Intramural aortic hematoma: no flap no warning?

Ematoma intramuraale aortico: nessun flap, nessun allarme?

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We report a case of type A intramural aortic hematoma (IMH) occurred in a 78 years old female. The clinical scenario (medical history of hypertension, severe substernal chest pain, early diastolic decrescendo murmur as for aortic insufficiency), the laboratory results (no significant troponin level), ECG and transthoracic echocardiography findings (no signs of myocardial ischemia) shifted the initial diagnostic suspicion from acute coronary syndrome to the acute aortic syndrome (AAS) and triggered further imaging tests. Computed tomography revealed an aneurismatic dilatation with thickening of the wall of the ascending aorta without intimal flap. No particular “warning message” for evidence of AAS was sent to the clinician on call. Subsequently, due to the persisting high clinical suspicion transesophageal echocardiography (TEE) was performed. TEE confirmed the aneurysm of the ascending aorta and highlighted an extended and marked aortic wall thickness, consistent with the diagnosis of type A IMH. Patient underwent urgent cardiac surgery that confirmed the diagnosis.

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cular 30 was used to replace the ascending aorta. After 14 days of an unremarkable hospital course (except for one episode of atrial fibrillation cardioverted with i.v. amiodarone) the patient was discharged on beta-blockers, ACE-I, diuretics and statin medical therapy. At six months follow-up the patient was in generally good health; the systemic blood pressure was under control and no aortic aneurysm formation on CT scan was detected.

Figure 1. - Post-contrast axial CT image demonstrates aneurysm of the ascending aorta (diameter of 54 mm) and crescentic thickening (arrow) of the aortic wall (12 mm).

partial longitudinal pericardiotomy a dilated and hemorrhagic aorta was found. Following institution of cardiopulmonary bypass and aortic cross clamping, the aorta was opened. The findings were typical of intramural hematoma (Fig. 3). No intimal flap nor tears were present. The aortic valve and coronary ostia were intact. A tubular graft Intervas-

Figure 2. - A) Transoesophageal echocardiography long-axis view showing ascending aortic aneurysm; B) The ascending aortic wall thickening (arrow) extending for 5 cm; no dissection flap or false lumen is seen; C) Marked (12 mm, see arrow), crescentic thickening of the anterior aortic wall; D) No flow within the type A IMH can be appreciated despite the low scale of color-Doppler flow mapping. (AAo= ascending aortic aneurysm; Av= aortic valve)

Figure 3. - Intraoperative visualization of the hematoma (see arrow) of the ascending aortic wall.
Discussion

Acute IMH is a potential fatal entity that falls under the spectrum of AAS including also classic acute aortic dissection (AAD) and symptomatic penetrating aortic ulcer (PAU) [1]. It is considered a precursor or “variant” to AAD and usually originates from ruptured vasa vasorum into the media [1-3]. It accounts for 5 to 20% of cases presenting with symptoms of AAD, is frequently (50%-80%) located in the descending aorta and is typically associated with systemic hypertension [3, 4]. The natural history of acute IMH continues to be debate with a regression seen in ~10% of patients [1, 4, 5]. It has usually prognosis and treatment similar to AAD, with surgery recommended in patients with acute IMH involving the ascending aorta and aggressive initial medical therapy advocated in patients with type B IMH [1, 5, 6].

When AAD is suspected, time is critical to improve survival [7]. Detection of AAS is based on clinical presentation but mainly relies on imaging techniques [6, 8]. The different imaging modalities, such as TEE, CT and magnetic resonance imaging, employed in the diagnosis of AAS are all extremely accurate and the selection mostly depends on experience and the local availability [6, 8]. In the emergency setting echocardiography is safe, fast, and readily available. It can be performed without delay in patients with suspected AAS, to evaluate the presence or absence of several important features such as intimal flap and false lumen for AD, saccular aneurismal formation for PAU and aortic wall thickness for IMH. Moreover echocardiography is useful to guide differential diagnosis excluding other pathologies such as acute coronary syndrome, pericarditis, and pulmonary embolism. Transesophageal echocardiography has, compared with TTE, higher sensitivity (94-100% vs 59-83%) and specificity (77-100% vs 63-93%) respectively for identifying an intimal flap, classic sign of aortic dissection. Therefore, a high index of clinical suspicion and the rapid availability of diagnostic tests that are safe, sensitive, and specific are required to make the correct diagnosis and identify those patients who need early surgery. In the International Registry of Acute Aortic Dissection (IRAD) CT scan was used most frequently as the first test in 61% of cases, and TTE or TEE as a secondary technique in 56% of cases with an average of 1.8 methods for each patient [6]. We have to keep in mind that the absence of intimal flap exclude only the absence of aortic dissection, but not the other form of AAS, such as the IMH. As in this case and according to the IRAD recommendations, when the diagnosis is elusive despite an high clinical suspicion of AAS clinicians should not hesitate to use more than one imaging modality. Moreover, increment of D-Dimer has been associated to the AAS expecially AD, but it should be underlined that the lack of elevation of D-dimer level does not exclude the presence of IMH [9]. Finally, careful clinical and imaging long term monitoring is essential in order to detect early signs of disease progression or aneurysm formation and to achieve optimal blood pressure control.

References