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Case Report Open Access

Double Emergency Associating Acute Aortic Dissection and Pulmonary Embolism of Fatal Evolution: About a Case

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Abstract

Pulmonary embolism and acute aortic dissection are two formidable cardio-vascular emergencies. Their association, although exceptional, is burdened with a heavy mortality in the absence of an early and adapted surgery. We report a case of Standford acute type A aortic dissection associated with fatal pulmonary embolism. This is a 66-years old man with a notion of a long trip received for prolonged chest pain since 3 days, of sudden onset, maximal intensity, tearing, transfixing, migratory, radiating towards the back and the loins, exacerbated by breathing. The examination noted 120 bpm tachycardia, 70% SaO_2 desaturation, asymetric blood pressure and asymetric pulse, aortic insufficiency murmur and bilateral crackling rettles at lungs. The chest X-ray showed an enlargement of the upper mediastinum with double-contoured image. The electrocardiogram recorded a regular sinus tachycardia at 132 cycles/min, a lateral sub epicardial ischemia in lateral leads. CT scan revealed total thrombosis of the right branch of the pulmonary artery extending to part of the trunk and an intimal flap from the aortic arch to the abdominal aorta. The evolution was brutally lethal two days after hospitalization. The dissection of the aorta and the pulmonary embolism are medical emergencies whose association poses more difficulties as well on the diagnosis plan but especially therapeutic.

Keywords: Aortic dissection; Pulmonary embolism; CT scan; Dakar

Introduction

Thromboembolic venous disease represents the third cardiovascular disease with an annual incidence of 0.6/1000/year. Its major complication, in particular high-risk pulmonary embolism, constitutes a diagnostic and therapeutic emergency responsible for significant mortality [1,2]. Aortic dissection of type A is the most common and the most formidable of aortic pathologies. The associated mortality rate is about 1-3% per hour with 20-30% of deaths in the first 24 hours and about 80% in 2 weeks [3]. The combination of these two emergencies is certainly difficult to diagnose because of the chest pain that may be present and atypical in both cases, but the main fear is the therapeutic component which consists of early surgery and adapted to these two emergencies. We report a case of acute aortic dissection and pulmonary embolism in a 66 years old patient whose evolution was fatal.

Observation

This is a 66 years old patient with no cardiovascular history but with a risk factors for thromboembolic venous disease: trip by road Cotonou (Benin) to Dakar (Senegal) by road during 5 days. He has been admitted for acute chest pain evolving since 3 days. This one was brutal, progressive worsening, atrocious, migratory transfixing radiating towards the back and the loins, exacerbated by the deep inspiration associated with a hemoptysis of low abundance. The exam showed an agitation, a superficial polypnea with a respiratory rate of 40 cycles/min; blood pressure was asymmetrical at 100/80 mmHg on the left arm and 130/70 mmHg on the right arm, he had tachycardia at 120 bpm, desaturation with 70% SaO_2.

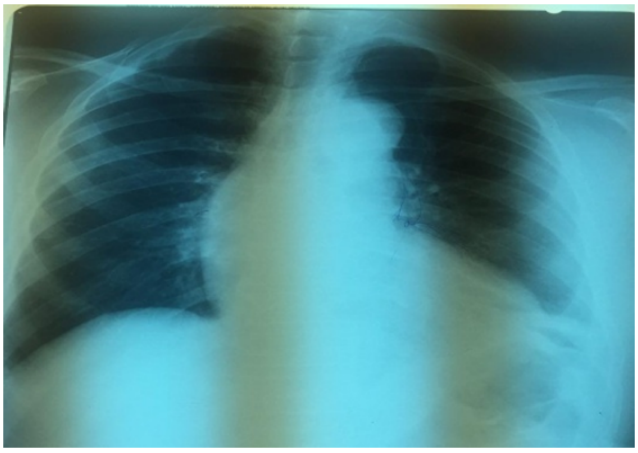

Figure 1: Chest X-ray showing an unfolding aorta and double aortic contour with enlargement of the superior mediastinum.

The physical examination revealed asymmetry of the radial and humeral pulse weaker on the left, a breath of aortic insufficiency, bilaterally cracklings at the base of the lungs.

