

Case Report

An Unusual Cause of Delayed Post-traumatic Acute Aortic Insufficiency: Beef Corning

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To cite this article:

Afassinou Yaovi Mignazonzon, Ondze Igor, Guis Eric, Weladji Guy, Michel Carl Thony, Moukala Thomas, Larifla Laurent, Ancedy Yann. An Unusual Cause of Delayed Post-traumatic Acute Aortic Insufficiency: Beef Corning. *Cardiology and Cardiovascular Research*.

Vol. 5, No. 1, 2021, pp. 33-35. doi: 10.11648/j.ccr.20210501.16

Received: January 13, 2021; **Accepted:** February 3, 2021; **Published:** February 10, 2021

Abstract: Aortic insufficiency is a rare disease caused by direct and indirect Chest shocks. The monitoring of patients after chest trauma must be rigorous. We described the case of a 73-year-old male patient who had pulmonary acute edema and was admitted to the emergency department (ED). He had been admitted to the ED one week earlier for a closed chest trauma with brief initial loss of consciousness following a violent shock by beef corning and released after 24 hours of surveillance with a diagnosis of closed chest trauma with a fractured sternum and myocardial contusion. After rapid stabilization of pulmonary acute edema, the examination revealed a diastolic murmur in the aortic focus. Transthoracic and transoesophageal doppler echocardiography had found a massive aortic insufficiency with rupture and perforation of the antero-right sigmoid without vegetation or visualized aortic dissection image and a normal sized left ventricle with good systolic function. The aortography had confirmed massive aortic insufficiency with blood reflux in the left atrium during diastole and normal coronary artery. A thoracic angioscanner was performed formally eliminating an associated aortic impairment and vegetation. There was no biological inflammatory signs and troponin was normalized compared to her elevation at admission one week earlier. The patient was treated two weeks later with an aortic valve replacement. Postoperative evolution was simple, and he came out of the hospital a week earlier and put into functional rehabilitation.

Keywords: Aortic Insufficiency, Chest Trauma, Beef Corning

1. Introduction

Post-traumatic aortic insufficiency is a rare disease of about 2% in chest trauma [1]. Patients are affected at any age by aortic valve lesions [2, 3]. The search of the endocardium valve injuries should be systematic upon admission as the progression can be to acute heart failure or cardiac arrest [4]. The diagnosis of aortic insufficiency has been performed in recent years by echocardiography (transthoracic and transoesophageal) [5] The mechanisms most often described are direct and indirect shocks, compression, deceleration, blast

[6]. The monitoring of patients after chest trauma must be rigorous so as not to ignore acute aortic insufficiency, which can be fatal in its evolution.

2. Case Report

A 73-year-old patient was admitted to the Emergency department one week after a closed chest trauma with brief initial loss of consciousness following a violent shock by beef corning. Clinical assessment at admission had revealed a patient conscious in good hemodynamic condition with pain in relation to the sternum which increased at the inspiration.

The electrocardiogram showed some atrial extrasystoles. Thoracic computed tomography (CT) showed a mid-sternal fracture without surgical indication and a minimal right pleural effusion. Doppler echocardiography had found minimal pericardial effusion without hemodynamic impact, good myocardial contractility and no valve abnormality.

Biological assessment showed a positive troponin with adescending kinetic. The diagnosis of closed chest trauma with sternum fracture and myocardial contusion was retained and the patient placed under surveillance for 24 hours and then released.

