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CARDIOVASCULAR FLASHLIGHT
Other

Echocardiographic diagnosis of near-circumferential Type A aortic dissection missed on computed tomography

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A 47-year-old female presented to her local hospital with sudden-onset sharp central chest pain, dyspnoea, and tachypnoea. Non-gated computed tomography (CT) chest demonstrated 62 mm aneurysmal ascending aorta with final report communicated to the requesting clinician concluding no dissection flap visualized. She was subsequently triaged as acute chest pain of unclear origin, before transfer to a tertiary centre for further investigation.

Despite apparently negative imaging results at the peripheral hospital and haemodynamic stability on arrival, 12 hours after symptom onset, clinical suspicion for aortic dissection persisted. This was due to rising troponin concentrations (117–859 ng/L; Roche Elecsys Gen 5 Assay, upper reference limit 14 ng/L), chest pain, and electrocardiogram demonstrating sinus rhythm with widespread 2 mm ST depression and 1 mm ST-elevation in lead aVR.

Emergent transthoracic echocardiography revealed severely dilated ascending aorta (63 mm) with near-circumferential aortic dissection, and diastolic prolapse of dissection flap into left ventricle resulting in torrential aortic regurgitation (*Panel A*). Left ventricular size and function were preserved (Left ventricular end-diastolic diameter 5.3 cm; Left ventricular ejection fraction 55%). Urgent review of initial CT chest by cardiothoracic surgeons demonstrated evidence of aortic dissection. Discussion with the initial reporting radiologist however revealed that this had been mistakenly deemed motion artefact, in view of the CT chest being non-gated (*Panels B* and *C*).

Cardiac CT confirmed suspected Type A dissection with prolapsing d issection flap, and patent coronary arteries supplied through the true lumen (*Panel D*). Transoesophageal echocardiography confirmed the above findings (*Panels E* and *F*).

Intra-operatively, there was a clear dissection flap with turbulent flow in the ascending aorta, with the diseased aorta (*Panel G* red star) and distinct demarcation of native healthy aortic tissue in the aortic arch (*Panel G* blue star) evident. Aortotomy revealed a circumferential intimal tear originating just superior to the left coronary button, extending into the ascending aorta but terminating prior to the right brachiocephalic artery. She underwent aortic root replacement with a bioprosthetic aortic valve due to the patient's warfarin adherence concerns expressed pre-operatively, and ascending and hemi-arch replacement. She was extubated and inotropes weaned Day 2 post-operatively. She was discharged Day 14 post-operatively.

This case highlights the importance of clinical correlation in both appropriate investigation selection and interpretation, especially in high-lethality conditions such as aortic dissection. Furthermore, the absence of suspected pathology on one imaging modality should not be falsely reassuring if there is a persistently high index of clinical suspicion and should compel multimodal imaging and specialty referral.

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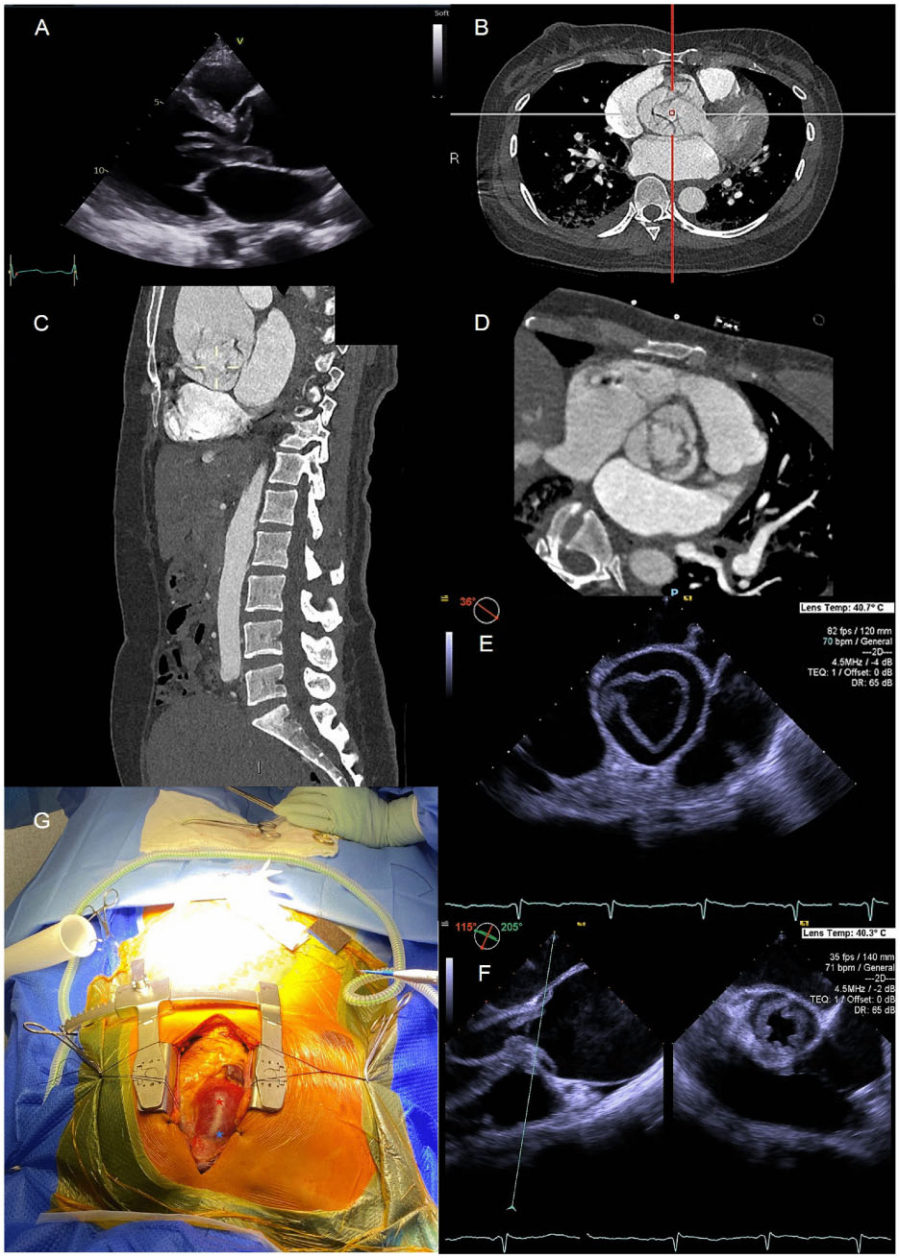

Panel

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