

Iatrogenic Aortic Wall Injury After Left Atrial Appendage Occlusion

S. Tan¹, D. Nguyen¹, T. Lam¹, and S. Musuku¹

¹. Albany Medical Center, Department of Anesthesiology, NY, USA



INTRODUCTION

- The **Watchman device** (Boston Scientific, Marlborough, MA, USA) is used for percutaneous left atrial appendage occlusion (LAAO) in patients with non-valvular atrial fibrillation (AF).
- The **PINNACLE** trial demonstrated a 100% left atrial appendage closure rate with a low incidence of major procedure-related complications of 0.5%.
- We report a unique case of a descending thoracic aortic hematoma discovered incidentally on imaging after a Watchman placement, requiring urgent thoracic endovascular aortic repair (TEVAR).

CASE REPORT

- Patient:** 75-year-old female with HTN, HLD, sick sinus syndrome, and AF on apixaban.
- Procedure:** Elective percutaneous LAAO with Watchman FLX™ device.
- Baseline Imaging:** CTA showed normal caliber aorta without aneurysm or dissection (Figure 1).
- Anesthesia:** General anesthesia with ETT and TEE probe insertion.
- Device Sizing:**
 - Initial 24 mm device → excessive shoulder protrusion.
 - Replaced with a 20 mm device; deployed under fluoroscopy and TEE.
- Complications:**
 - TEE revealed a periaortic hematoma around the descending thoracic aortic near the left upper pulmonary vein (Figure 2).
 - CTA confirmed the hematoma. There was no active extravasation or dissection flap (Figure 3).
- Management:**
 - The patient was stable, extubated, and transferred to the ICU.
 - Apixaban was switched to a clopidogrel monotherapy.
 - Initiated on an esmolol drip (SBP <120 mmHg, DBP <80 mmHg).
- Definitive Intervention:** Endovascular thoracic aorta repair (TEVAR) with thoracic endograft on POD 2 (Figure 4).

IMAGING



Figure 1. Preprocedural CTA demonstrating normal anatomy.

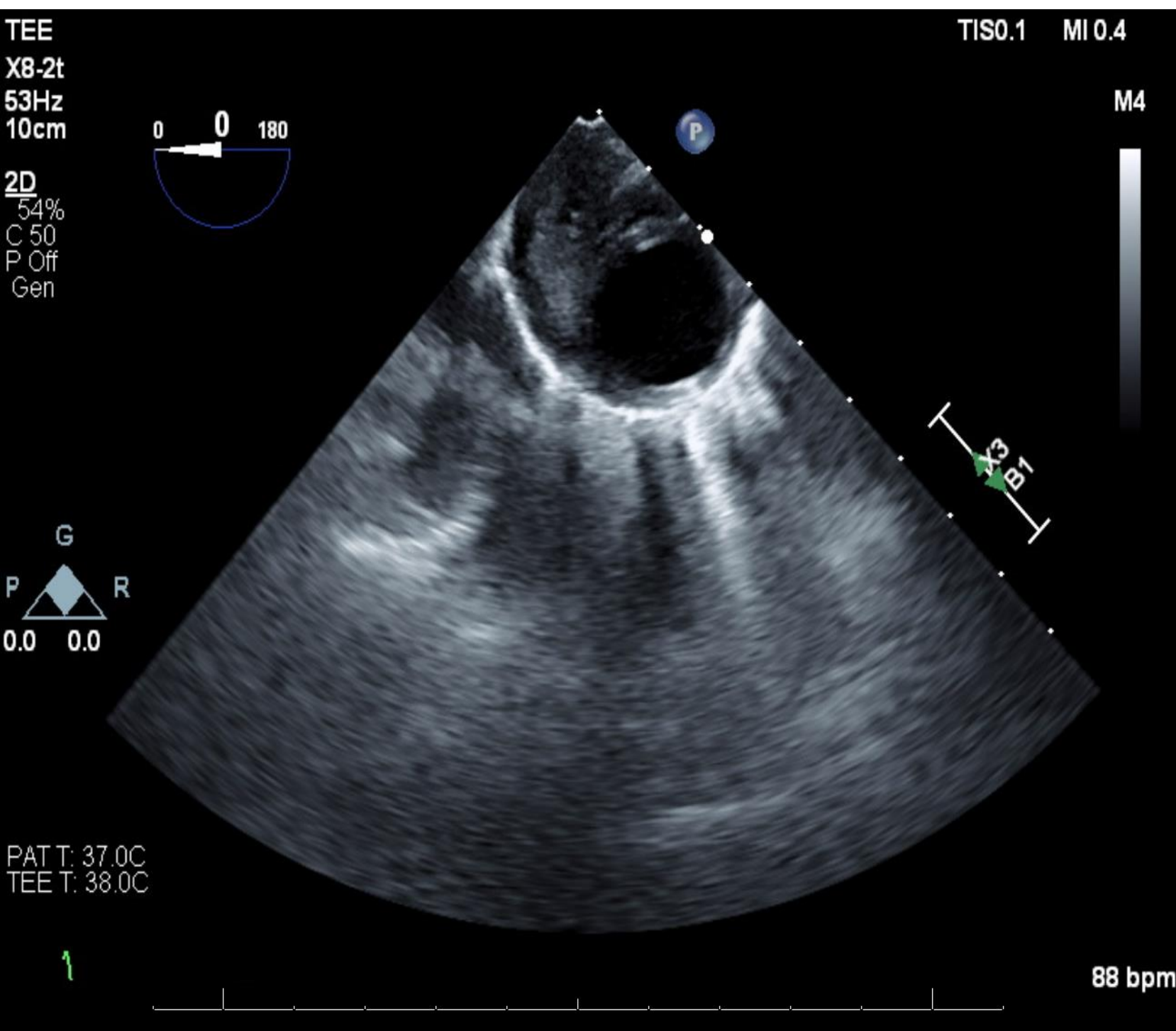


Figure 2. TEE demonstrating a descending aortic hematoma.

