

Coexisting STEMI and Chronic Type A Aortic Dissection: Managed with Thoracic Endovascular Aortic Repair and Tailored Antiplatelet Therapy

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Background: The coexistence of acute coronary syndrome and Type A aortic dissection is uncommon and poses a significant therapeutic dilemma. While emergent surgical repair remains the standard of care for Type A dissection, the need for emergent revascularization and antiplatelet therapy in ST-elevation myocardial infarction (STEMI) further complicates management, especially in the setting of aortic dissection and high surgical risk.

Case: A 75-year-old male with persistent atrial fibrillation on apixaban, HFpEF, myasthenia gravis, and prior stroke presented with acute substernal chest pain. EKG demonstrated atrial fibrillation with ST-segment elevation in leads III and aVF with reciprocal ST depression in leads V1–V2, consistent with an inferior STEMI. Emergent coronary angiography revealed that a 99% stenosis of the proximal RCA. DES was placed with restoration of flow. LHC also showed a perforated aortic ulcer with ascending aortic dissection. The TTE showed a dilated aortic root with a possible dissection flap. CTA confirmed a chronic Type A aortic dissection with a 7 cm ascending aortic aneurysm. Due to significant comorbidities, the patient was deemed high risk for open surgical repair and underwent thoracic endovascular aortic repair (TEVAR). Aspirin was initiated on day 2, clopidogrel on day 4, and apixaban was resumed on day 7 post-repair.

Decision making: This case highlights the rare coexistence of true atherosclerotic STEMI and chronic Type A aortic dissection, creating competing therapeutic priorities. Emergent PCI was performed for clear inferior STEMI with angiographic evidence of critical RCA occlusion prior to recognition of aortic pathology. Although emergent open surgical repair remains the standard of care for Type A dissection, TEVAR was pursued due to prohibitive surgical risk. Antiplatelet management posed an additional challenge. Current guidelines favor a short course of triple therapy followed by a direct oral anticoagulant and a P2Y12 inhibitor in patients with atrial fibrillation undergoing PCI for ACS. However, the presence of a large chronic ascending aortic dissection necessitated a more cautious approach, with staged reintroduction of aspirin, clopidogrel, and apixaban to balance ischemic and bleeding risks.

Conclusion: The coexistence of STEMI and chronic Type A aortic dissection presents a complex therapeutic challenge. In high-risk patients, deviation from standard surgical management and modification of antiplatelet therapy may be required. A multidisciplinary, individualized approach is essential to balance ischemic and bleeding risks.