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Case Report

Painless long-segmental aortic dissection diagnosed by echocardiography: a case report of a diagnostic conundrum with potentially poor outcome ☆☆☆

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ABSTRACT

Aortic dissection is a life-threatening condition with a higher mortality rate. Early diagnosis enhances the prognosis of this disease; however, while chest pain is the most common symptom, we can occasionally find asymptomatic patients, making diagnosis more difficult and even missed, it is an uncommon entity with few data in the literature based exclusively on reported cases. Here, we report a case of completely asymptomatic long segmental aortic dissection in a 66-year-old male, with a recent history of controlled hypertension. The diagnosis was made by noninvasive methods, and the patient was referred for surgical treatment. Aortic dissections that are painless provide a significant challenge to physicians in terms of improving prognosis for this frequently misdiagnosed yet lethal illness. The main goal of this report is to bring attention to the misdiagnosed signs and symptoms of aortic dissection.

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Introduction

Aortic dissection is a rare but lethal emergency associated with a high mortality and morbidity rate. The primary event is a tear in the intima, then blood rushes through the tear, caus-

ing the inner and middle layers of the aorta to dissect, the estimated incidence ranges from 2.6 to 3.5 per 100,000 person-years [1]. Although severe chest pain remains the most typical presentation, painless dissection has been reported but is relatively rare and can be easily missed because of the atypical symptoms.

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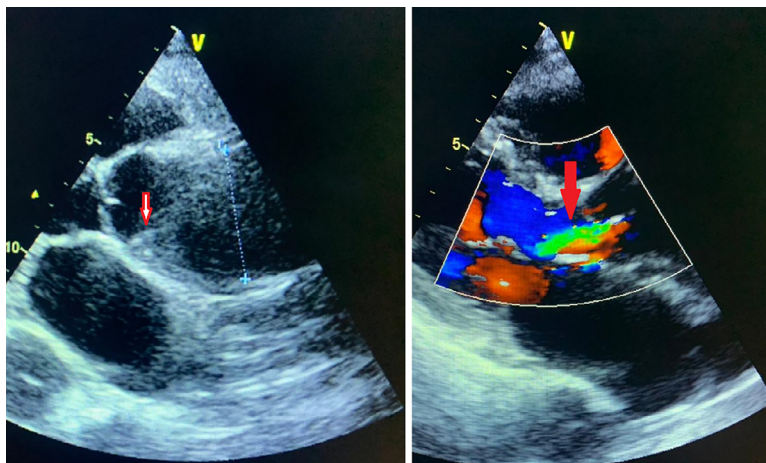


Fig. 1 – Transthoracic echocardiography. (A) Parasternal long axis view showing a thickened aortic wall in a patient with type A intramural aortic hematoma. (B) Same view with color Doppler, notice a significant aortic regurgitation.

Arterial hypertension is the most predisposing factor to aortic dissection, in second place we find connective tissue disorders (Marfan syndrome, Ehlers-Danlos syndrome), bicuspid aortic valve, use of drugs like cocaine [2], and more rarely vasculitis like Behcet and Takayasu diseases, turner syndrome, after a traumatic event or a cardiac intervention [3].

Clinical case

A 66-year-old male with a history of controlled hypertension know 3 months ago, and smoking weaned 30 years ago, was referred to cardiology department for a recent left ventricular dysfunction without signs of decompensation, diagnosed during a routine examination.

He denied any traumatic event, chronic dyspnea, chest or back pain, and showed no marfanoid aspect. His sitting blood pressure: 124/78 mmHg for the right arm and 110/67 mmHg for the left arm, his heart rate: 71 bpm, respiratory rate: 14 cpm, Sa O₂ 100%, capillary glycemia: 1.4 g/l, the cardiovascular examination detected a diastolic murmur classified 3/6th on the left sternal edge, without heart failure sign. His EKJ show an atrial fibrillation with R wave abrasion on V1, V2, V3. His echocardiography (Fig. 1A) revealed a dilated ascending thoracic aortic measuring 48 mm below sinotubular junction, associated with an intramural hematoma and a moderate aortic regurgitation (SOR 0.2 cm², VR 48 ml) (Fig. 1B) without flap intimal, a dilated left atrium without image of thrombosis but with normal right and left ventricular function with normal wall motion, and ejection fraction 56%, no pericardial effusion was noted. His blood test doesn't show any abnormality. An abdominal-thoracic computed tomography was performed confirming the diagnosis of an aortic dissection type A of Stanford classification, extended to common iliac arteries with abdominal aorta aneurysm (Figs. 2A-C).

The surgery was indicated but the patient refused it, he was not a candidate for anticoagulation due to the obvious

risk of bleeding into the dissection; and was discharged after 5 days, with a decent clinical condition, with good renal function, hemoglobin level and in absence of congestive heart failure signs. After a follow-up of 5 months, our patient is still painless, with a blood pressure at 115/60 mmHg.

Discussion

Aortic dissections are relatively rare, with an annual incidence of 5-30 cases per million people [3], causing about 10,000 deaths among Americans every year [4]. Painless dissection is uncommon, with a reported incidence of 5%-15% [5–6], in an analysis of 977 patients from the International Registry of Acute Aortic Dissection, only 63 patients (6.4%) was painless, type A dissection was more often (75% vs 61%). A history of diabetes, aortic aneurysm or cardiovascular surgery was more common in patients with painless dissection [7]. Moreover, aortic dissection is misdiagnosed in up to 38% of patients on evaluation process, while the diagnosis is discovered at autopsy in up to 28% of patients [3].

