

A Case Report of Acute Bilateral Pulmonary Embolism in a Patient with B12 Deficiency

Introduction

- Vitamin B12 deficiency typically presents with anemia and neurologic manifestations.
- In rare cases, it can present with uncommon clinical manifestations, making diagnosis challenging.

Objective

- Here, we report a case of a patient who presented with unprovoked bilateral pulmonary embolism (PE) and was subsequently diagnosed with severe vitamin B12 deficiency.

Case Presentation

- A 60-year old male with history of hypertension presented with dyspnea for one week associated with lightheadedness.
- Patient denied fever, chills, cough, night sweats, or chest pain.
- Patient denied recent travels, surgeries, or immobilization.
- Vitals: T 98.6°F, BP 128/70 mmHg, HR 86 bpm, RR 18 bpm, and SpO2 94% on room air.
- Physical examination was unremarkable except bilateral lower extremity edema.
- Labs: Hgb 5.2 g/dL, MCV 110 fL, MCH 36%, platelets 107,000/ μ L, D-dimer 2,637 ng/mL, B12 150 ng/mL, homocysteine 158 μ mol/L, and methylmalonic acid 9,691 μ mol/L.
- Chest X-ray was within normal limits.
- Lower extremity Doppler showed deep vein thrombosis (DVT) in the right popliteal and gastrocnemius veins.

Results

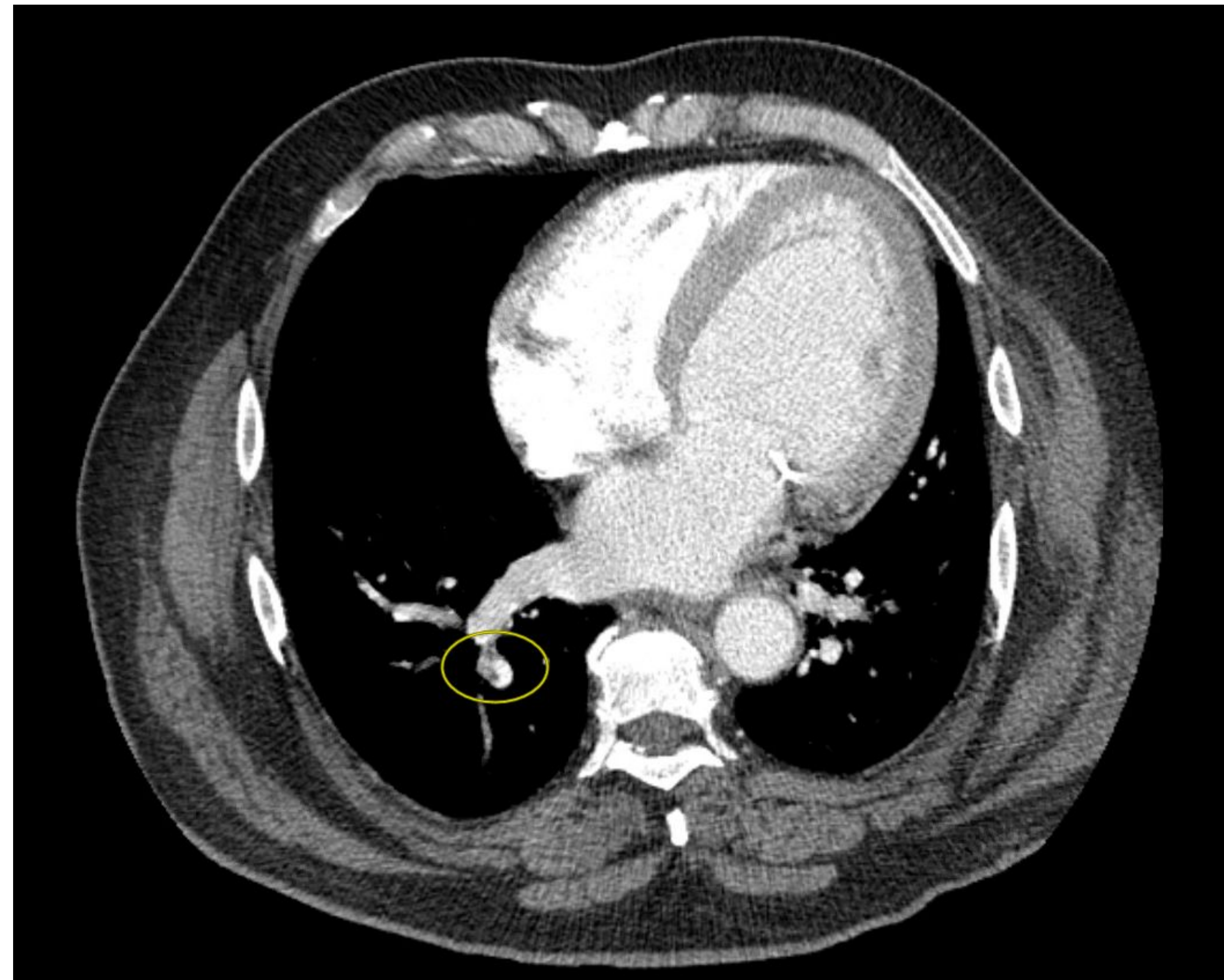


Figure 1: Filling defect in the junction between the segmental pulmonary arteries in the right lower lobe