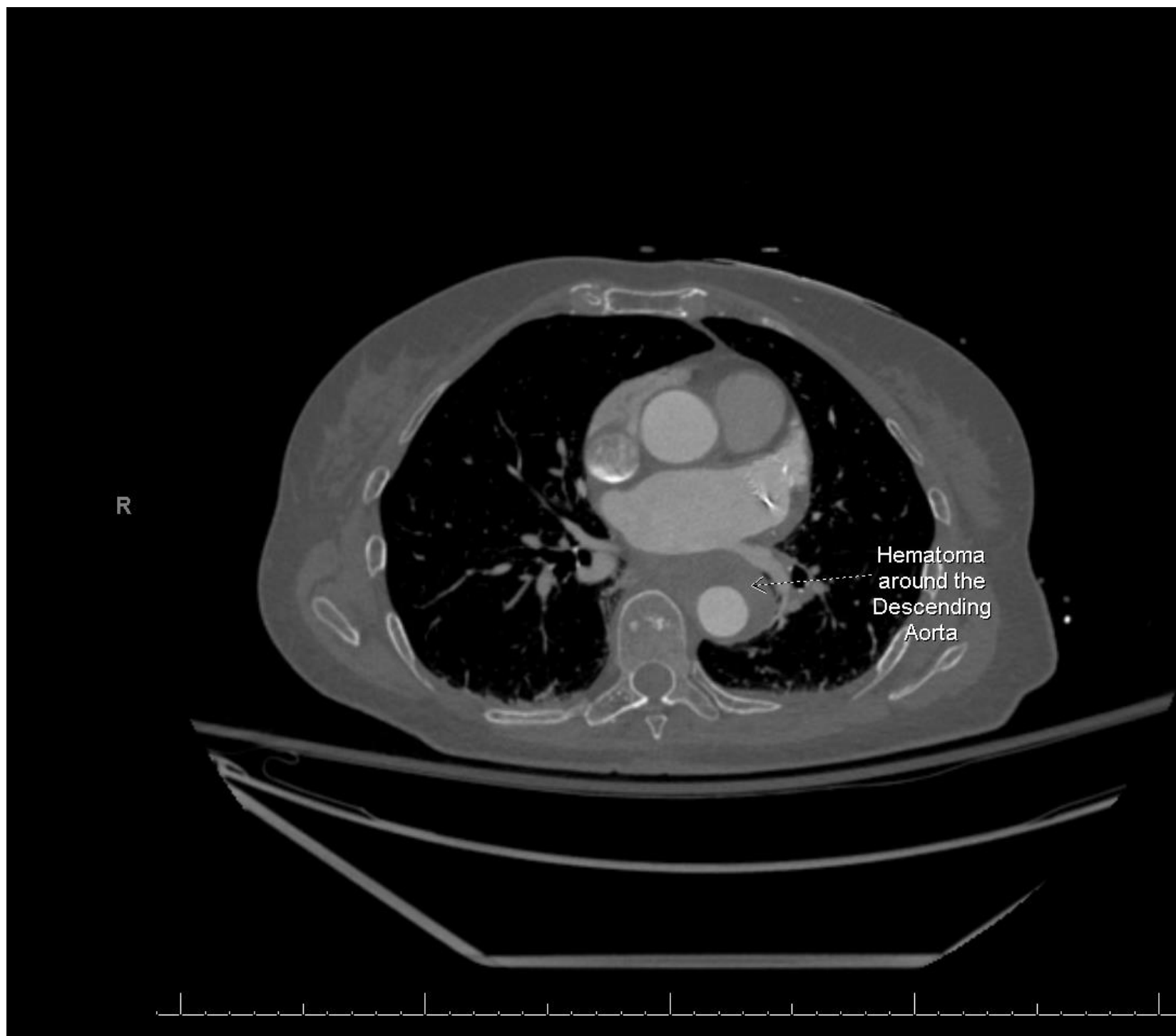


Figure 3. Postprocedural CTA demonstrating a hematoma around the descending thoracic aorta.



Figure 4. Fluoroscopic image showing thoracic aortic graft and left atrial appendage occlusion device.

DISCUSSION

- The Watchman is a promising alternative for stroke prevention in patients who are ineligible for long-term anticoagulation.
- The left upper pulmonary vein is a common site for guidewire placement and sheath positioning during LAAO. Anatomically, it is posterior to the left atrium and the descending thoracic aorta.
- Excessive guidewire or sheath manipulation in the left upper pulmonary vein may transmit force through thin atrial tissue into the adjacent aortic wall, causing intramural hematoma.
- TEVAR was performed due to the hematoma size and risk of delayed rupture, even in a hemodynamically stable patient.
- Technical considerations:**
 - Careful wire selection and limiting sheath depth, especially in small or elderly patients.
 - Avoid over-manipulation in pulmonary veins and use frequent fluoroscopic checks.
- Post-procedural symptoms or abnormal TEE findings should prompt CT imaging to assess for vascular injury and adjacent structure.

CONCLUSION

Descending thoracic aortic hematoma is a previously unreported complication of Watchman device placement. The exact mechanism of injury remains unclear. Nonetheless, careful instrumentation and obtaining post-procedural imaging are essential in managing potential complications.

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