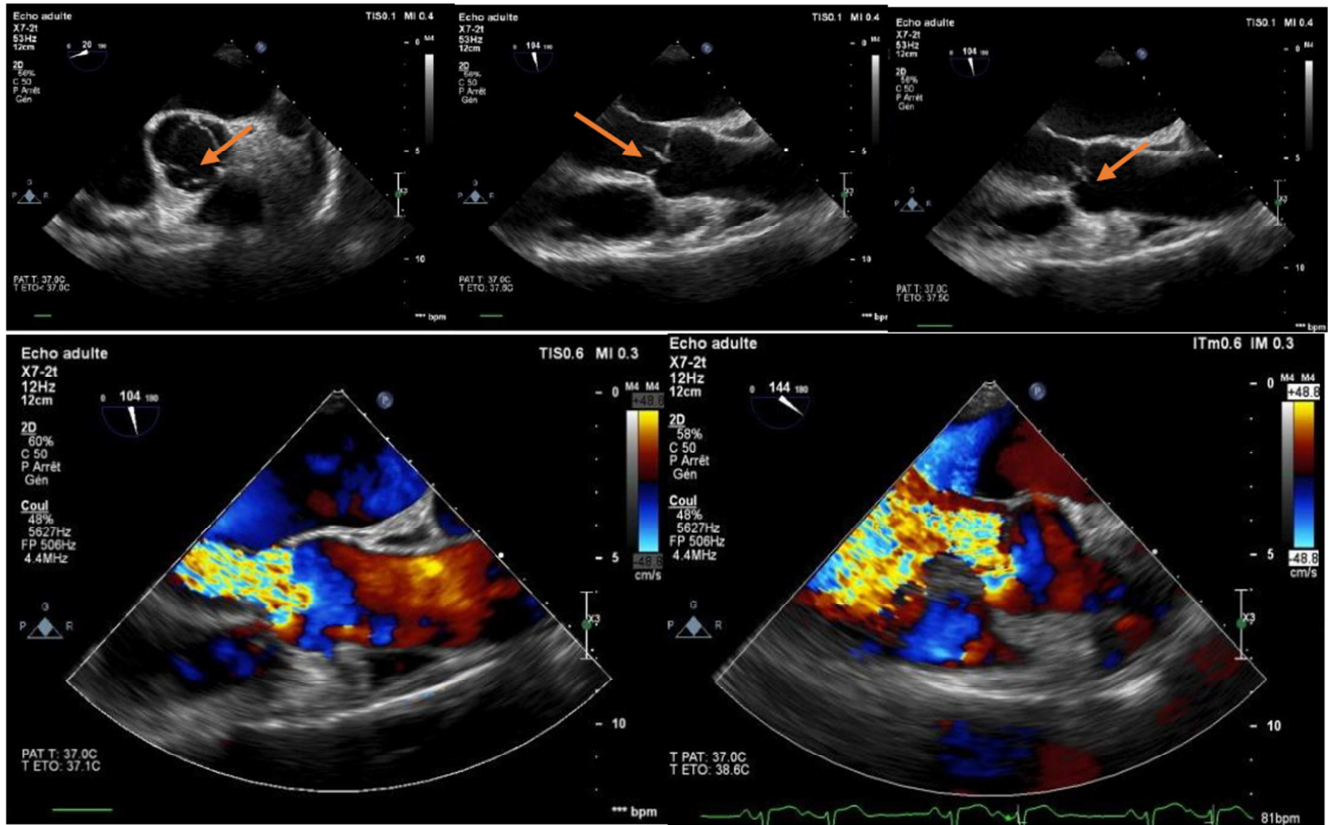


Figure 1. Transoesophageal echocardiographic images showing partial rupture of the antero-right sigmoid with massive aortic insufficiency.

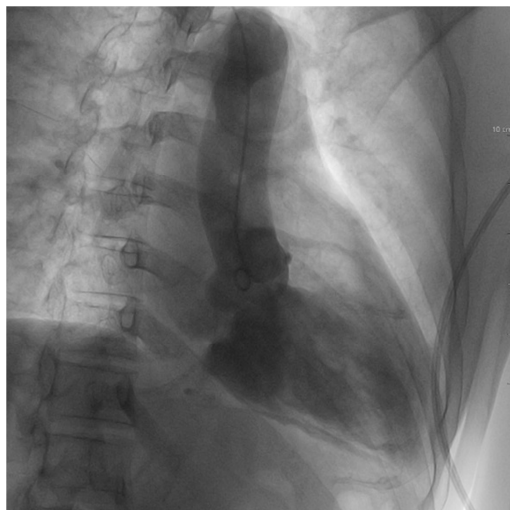


Figure 2. Image of aortography showing a clouding of the left ventricle with higher density than that of the aorta and clouding of the left atrium reflecting massive aortic insufficiency.

