

Complications of TPA Use in Hemodynamically Unstable Pulmonary Embolism: Unilateral Adrenal Hemorrhage — A Rare Case and Discussion of Outcomes

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Introduction

- The administration of TPA for hemodynamically unstable pulmonary embolism (PE) may carry the risk of hemorrhagic complications.
- Unilateral adrenal hemorrhage (UAH) in adults is an exceedingly rare event, typically associated with trauma or the use of anticoagulants.
- In this instance, we describe a unique case involving unilateral hemorrhage following TPA treatment for unstable PE and explore the associated outcomes.

Case Presentation

- A 61-year-old male, history of bowel resection a month ago, presented with severe hypoxemia and cardiac arrest
- After CPR, a Chest CTA revealed extensive bilateral PE with a significant clot burden (Figure 1).
- Started with tPA followed by heparin. His clinical condition improved, and a repeated CTA showed a reduction in clot burden (Figure 2).
- Investigation ruled out antiphospholipid syndrome.
- On the fifth-day post-tPA, He had abdominal pain with 4g/dL drop in Hgb levels. A CT-scan confirmed left adrenal hemorrhage, measuring 4.7x4.2 cm (Figure 3 & 4).
- Anticoagulation was discontinued and an IVC filter was placed, and hydrocortisone 5mg daily was prescribed.

Figure 1: Chest CTA showed extensive bilateral pulmonary emboli with a significant clot burden

