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Management of Device Related Thrombus Post-Left Atrial Appendage Closure Using WATCHMAN



Yash Patel, Wendy Schell, APN, Sajjad Sabir, MD

Introduction

- Atrial fibrillation (AF) is the most prevalent arrhythmia diagnosed in the US. Among patients with AF there is a 5 times increased risk of stroke. Current stroke prevention regimens related to AF include oral anticoagulants such as Warfarin or more recently introduced factor II/Xa inhibitors^{5,3}.
- The PROTECT AF and PREVAIL trials showed the benefits of WATCHMAN device as an alternate therapy in patients with AF and contraindications to current stroke regimens for cardioembolic stroke prevention².
- One of the major complications with WATCHMAN left atrial appendage closure (LAAC) is device related thrombus (DRT). Currently there are no published recommendations on management of DRT post-LAA closure using WATCHMAN device⁶.
- We report the management of a patient with AF and GI bleed who underwent left atrial appendage occlusion using WATCHMAN complicated by device related thrombus.

Case Presentation

- A 77-year-old female with paroxysmal AF was referred to our institution for LAAC. CHA2DS2-VASc and HASBLED scores were 4.
- Appropriately treated with coumadin but was switched to dabigatran secondary to labile INR.
- Management complicated by gastro-intestinal (GI) bleed → referred for LAAC evaluation.
- A trans-esophageal echocardiogram (TEE) found the appendage anatomy suitable for LAAC
- Successfully underwent a 33 mm WATCHMAN implant and was discharged on full dose dabigatran along with aspirin.
- However, patient's cardiologist had reduced it to half dose dabigatran due to concern for GI bleed. Additionally, the patient stopped taking aspirin.
- At a 45 day follow up demonstrated a device associated thrombus measuring 3.6 cm x 2.2 cm covering the entire WATCHMAN device surface facing the left atrium. No significant flow around the device noted.

Case Presentation (cont')

- She was admitted and started on intravenous (IV) heparin infusion.
- After consulting with cardiothoracic surgery to consider surgical removal of the thrombus, decision was made to treat her conservatively using IV heparin followed by Coumadin with repeat TEE few weeks later to re-assess the thrombus burden.
- A follow up TEE a month later showed a significant reduction in size of the thrombus.
- She was continued on warfarin which was well tolerated and a TEE was repeated 2 months later that showed resolution of the thrombus.

