

IMAGING VIGNETTE

INTERMEDIATE

CLINICAL VIGNETTE

Aortic Arch Pseudoaneurysm Associated With Chronic Trauma by Resected Edge of the Left Clavicle



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ABSTRACT

A 66-year-old man, who had a history of left lung and clavicle resection, was referred to us for aortic arch pseudoaneurysm. Resected edge of the left clavicle was attached to the anterior surface of the aortic arch. Patch repair of the pseudoaneurysm using hypothermic circulatory arrest was performed successfully. (**Level of Difficulty: Intermediate.**) (J Am Coll Cardiol Case Rep 2019;1:417-8) © 2019 The Authors. Published by Elsevier on behalf of the American College of Cardiology Foundation. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

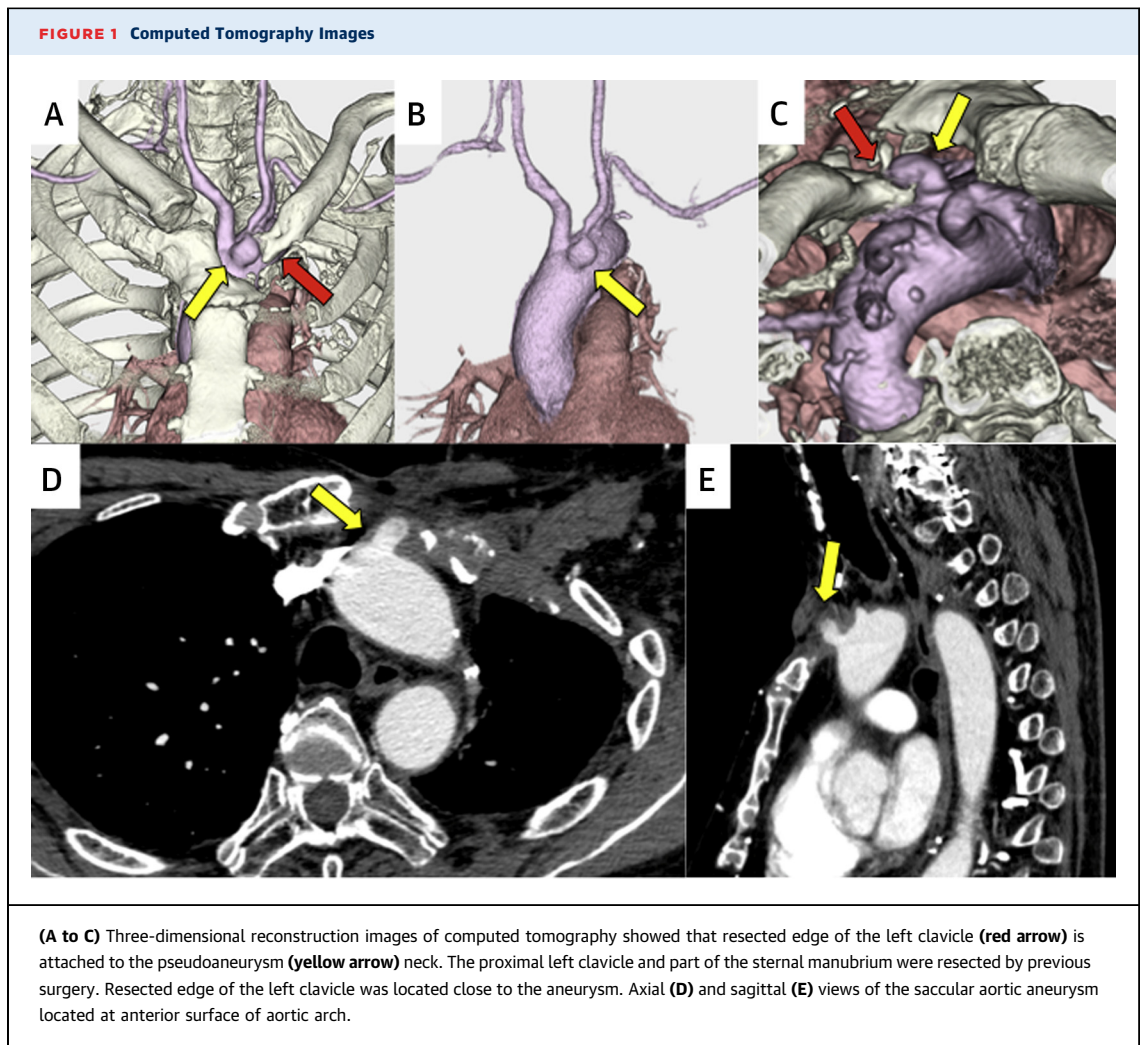
A 66-year-old man was referred to us for abnormal computed tomography findings of the thoracic aorta. Six years earlier, he underwent a left upper lobectomy for a Pancoast tumor after radiation and chemotherapy. At that operation, the left first rib was resected, and the sternoclavicular joint was temporarily detached and repaired with a metallic plate. Postoperatively, this patient's condition was complicated with chylothorax, and he underwent thoracoscopic ligation of the thoracic duct. He also had a surgical wound infection; the metallic plate at the sternoclavicular joint was removed, and the proximal left clavicle and part of the sternum were resected. Finally, the pectoralis major musculocutaneous flap was used for closing skin. Computed tomography imaging showed a saccular aortic aneurysm at the neck of the brachiocephalic artery (**Figure 1**). Aneurysm height was 15 mm and width was 8 mm. The left clavicle is closely attached to the aneurysm neck. There was no obvious evidence of active infection.

The patient underwent patch plasty of the pseudoaneurysm and resection of the left clavicle. Through a median sternotomy, cardiopulmonary bypass was established, and circulatory arrest and retrograde cerebral perfusion were obtained at bladder temperature 25°C. The anterior wall of the aorta and aneurysm was resected and repaired with a Dacron patch. The aneurysmal wall was thin and compatible to the typical pseudoaneurysm macroscopically. One-third of the clavicle was also resected. The patient recovered well and was extubated 2 days after surgery. Histological examination showed that the aneurysm wall contained only fibrous tissue, which is compatible to the pseudoaneurysm.

The authors have reported successful surgical treatment of a rare etiology pseudoaneurysm formation at the anterior surface of the aortic arch. Six years ago, the patient had complications with an infection around the sternoclavicular joint and underwent resection of the bone around this area. This infection history might be related to the aneurysmal formation; however, we believe that chronic stimulation of the resected edge of the left clavicle is the main cause of the aneurysm formation. The proximal edge of the clavicle was firmly attached to the neck of the aneurysm. From these operative findings, chronic trauma by resected edge of the left clavicle to the aortic arch could play the most significant role for aneurysm formation. Although there have been

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Manuscript received June 6, 2019; revised manuscript received June 25, 2019, accepted June 26, 2019.



reports of traumatic injury of the aorta or subclavian artery, we could find no reports regarding the same type of aneurysm as this patient (1,2).

The authors have reported successful repair of aortic arch pseudoaneurysm caused by chronic traumatic stimulation by resected edge of the left clavicle.

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KEY WORDS aorta, cancer, computed tomography, thoracic, vascular disease