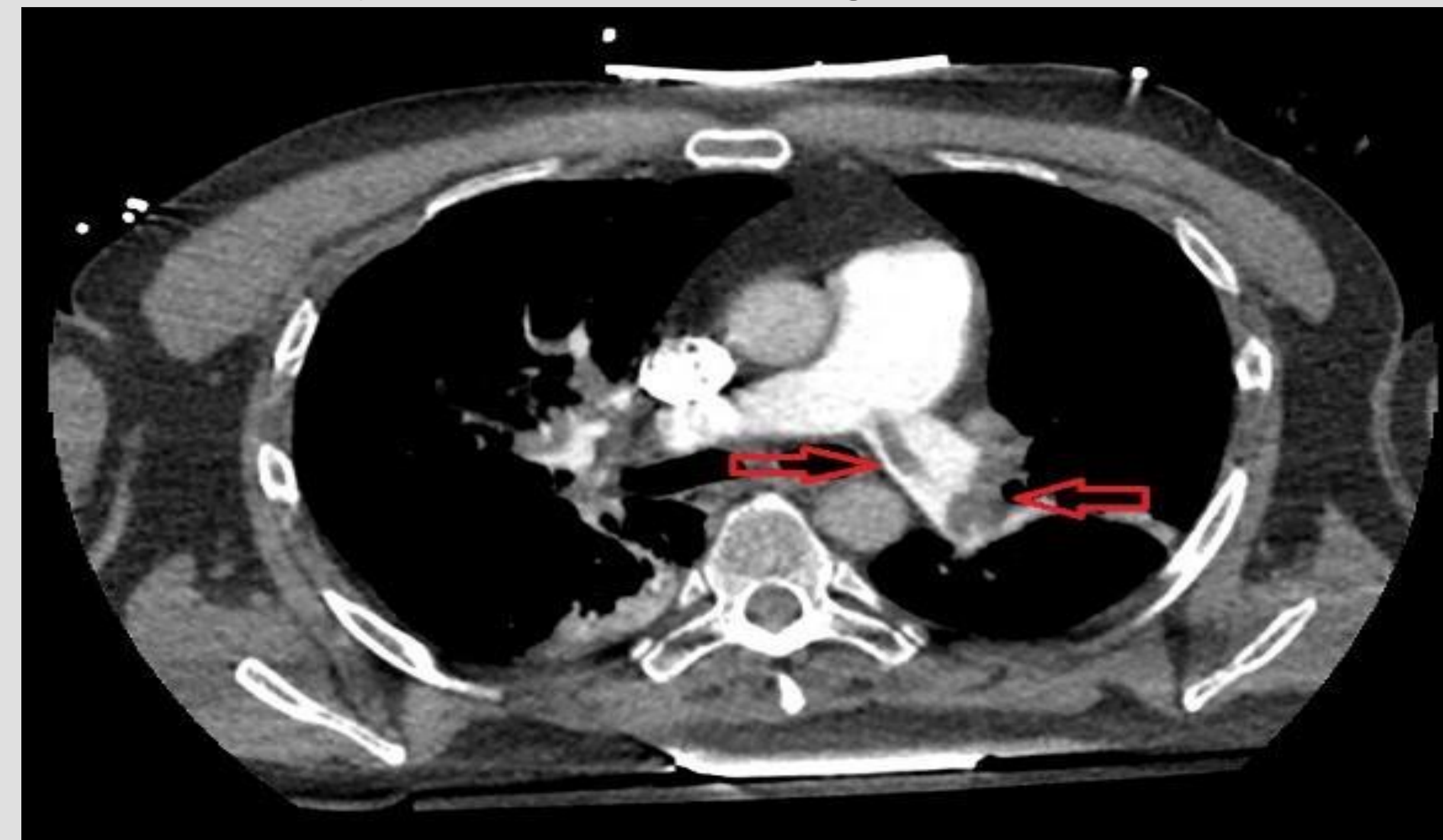


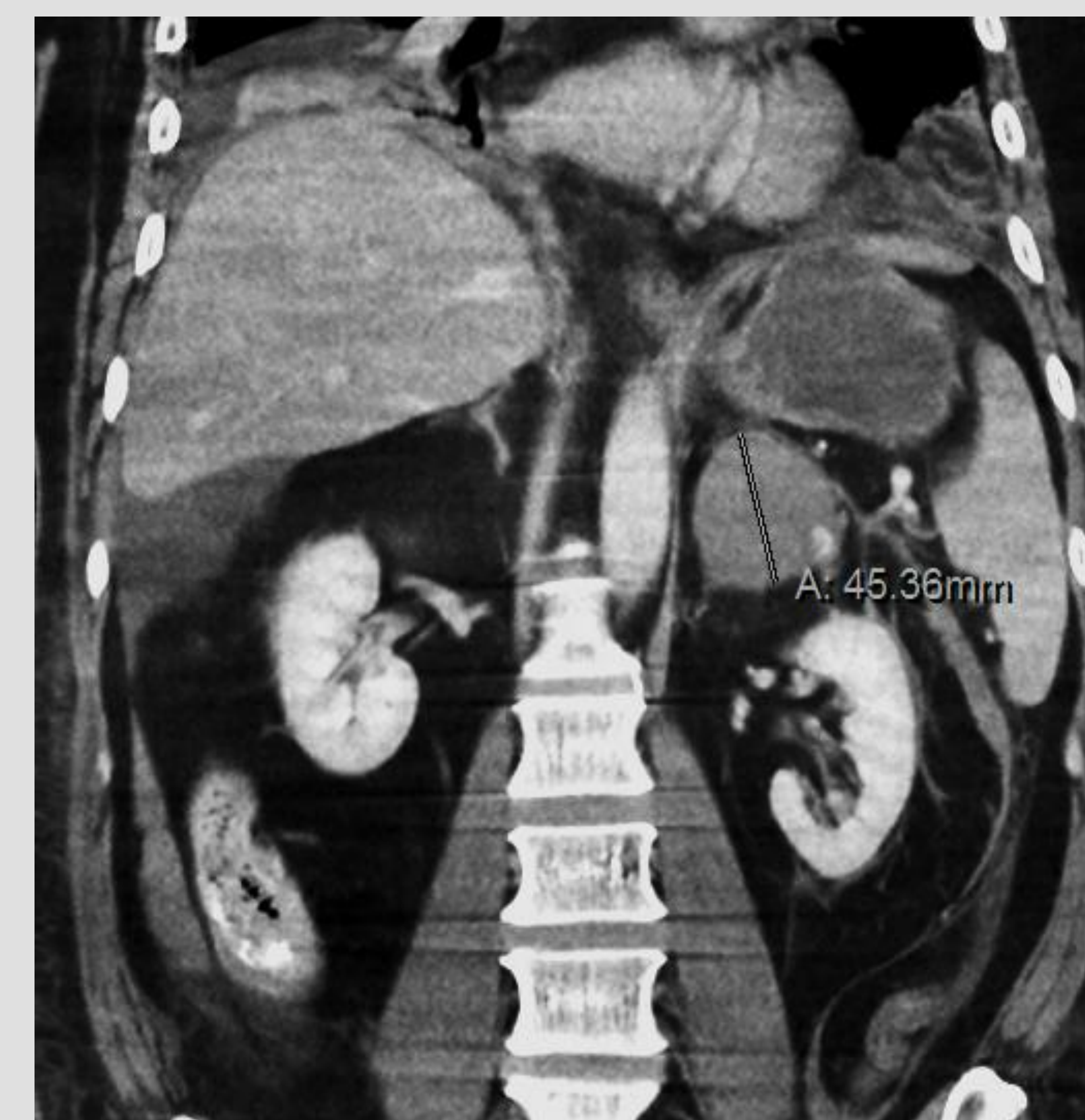
Figure 2: a repeated CTA showed a reduction in clot burden



