
Rana P	63M	Unknown	subacute chest pain	Negative	no acute changes	None	CT angiography (CTA) chest and TEE	None	Oral anticoagulation	None
Table 1	65M	CAD with CABG and MI, COPD, hypertension, hyperlipidemia, chronic kidney disease, seizure disorder	hemoptysis	Unknown	no acute changes	None	CT angiography (CTA) chest	left lower pulmonary vein	Oral anticoagulation (warfarin)	None

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