

Prothrombotic complications in metastatic pancreatic carcinoma: A case presentation

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Introduction

- Pancreatic cancer represents one of the most prothrombotic neoplasms secondary to high tumoral expression of tissue factor, cytokine release, activation of leukocytes and hypofibrinolysis ⁽¹⁾.
- Studies have shown that the incidence of thrombotic complications can reach up to 36% ⁽²⁾.

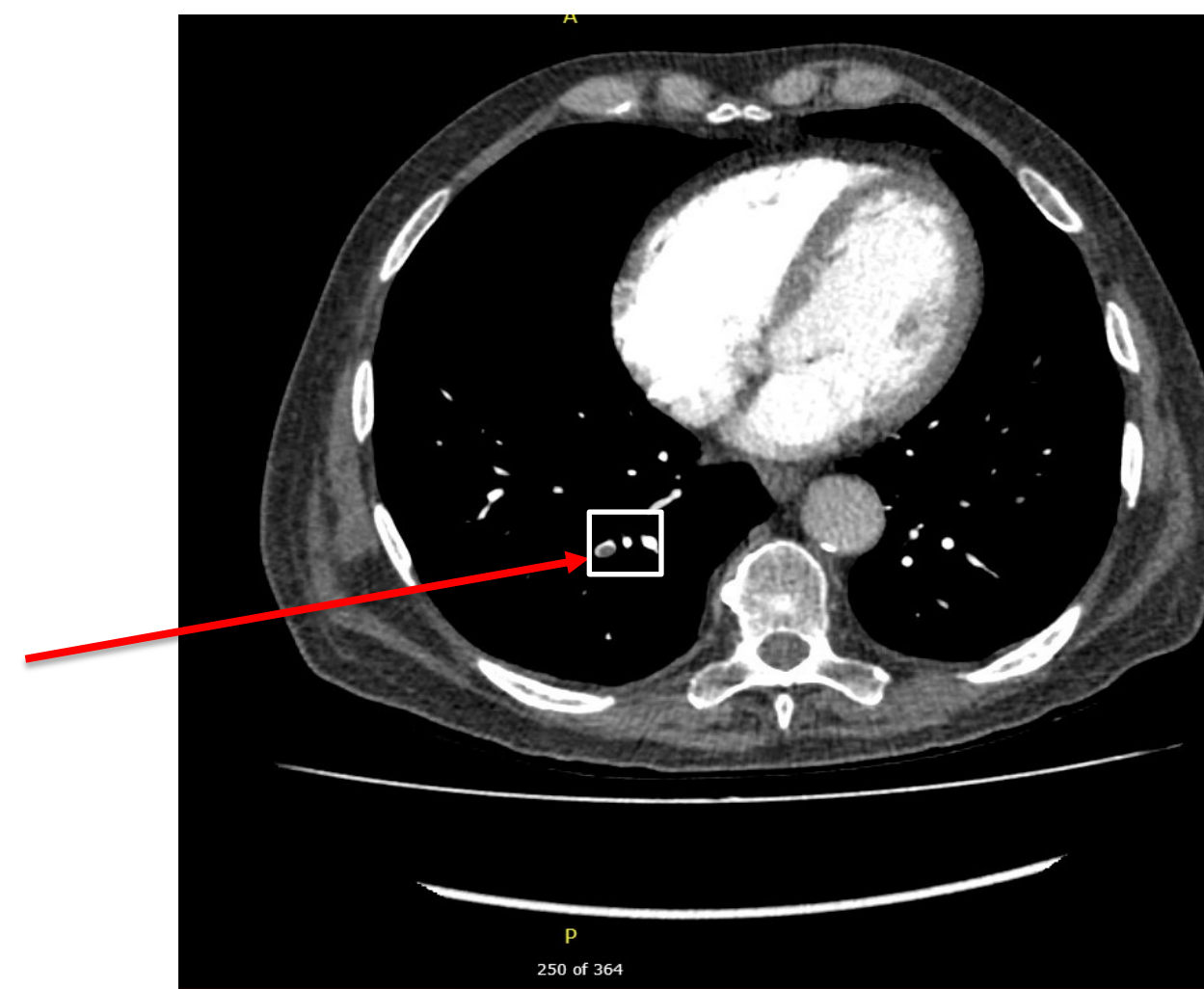
Clinical Presentation

- 84-year-old male patient was admitted onto the Geriatrics ward with a 3-day history of sudden-onset dyspnea, productive cough, pallor, and general malaise.
- Past medical history included, type 2 diabetes mellitus, essential hypertension and previous cataract surgery
- Admission blood revealed microcytic anaemia, neutrophilic leukocytosis and elevated C-reactive protein Despite high clinical suspicion of pneumonia, chest X-ray did not demonstrate any pathology. On day 2 of admission, D-dimer was requested, and the critical result of 3500 ng/mL was noted.
- Patient was immediately commenced on treatment-dose low-molecular heparin therapy.
- Urgent CT-PA demonstrated the presence of a pulmonary embolus in a posterior sub-segmental artery of the right lower lobe.
- On day 3, patient manifested left-sided lower limb weakness along with reduced sensation to light touch up to the left knee. Patient did not demonstrate cortical symptoms. Urgent CT-Head revealed hypodensity in the right parietal region suggestive of acute ischaemic infarction.
- On day 5, patient reported pain and swelling of the left calf. Physical examination rendered high suspicion of left deep vein thrombosis with calf circumferential difference of 4cm (Left 34cm, Right 30cm) and significant tenderness on palpation.
- In light of three consecutive thromboembolic events within 5-day course of admission, suspicion of cancer-associated thrombosis was established. Urgent CT-AP revealed 5cm pancreatic carcinoma with extensive hepatic, splenic and adrenal metastatic disease