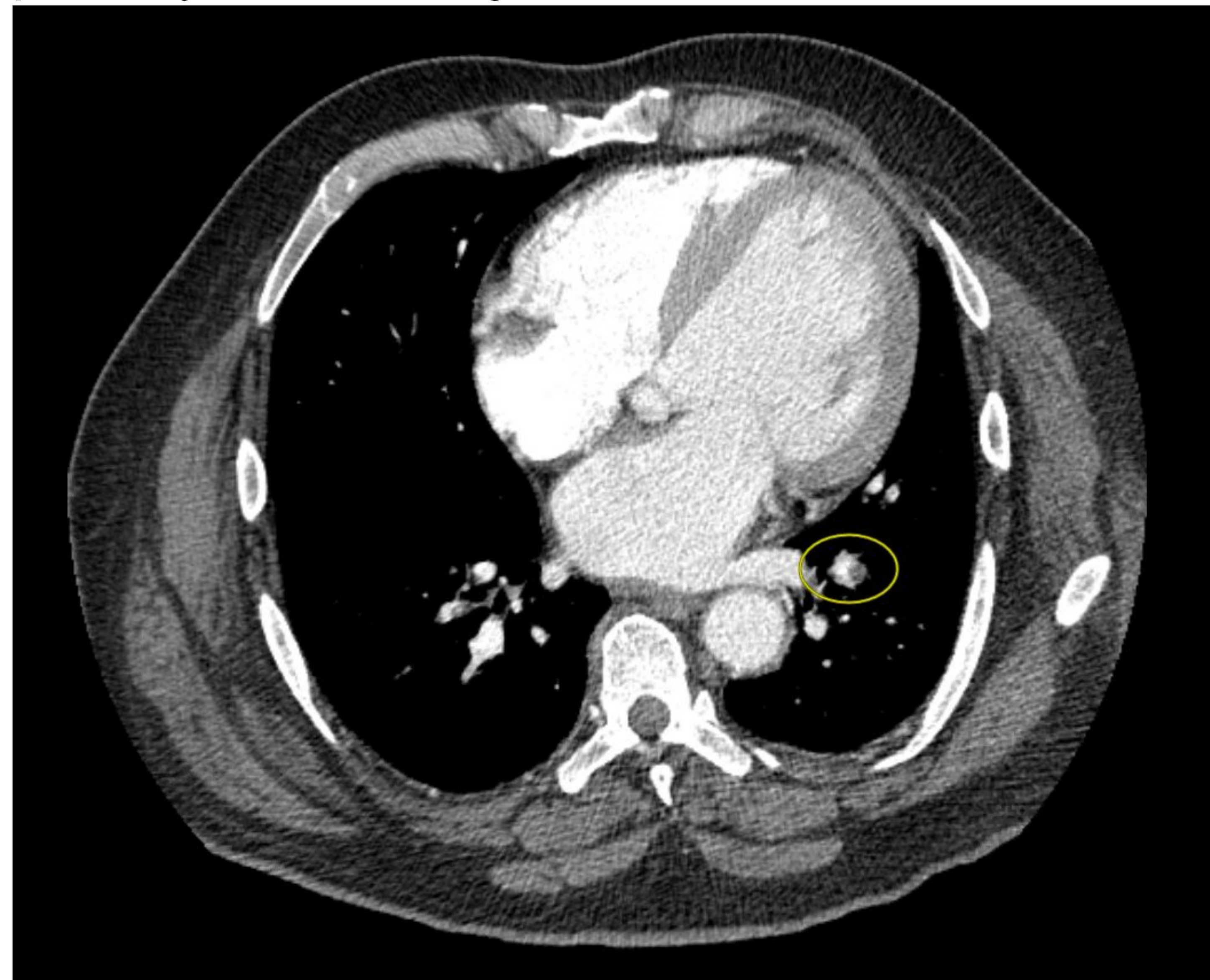


Figure 2. Filling defect in the distal, left inter-lobe pulmonary artery

- CT chest revealed PE in both left and right pulmonary arteries (Figure 1, Figure 2).
- Patient was given a B12 IM injection, started on enoxaparin, and bridged to warfarin at discharge.
- Three months later, his symptoms resolved with labs showing a B12 level of 355 ng/mL and a homocysteine level of 11.2 μ mol/L.

Discussion

- Prior reports have linked B12 deficiency with venous thromboembolism (VTE) but in patients with recent surgery, trauma, pregnancy, or states of endothelial dysfunction such as metabolic syndrome.¹⁻³
- Our patient did not have typical risk factors for VTE, highlighting the need for an increased index of suspicion for vitamin B12 deficiency in the setting of unprovoked DVT.

Conclusion

- Vitamin B12 deficiency is a treatable cause of PE and should be investigated in all patients diagnosed with PE, especially in those with no typical risk factors for VTE.

References

1. Kovalenko, Olga, Ahmad N. Kassem, and Melissa Jenkins. "Hyperhomocysteinemia and Pulmonary Embolism in a Young Male." *Cureus* 12.4 (2020).
2. Alayafi, Hassan, Ahmad, Mohammad. "Vitamin B12 Deficiency Associated with Massive Pulmonary Embolism." *J Neurol Neurosci.* (2020). Vol 11, No. 3:316.
3. Raymundo-Martínez, Grecia Iveth, et al. "Pulmonary embolism and megaloblastic anemia: is there a link? A case report and literature review." *Radiology case reports* 13.6 (2018): 1212-1215.