Figure 3: A CT-scan confirmed the presence of left adrenal hemorrhage (AH), measuring 4.7x4.2 cm



Figure 4: A CT-scan confirmed the presence of left adrenal hemorrhage (AH), measuring 4.7x4.2 cm



Discussion

- Systemic thrombolytic agents are a viable option for patients with massive or hemodynamically unstable PE [3]. However, thrombolytic and anticoagulant therapy can increase the risk of significant bleeding [6], with one rare complication being adrenal hemorrhage [7].
- Besides, antiphospholipid antibodies patients are more susceptible to adrenal hemorrhage when exposed to surgery, infection, or anticoagulation [8].
- In our case, the patient had no bleeding risks and tested negative for antiphospholipid syndrome, which made the occurrence of adrenal hemorrhage was extremely unexpected. Treatment with hydrocortisone and IVC filter resulted in a remarkable improvement in the patient's clinical outcome.

Conclusions

- Adrenal hemorrhage is a rare complication resulting from anticoagulation treatments, which are viable treatments for massive or hemodynamically unstable pulmonary embolism.
- Patients with antiphospholipid antibodies are more susceptible to develop adrenal hemorrhage when being exposed to bleeding-induced agents.
- Adrenal hemorrhage clinical presentation is nonspecific, but it can be well managed with hydrocortisone when detected.
- For this recent, Patients with massive PE should receive thrombolytic therapy unless severe contraindications are present.[3]

References

1. Ahmed, O., et al., Meta-Analysis of the Usefulness of Inferior Vena Cava Filters in Massive and Submassive Pulmonary Embolism. *Am J Cardiol*, 2020. 128: p. 54-59.
2. Laher, A.E. and G. Richards, Cardiac arrest due to pulmonary embolism. *Indian Heart J*, 2018. 70(5): p. 731-735.
3. Martin, C., et al., Systemic Thrombolysis for Pulmonary Embolism: A Review. *P t*, 2016. 41(12): p. 770-775.
4. Seow, Y.T., Z.Q. Ng, and S.L. Wong, Anticoagulation-induced unilateral adrenal haemorrhage and pseudoaneurysm. *BMJ Case Rep*, 2019. 12(12).
5. Chronopoulos, E., et al., Unilateral adrenal hemorrhage after total knee arthroplasty. *Orthopedics*, 2014. 37(5): p. e508-11.
6. Chatterjee, S., et al., Thrombolysis for Pulmonary Embolism and Risk of All-Cause Mortality, Major Bleeding, and Intracranial Hemorrhage: A Meta-analysis. *JAMA*, 2014. 311(23): p. 2414-2421.
7. Ly, B.A. and L. Quintero, ADRENAL INSUFFICIENCY FROM UNILATERAL ADRENAL HEMORRHAGE IN A PATIENT ON RIVAROXABAN THROMBOPROPHYLAXIS. *AACE Clin Case Rep*, 2019. 5(1): p. e70-e72.
8. Steensrud, T., L.S. Müller, and D. Sørliie, Unilateral adrenal haemorrhage following systemic thrombolysis. *Interact Cardiovasc Thorac Surg*, 2008. 7(3): p. 430-1.