

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

M Taha, J Weinberger, M Shokr, A Soubani

## 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.

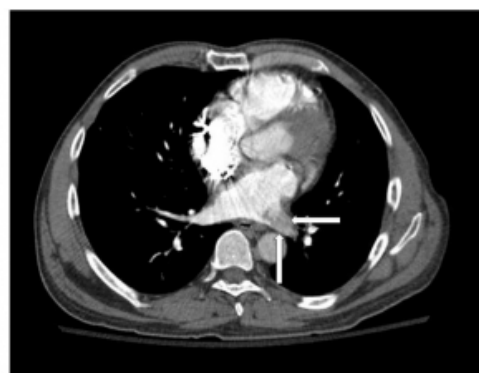
## CASE REPORT

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	Diagnosis	Imaging	Location	Treatment	Repeat imaging
Chen et al.	35 F	Unremarkable	Subacute thoracic chest pain	Profile for PE ABCs	Indirect evidence in lower lobes	None	CT angiography (CTA) chest	right inferior pulmonary vein. Oral anticoagulation
Subramanian et al.	20F	Stroke with test	Acute left sided abdominal pain, rigors and vomiting	Unknown	recanalization in right lower lobes	Interruption of septum	Contrast enhanced abdominal CT (with oral with Gd contrast MRI)	Right lower pulmonary vein extending to left atrium. Oral anticoagulation
Alawadhi et al.	42F	Unremarkable	Acute chest pain and dyspnea with massive hemoptysis	Unknown	specification of left lower lobe	Lung wedge	CT (high-resolution) scan confirmed intrapulmonary	Left inferior pulmonary vein
Benmouni et al.	57M	Chondrodysplasia	Chest pain with massive hemoptysis	Negative	Not reported	None	CT chest, venogram angiogram by MCT	Multiple lower pulmonary veins. Oral anticoagulation
Mumoli et al.	88M	chronic atrial fibrillation, coronary artery disease and congestive heart failure	acute shortness of breath	Disseminated hemoptysis	specification of upper left lobe	None	CT angiography (CTA) chest	left superior pulmonary vein. Oral anticoagulation (warfarin)
Wu et al.	38M	Unremarkable	chronic chest pain	Negative	unknown	None	CT angiography (CTA) chest	Left inferior pulmonary vein. Oral anticoagulation (warfarin)
Rana et al.	63M	Unremarkable	subacute chest pain	Negative	no acute changes	None	CT angiography (CTA) chest and TEE	Left atrial vein. Oral anticoagulation
Takami	65M	CHD with CABG and stroke, COPD, hyperlipidemia with intermittent atrial fibrillation	syncope	Unknown	no acute changes	None	CT angiography (CTA) chest	left lower pulmonary vein. Oral anticoagulation (warfarin)

**References**

1. Burri E, Duwe J, Kull C, et al. 2006. Pulmonary vein thrombosis after lower lobectomy of the left lung. J. Cardiovasc. Surg. 47(5):609–612.

2. Selvidge SD, and Gavant ML. 1999. Idiopathic pulmonary vein thrombosis: detection by CT and MR imaging. AJR Am. J. Roentgenol. 172:1639–1641.

3. Alexander GR, Reddi A, and Reddy D. 2009. Idiopathic pulmonary vein thrombosis: a rare cause of massive hemoptysis. Ann. Thorac. Surg. 88:281–283.

4. Komatsu S, Kamata T, Imai A, et al. 2011. Idiopathic pulmonary vein thrombosis complicated with old myocardial infarction detected by multidetector row computed tomography. J. Cardiol. Cases 3:e94–e97.

5. Mumoli N, and Cei M. 2012. Idiopathic pulmonary vein thrombosis. J. Emerg. Med. 42(2):182–183.

6. Wu JP, Wu Q, Yang Y, et al. 2012. Idiopathic pulmonary vein thrombosis extending to left atrium: a case report with a literature review. Chin. Med. J. 125(6):1197–1200.

7. Rana MA, Tilbury N, Kumar Y, et al. 2016. Idiopathic Pulmonary Vein Thrombus Extending into Left Atrium: A Case Report and Review of the Literature. Case Rep Med. Volume 2016, Article ID 3528393.

**Author Information**

**Muhanad Taha**

Department of Internal Medicine, Detroit Medical Center/ Wayne State University  
USA

**Jarret Weinberger**

Department of Internal Medicine, Detroit Medical Center/ Wayne State University  
USA

**Mohamed Shokr**

Cardiology Department, Detroit Medical Center/ Wayne State University  
USA

**Ayman Soubani**

Pulmonary Department, Detroit Medical Center/Wayne State University  
USA