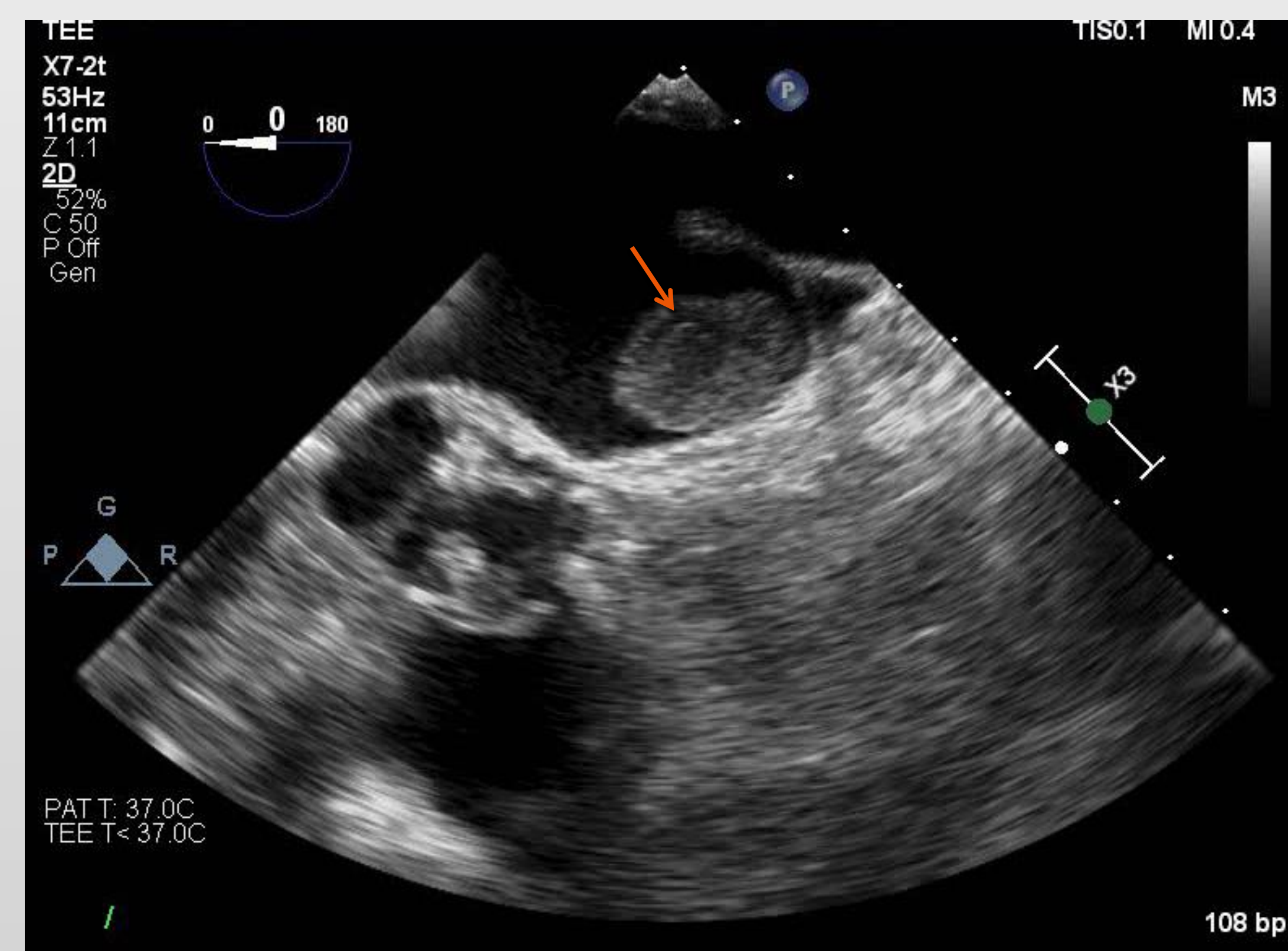


Figure 1: Device associated thrombus (red arrow)

