

Figure 1. Transoesophageal echocardiography. Longitudinal plane of the ascending aorta at 120°. Pseudoaneurysm with rupture of intimal and medial layers in the anterior wall of the proximal ascending aorta (arrow). Rupture and prolapsed of right coronary leaflet (arrow). LA, left atrium; AO, ascending aorta; OTRV, outflow tract of the right ventricle; LV, left ventricle.

Traumatic Aortic Rupture

To the Editor:

A severe thoracic trauma may affect the heart and/or large blood vessels, usually by a rapid deceleration or crushing. Mortality is increased in the short term, and an early diagnosis is fundamental.

We present a case of a 33-year-old male that suffered a severe thoracic trauma after being run over. He needed mechanical ventilation and inotropic drugs. He presented a murmur that indicated aortic insufficiency. A thoracic computerised tomography (CT) was performed, that showed a pneumothorax and bilateral rib fractures, without signs of aortic dissection. The transthoracic echocardiogram showed severe aortic insufficiency with mild dilation of the aortic root. In the transoesophageal echocardiogram (TEE), a thread-like image was observed, that corresponded to broken right coronary fibers that protruded

towards the outflow tract of the left ventricle and severe aortic insufficiency. In the anterior wall of the proximal ascending aorta, there was an image of pseudoaneurysm with rupture of the intimal and medial layers and a medio-intimal flap was observed protruding towards the lumen (Figures 1 and 2). Emergency surgery was performed to replace the aortic valve and implant a Dacron patch in the proximal ascending aorta, with favourable postoperative evolution.

The traumatic rupture of the aorta is a serious pathology, with an early mortality of up to 80%-90%; 32% die in the first 24 hours and 74% in the first 2 weeks. Early surgery improves the vital prognosis.² Aortic lesions from closed trauma happen more frequently in the descending thoracic aorta, at the aortic isthmus level, due to the increase in tension of the wall. Only 5% are found in the ascending aorta.² Traditionally, aortography was the technique of reference to diagnose (anterior

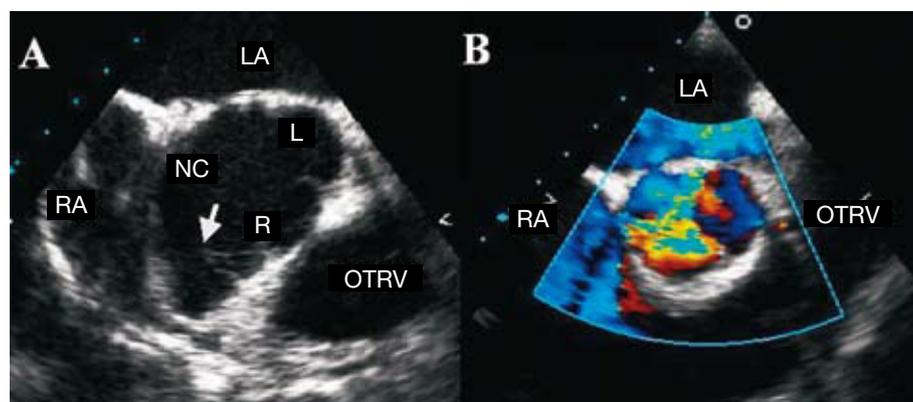


Figure 2. Transoesophageal echocardiography. Short axis plane at the aortic valve level. A: pseudoaneurysm adjacent to right and non-coronary valves (arrow). B: color Doppler, severe aortic insufficiency. RA, right atrium; LA, left atrium R, L, NC, right, left and non-coronary aortic valves; OTRV, outflow tract of the right ventricle.

left oblique projection at 45°, and the orthogonal projection, if there were any doubts). Due to the high rate of false negatives and because it is invasive and imprecise, it was replaced with CT. Helical CT is currently the most used technique because of its availability, speed, cost and easy interpretation, with a sensitivity and negative predictive value close to 100%,³ although with limitations to visualize the intimal flap and to localise the intimal dissection. Therefore, various image tests are frequently needed for a more precise diagnosis. The TEE is a fast, reliable and portable method, with a sensitivity and specificity close to 100% that allows for the continuous monitoring and a complete evaluation of the myocardium, the pericardium and the cardiac valves. It has a high resolution to study the intima, especially in the proximal aorta, and it detects milder lesions that are not usually found on aortography and/or on CT. Aside from visualizing the intimal flap with high spatial resolution, it allows for the identification of the true and false lumen and the flow between them using Doppler color.⁴

Aortic insufficiency is a rare complication of closed thoracic trauma, generally from the isolated dissection of the non-coronary leaflet. Its presence requires early surgery. In the case of an isolated lesion of one leaflet, the treatment of choice is valve repair, especially in young patients with healthy valves. In the case of multiple or complex lesions of the aortic valve, valve replacement is the safest technique.⁵

The traumatic dissection of the aorta generally requires emergency surgery. In very serious cases, stabilisation with drugs that decrease the stress on the aortic wall is preferred, followed by early surgery.

In the dissection of the ascending aorta, the treatment of choice is surgery with direct sutures or an aoplastic patch. In the rupture of the descending and abdominal thoracic aorta, endovascular surgery is the technique of choice, because of its low rate of complications.¹

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