Seven days later he was referred again to the Emergency department services for acute pulmonary edema. After rapid stabilization, the examination found blood pressure at

91/47mmHg, a mild diastolic murmur with aortic focus, radiating on the left edge of the sternum to the apex. There were no peripheral signs of aortic insufficiency or fever. The electrocardiogram had noted supraventricular extrasystoles. Transthoracic doppler echocardiography had found a massive aortic insufficiency caused by a perforation of the antero-right sigmoid and a normal-sized left ventricle with good systolic function. A transoesophageal ultrasound performed confirmed massive aortic regurgitation with perforation of the antero-right sigmoid, without vegetation, or visualized aortic dissection image (Figure 1). The aortography had confirmed massive aortic insufficiency with blood reflux in the left atrium during diastole (Figure 2). The coronary artery was normal. A thoracic angioscanner was performed formally eliminating an associated aortic impairment. There was no biological inflammatory signs and troponin was normalized. The diagnosis of post-traumatic aortic insufficiency delayed by partial rupture of the antero-right sigmoid was retained and the patient was treated two weeks later with an aortic valve replacement. Postoperative evolution was simple, and he came out of the hospital a week earlier and put into functional rehabilitation.

3. Discussion

Post-traumatic aortic insufficiency is a rare disease of about 2% in chest trauma [1]. The mechanisms most often described are direct and indirect shocks, compression, deceleration, blast [6]. Road accidents are most often the cause of post-traumatic aortic insufficiency in a context of polytrauma. Our case seems rare because of the type of trauma. Because beef corning is not a common cause, the force of the shock may explain the lesions.

Aortic valve damage is often delayed or neglected at initial post-traumatic stress assessment due to lack of suspicion [7]. Because of the hemodynamic impact, its recognition is essential [4]. The diagnosis of traumatic insufficiency is usually made when an acute diastolic murmur is heard in a dyspnoeic patient with chest pain and no previous history of cardiac disease in traumatized thorax [8]. The context of our patient fits well with a delay in the onset of valve lesions. It was explored in immediate post-trauma and no valve lesions had been objectified. The gradual worsening of an initially minor and asymptomatic lesion may explain the discrepancy between the time of the trauma and the time of diagnosis [9, 10].

Aortic valve lesions may be secondary to a lesion of the aortic wall that will evolve into the aortic valve system [10-12]. Post-traumatic aortic insufficiency often results from a direct valve lesion [2, 9, 13]. The lesions would be secondary to a sudden concomitant increase in intrathoracic pressure and intraortic pressure. The aortic valve is more fragile [6] at the beginning of the diastole when the pressure of the left ventricle is minimal, the tension of the aortic valve closed at the same time is maximum [3, 9, 13].

Diagnostic confirmation is based on transthoracic and transoesophageal cardiac ultrasound, which can be used to affirm, quantify aortic insufficiency and visualize valve damage [3, 5]. In addition, echocardiography can be used to look for possible associated heart and aortic damage [1, 14]. The use of thoracic angioscanner may be essential to eliminate an associated aortic lesion. The coronary angiography may be useful to eliminate a coronary lesion or as a tool in the preoperative assessment. Treatment is surgical [15]. Heart failure, once revealed, almost constantly escapes medical treatment and progresses to severe heart failure [4, 9]. Preservative surgical treatment remains an option [15].

4. Conclusion

Post-traumatic aortic insufficiency is rare. Beef corning is a rare cause to keep in mind. The initial patient examination may not be contributory and aortic insufficiency will prove several days later by an acute pulmonary edema, potentially fatal for the patient. This is why these patients may be rigorously monitored several days.

Conflict of Interest

All the authors do not have any possible conflicts of interest.

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