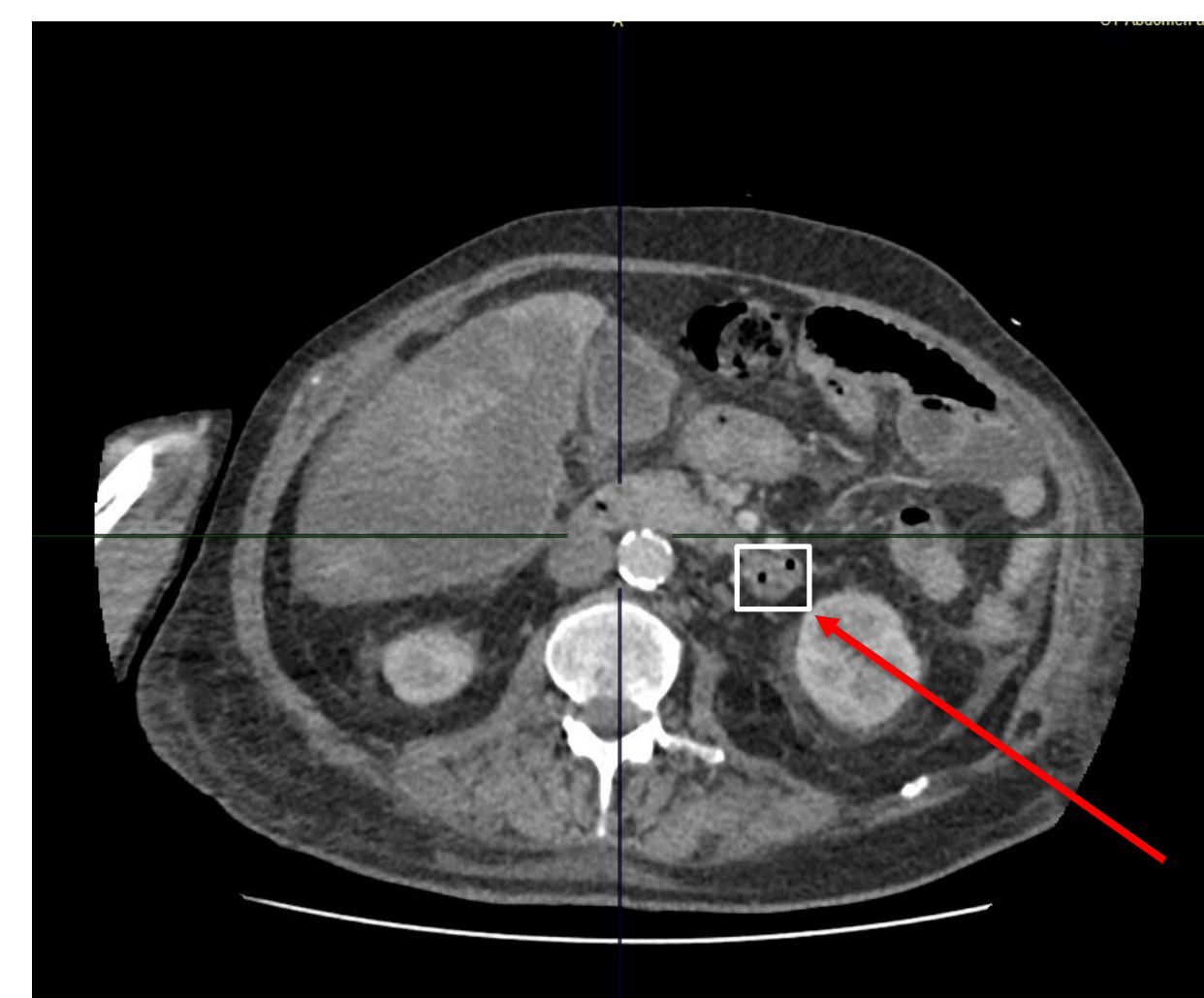
Admission blood

FBC	U+E/CRP	LFT
WBC 29.9 x 10 ⁹ /l ↑	Cr 110 umol/l ↑	Albumin 25 g/l ↓
Hb 91 g/l ↓, MCV 80.2 fl ↓	Urea 11.9 mmol/l ↑	Total protein 60 g/l ↓
PLT 212 x 10 ⁹ /l ↑	eGFR 53	Total bilirubin 10 umol/l
Neut 26.9 x 10 ⁹ /l ↑	CRP 211 mg/l ↑	ALT 28 iu/l
Lymph 1.2 x 10 ⁹ /l ↓		ALP 189 umol/l ↑
Mono 1.6 x 10 ⁹ /l ↑		

CT-Pulmonary Angiogram



CT-Abdomen and Pelvis



Disease trajectory

- **Hepatobiliary and Oncology MDT outcome:** For best supportive care in consideration of complexity involving pulmonary embolism, acute stroke, deep vein thrombosis and new radiological diagnosis of metastatic pancreatic cancer
- **Day 7 admission:** Antibiotic escalation to IV Tazocin for sepsis of unclear origin with rising inflammatory markers. WCC 36.9 x 10⁹/l, Neut 34 x 10⁹/l and CRP 199 mg/l
- **Day 10 admission:** Altered mental status with increasing confusion. Reduced oral intake
- **Day 13 admission:** New-onset thrombocytopenia with a platelet count of 24 X 10⁹/l. Therapeutic anticoagulation suspended. Multidisciplinary decision to commence end-of-life care
- **Day 14 admission:** Confirmation of death

Discussion

- Unprovoked pulmonary embolism should prompt investigation for **potential underlying malignancy** until proven otherwise
- The case highlights **malignancy-induced hypercoagulability** and the risk of cancer-associated thrombosis, particularly in the context of pancreatic carcinoma
- Be aware of the **60% prevalence of VTE** in patients with pancreatic cancer at autopsy vs 15-25% in other malignancies, accounting for over 17% of cancer-related thromboembolism
- Patients with metastatic disease at the time of diagnosis had a **3.3-fold higher risk of VTE** than patients with localised disease
- Although arterial thromboembolic events are relatively less common (estimated incidence 2-5%), a 6-month cumulative incidence of arterial thromboembolism is 5.9% in Pancreatic Cancer compared to 2.4% in those without active cancer. Most common arterial thromboembolic events include MI and CVA

References:

1. Campello E, Llich A, Simioni K, Key N. The relationship between pancreatic cancer and hypercoagulability: a comprehensive review on the epidemiological and biological issue. Nature. 20219.
2. Epstein A, Soff G, Capanu M, Crosbie C, Shah M, Kelsen D, Denton B, Gardos S, O'Reilly E. Analysis of incidence and clinical outcomes in patients with thromboembolic events and invasive exocrine pancreatic cancer. Cancer. 2012