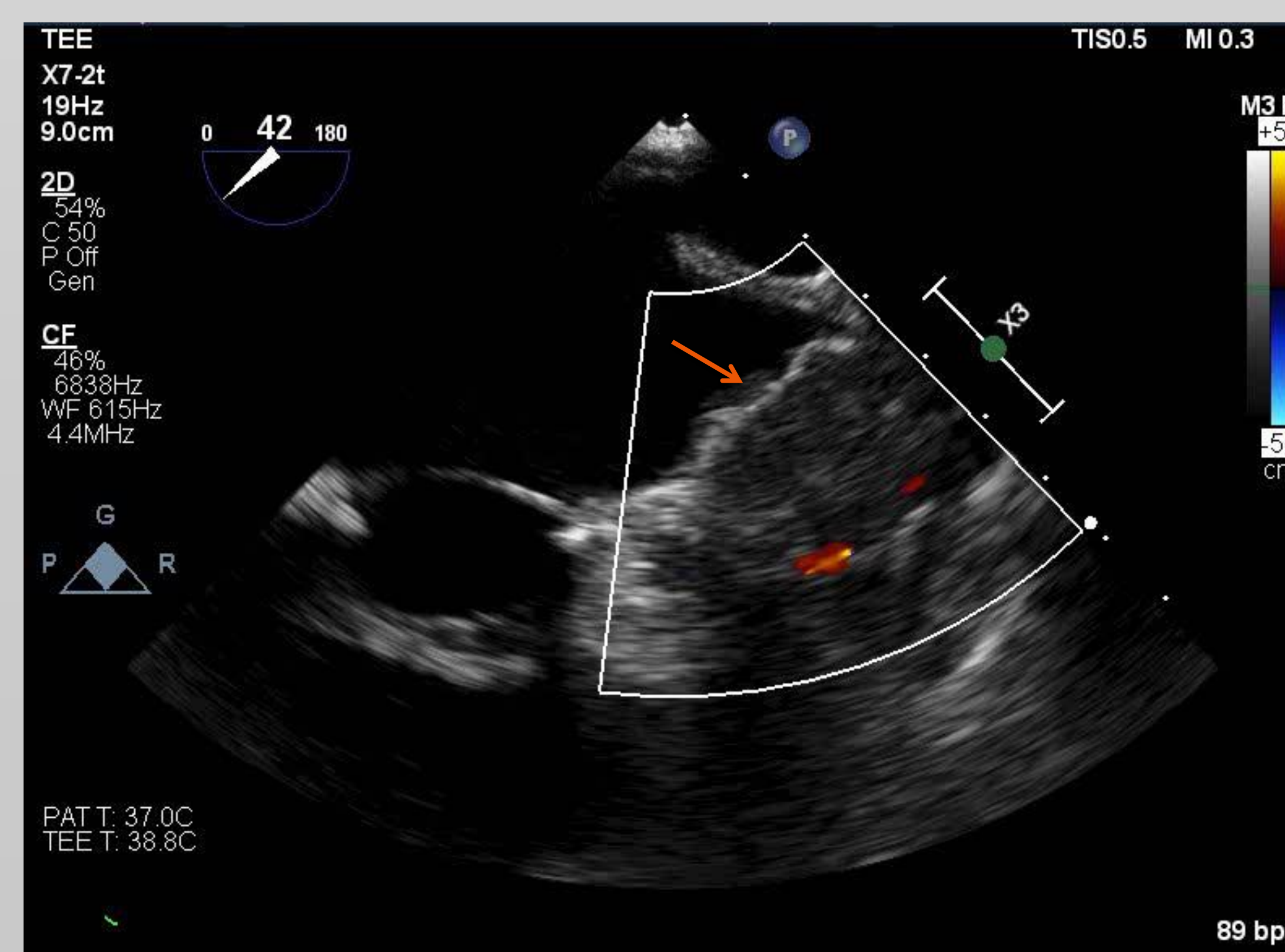


Figure 2: Resolution of device associated thrombus post conservative treatment. Watchman device (red arrow)

Discussion

- Typically, LAAC devices require a short-term course of OAC for a few weeks to months during device endothelialization but in some patients complete endothelialization may not occur which can increase the risk of peri-device leak and device related thrombus⁶.
- The recommended post implant management by PROTECT AF trial includes aspirin and warfarin to achieve INR of 2-4 until 45-day visit.
- Risk factors associated with DRT have been examined by very few studies which include: left ventricular ejection fraction of <40%, pre existing LAA thrombus, LAA peak emptying velocity, smoking and a higher CHA2DS2-VASc score⁴.
- A multicenter study with 214 patients proved NOACs to be a feasible alternate regimen to warfarin to prevent DRT and thromboembolic complications post LAAC¹.
- In this report, dabigatran, a NOAC was used post procedurally to prevent device associated thrombus but given the patients risk factors of high CHADS-VASc score we believe that the continued half dose was possibly inadequate for DRT prevention. Additionally the patient was also not taking aspirin during the critical first few week's post device implant.
- After the failed approach with dabigatran and aspirin, and in favor of a more conservative approach to avoid LAA amputation, we opted for inpatient IV heparin and continued warfarin for 1 year which led to resolution of the thrombus.
- Further research needs to go into the duration and choice of anticoagulation for management of device related thrombus.

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