Let's talk about the elephant in the room

Hilary Wagner, DO; Clara Weinstock, DO

University of Connecticut; Primary Care-Internal Medicine Residency. Farmington, CT

INTRODUCTION

Aortic dissections are relatively infrequent, with about 5 cases per 1 million people per year, however, due to their severity, it is a differential every physician should consider. Early diagnosis and treatment are imperative. Hypertension is the most common cause. Current guidelines suggest surgical repair for Type A dissection and medical management for Type B. We present a patient who presented with a Type A dissection which was surgically corrected but who had residual Type B dissection to be managed medically. Studies have shown that total arch replacement with frozen elephant trunk (FET) has been beneficial in patients with chronic type B aortic dissection. Our patient underwent a redo-sternotomy, suggesting that FET procedure may be indicated as the initial treatment to reduce the morbidity and mortality associated with repeat surgical intervention.

LEARNING OBJECTIVES

1. Standard of care for Type A Dissection is surgical intervention whereas for Type B Dissection it is medical management.
2. When both a Type A and Type B dissection are present, undergoing aggressive arch intervention with FET technique as the initial emergency operation remains controversial. It is possible that initial total arch replacement can prevent the need for re-intervention, saving both the patient unnecessary stress from reintervention, extended recovery time, and preventing hospital readmissions.

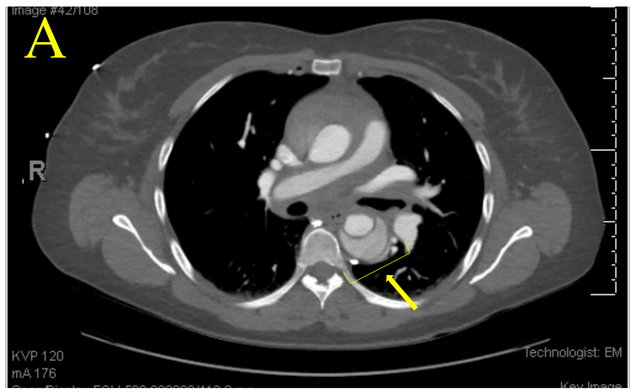

Figure A: CTA 3/4/2020 showing Type A aortic dissection arising from the aortic root and involving the ascending and descending thoracic aorta. Multiple perforations are noted within the dissection flap allowing contrast to extend into the false lumen. Trace pericardial effusion.

CASE DESCRIPTION

51-year-old female with history of uncontrolled hypertension and tobacco use, presented with severe chest pain. Family history significant for CAD in her mother. Mother died suddenly at the age of 66 of MI and had known type B dissection at the age of 53 (medically managed). Patient with twin brothers, one of which had open heart surgery at a week old, the other who had open heart surgery at age 5 (unknown reason).

Chest pain was described as worse with movement but not relieved with rest. Pain had sudden onset, sharp quality, radiated to the back and left arm, was not reproducible, and was associated with episodes of nausea, vomiting, and syncope. In the ER, she was in moderate distress with bounding pulses in all four extremities. Systolic blood pressure was 238 in the left arm, and 208 in the right. EKG showed sinus rhythm, nonspecific T-wave inversions, subtle ST depression in lead III and aVF. Chest X-Ray showed widened mediastinum. CTA (Figure A) showed showed dissection of aortic root to iliac arteries. Esmolol was started. Patient went to the OR emergently for Type A dissection hemiarch repair. Bilateral carotid arteries and the left subclavian artery came off the false lumen. She was discharged home on antihypertensives.

She returns to the hospital 1.5 months later for weakness in her left upper extremity associated with paresthesias. Her left arm feels cooler than the right. CTA shows stable dissection. Carotid duplex of upper extremities reveals proximal subclavian artery occlusion. She undergoes left carotid-subclavian bypass. Patient returns two weeks later. Similar paresthesias but this time in the right hand. Studies demonstrated patent left bypass graft. CTA (Figure B) shows compression of the true lumen theorized to be dynamic flow limiting the cephalic trunk. Patient undergoes redo-sternotomy, total arch replacement with FET repair and descending thoracic endovascular aortic repair (TEVAR).

DISCUSSION

Undergoing aggressive arch intervention with FET technique as the initial emergency operation remains controversial. It is possible that initial total arch replacement would have prevented the need for re-intervention. Studies have shown that FET procedure should be considered as the initial intervention when the primary entry of the acute type A aortic dissection is suspected to be in the subclavian artery. More studies should be done on the effect of total arch replacement with FET on the morbidity and mortality as an initial approach to management of a patient presenting both Type A and Type B aortic dissection.

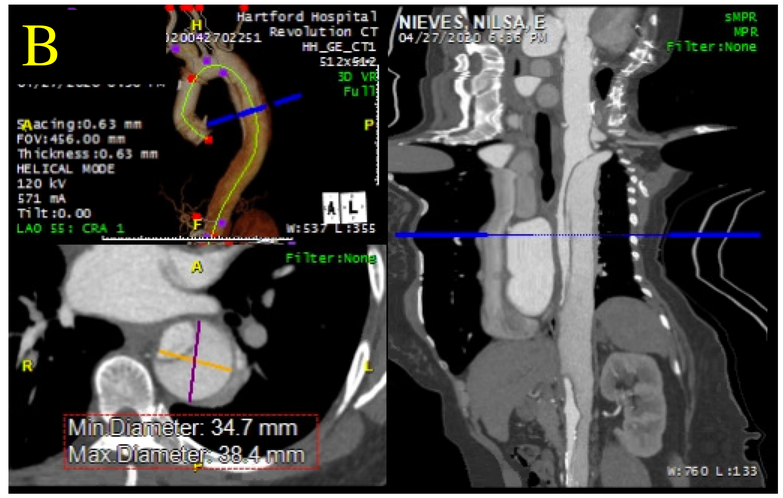

Figure B: CTA 5/13/20 showing the ascending thoracic aorta 2.8 cm, improved from 4.1 cm. There is marked compression of the true lumen. The left subclavian artery arises from the false lumen. The descending thoracic aorta measures 3.7 cm, increased from 3.3 cm. The proximal abdominal aorta measures 3.5 cm, previously 3 cm. The distal abdominal aorta at the level of the IMA measures up to 2.6 cm, previously 2.3 cm. The dissection flap extends into the proximal left external and left internal iliac arteries.

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