The classic presentation of type A aortic dissection is a sudden onset of a tearing, stabbing, chest, or back pain that radiates to the shoulder, neck, arm, jaw, abdomen, or hips, dyspnea, syncope [8], the physical examination detect an asymmetric blood pressure, aortic diastolic murmur. Atypical presentations may complicate the picture, and are associated with frequent delay in diagnosis and subsequently increased mortality and morbidity especially in patients who present without pattern pain [9,10]. About 10% of aortic dissections are painless, but symptoms may come in the form of the dissection's complications including neurological presentations, syncope, facial swelling, stroke and gastrointestinal hemorrhages [3]. Early and accurate diagnosis and treatment are essential for survival, since every hour of delay translates into a 1% increase in mortality [11].

Based on the literature data, it was found that hypertensive patients are most at risk for aortic dissection, a vari-

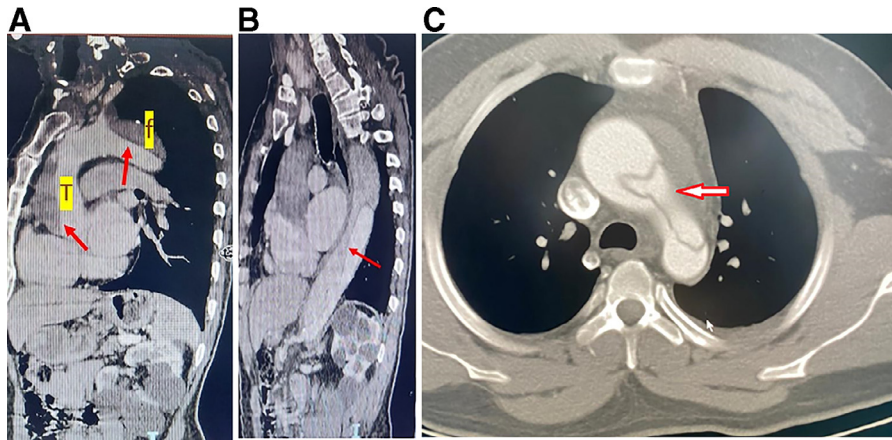


Fig. 2 – CT angiography of the abdominal and thoracic aorta showing a type A aortic dissection: (A + B) sagittal views of an extended aortic dissection with an intimal flap separating a true lumen (T) from a false one (F). (C) CT angiography, transverse plane at the level of the aortic arch, showing dissection flap.

ety of symptoms have been described (neurological, digestive, hematological, respiratory, cardiovascular...), transthoracic echocardiography play a key role in the diagnosis of asymptomatic dissections because it provides information on the ascending aorta, the presence of an intimal flap, so it must be done with caution, and remains the preferred diagnostic imaging technique in cases of hemodynamic compromise, an angioscanner should be performed in patients with dilated aorta even in the absence of any symptoms. Moreover the postmortem diagnosis was established in one case report [12].

Our patient exhibited a type A Stanford aortic dissection, extended to kidney vessels and iliac arteries associated with an abdominal aorta aneurysm but presented with nearly asymptomatic conditions that he failed to initially seek treatment, it is necessary to remember that long segmental aortic dissection is extremely rare, it was described only once in the case of Demirtas et al. [13] after an aortic valve replacement, the patient denied also the surgical treatment, but the length of follow-up was not mentioned. We followed our patient for 4 months, he remained stable, which make our case very unique, compared with the studies of the literature, in the study of Song et al. [14], follow-up was 3 years but their patient presented only a dissecting aneurysm, as for Abo-Salem et al. [15], the follow-up was 1 year.

Not all aortic dissections require a surgery, surgical treatment is undertaken only in the presence of indications based on clinical state of the patients, duration (acute or chronic) and the part of aorta involved, using mainly Stanford classification. Generally, type A of aortic dissections usually necessitate immediate surgery, whereas type B dissections are usually managed medically first, unless associated with complications [16]. The approach of management is focused on reducing the force of left ventricular ejection and regulating blood pressure, which are the key determinants of acute dissection extension. Beta blockers are the cornerstone of the treatment approach, with the intention of reducing blood pressure below 100-120 mmHg and keeping the heart rate below 60 beats per minute.

The prognosis is extremely poor; 40% of aortic dissection patients do not reach a hospital and die [17], necessitating

quick diagnosis and treatment; as a result, 5%-20% of patients die during operation [18]. As for our patient, cardiac surgery was recommended but he refused; currently, 4 months after his discharge, we are still monitoring him and he is pain-free with no signs of complications.

Unfortunately, until now there is no effective way to detect silent aortic dissection early, and therefore we must remain alert to any recent sign, the main objective of our paper was to bring attention to asymptomatic aortic dissections, a very uncommon condition that poses a serious dilemma for physicians and endangers their patients' crucial prognosis.

Conclusion

Aortic dissection is a life-threatening condition for which the diagnosis is suspected based on clinical symptoms and confirmed and evaluated by medical imaging like CT scan and ultrasound. However, in asymptomatic patients, the diagnosis is tougher, so physicians should be more alert to new additional symptoms within the hope of limiting mortality rates in these patients.

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Patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published

and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed. The authors declare that the patient agreed to allow them to publish their case details and images, and can be available upon request by the Editorial Office.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.radcr.2022.06.028](https://doi.org/10.1016/j.radcr.2022.06.028).

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