



Iatrogenic False Aneurysm of the Internal Thoracic Artery after Sternotomy: The Role of Doppler Ultrasound

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A 78-year-old patient was examined for a growing parasternal mass 2 months after undergoing cardiac surgery. The patient was diagnosed with *Streptococcus mitis* infective mitral and aortic endocarditis of dental origin. As a result, the mitral and aortic valves were replaced with biological valves, and the mitral and aortic annuli were reconstructed. The patient was discharged after 2 weeks, and warfarin, antibiotics, and analgesics were prescribed to the patient.

A large, palpable, non-pulsatile, non-throbbing mass was

observed between the right third and fourth ribs adjacent to the surgical incision site. Chest radiography revealed metal wires around the sternum. The international normalized ratio was 3.02. Doppler ultrasound (DUS) revealed a 27 mm×31 mm×26-mm circulating, well-delineated mass with a swirling flow near the right internal thoracic artery (ITA). A 20-mm long, thin neck connected the mass to the ITA (Fig. 1, Supplementary Video 1) with the characteristic to-and-fro spectral Doppler waveform of a false aneurysm (Fig. 2).

An ITA false aneurysm is a rare complication of sternotomy, breast implantation, or pacemaker implantation. It may also ensue from trauma, infection, or be idiopathic [1]. Computed tomography is considered the most relevant

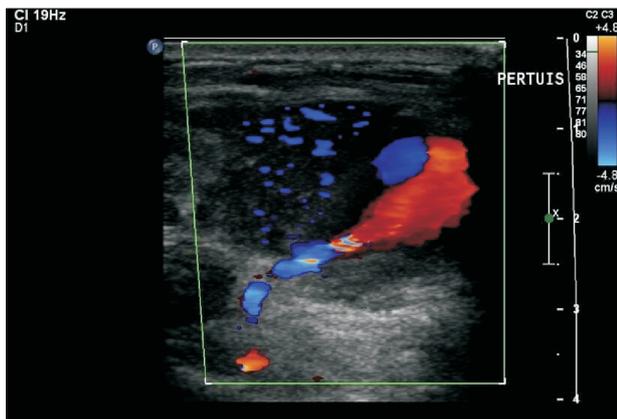


Fig. 1. Color Doppler ultrasonography showed the parasternal well-delineated, circulating mass measuring 27 mm×31 mm×26 mm with a swirling flow within, and the track connecting the right internal thoracic artery with the false aneurysm.

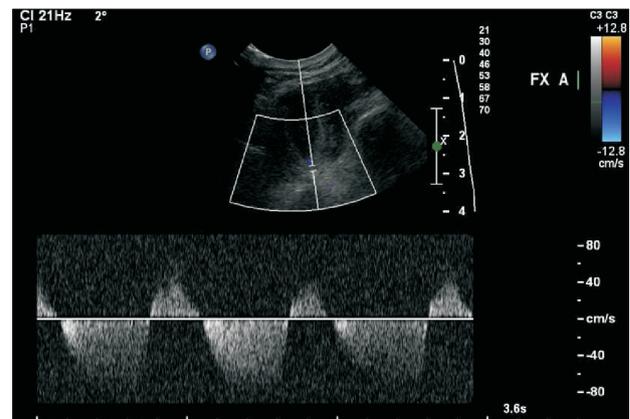


Fig. 2. The to-and-fro waveform within the connecting track, characteristic of a false aneurysm, was observed.

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diagnostic tool [2]. Surprisingly, the contribution of DUS has been scarcely described in this setting, whereas the lesion is readily reachable, and the pathognomonic to-and-fro waveform (“*yin-yang*” sign), comprising high-frequency flow towards the probe during systole and low-frequency flow away from the probe during diastole can easily be identified in the connecting track [3]. Therapeutic strategies include open ligation, coil embolization, probe compression, or conservative management [1,2].

Herein, the treatment comprised the withdrawal of anticoagulants, surgical drainage of the cavity, and ligation

of the feeding artery under local anesthesia. The surgical report confirmed a right ITA false aneurysm. Intraoperative bacteriological samples were found to be sterile. Based on the history, DUS findings, and microbiological results, we speculate the cause of the ITA false aneurysm to be iatrogenic due to wire placement at the end of the sternotomy.

SUPPLEMENTARY MATERIAL

Supplementary Video can be found via <https://doi.org/10.5758/vsi.220043>.

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