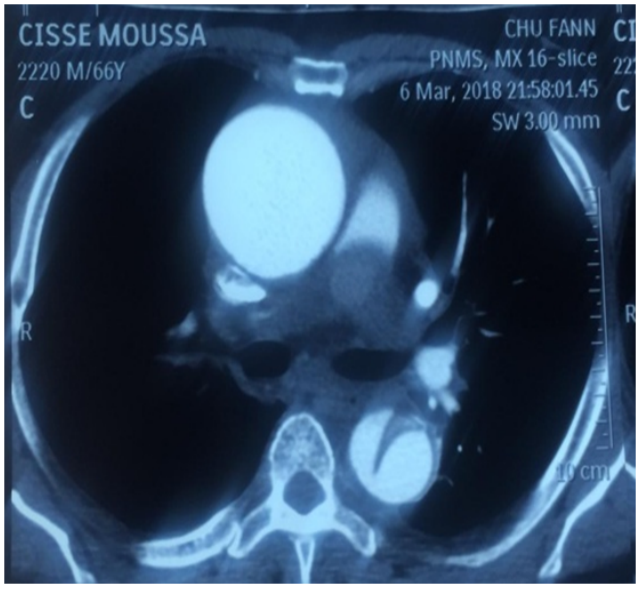

Figure 2: Thoracic CT angiography showing thrombi in the right pulmonary artery and the trunk of the pulmonary artery and the intimal flap.

The chest X-ray showed cardiomegaly with a sub-diaphragmatic tip, an unfolding of the aorta, an enlargement of the superior mediastinum, a double edge of the aorta, and a bilateral hilar overload (Figure 1). The electrocardiogram revealed a regular sinus tachycardia with heart rate at 132 cycles/min, left axial deviation, lateral epicardial ischemia high, flat T waves on inferior leads.

The thoracoabdominal CT scan showed total thrombosis of the right branch of the pulmonary artery extending to part of the trunk (Figure 2). In addition, he noted an aortic dissection with an intimal flap separating the aortic lumen in true and false channel from the butt of the aorta to the abdominal aorta and a large dilation of the aorta from its emergence to the Crosse (Figure 3).

Regarding these results in favor of a double emergency whose treatment of one is contraindicated by the other, a double surgical indication was indicated. However, this surgery is not yet available in our regions, and the patient did not have enough money for an evacuation abroad. The evolution was lethal two days after admission.

Discussion

We found only one case in the literature reporting a case of acute aortic dissection A occurring in a patient with pulmonary embolism on post embolic chronic pulmonary heart [4]. These two cases prove their possible association during sudden chest pain, although their pathophysiological mechanism differs. In our case the clinical presentation was more in favor of an aortic dissection, even if there was also a hemoptysis and severe hypoxia, the pulmonary embolism was fortuitous diagnosis during the CT scan which here was the key to both diagnoses. Pulmonary embolism is very unlikely to be a complication of acute aortic dissection, which usually occurs in a patient with pre-existing aortic involvement [5]. However, it is possible that pulmonary embolism first occurs and leads to aortic dissection by the anxiety that it causes in the patient in addition to the pain and dyspnea.

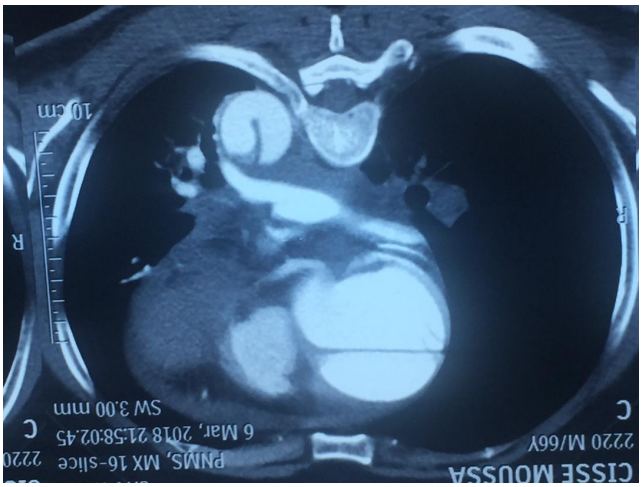

Figure 3: Thoracic CT scan showing intimal flap in thoracic aorta separating lumen into true and false channel.

This is even more likely that the pain had been evolving for 3 days and had an increasing intensity to become excruciating on the day of admission in a patient who had made a very long trip (Cotonou-Dakar) by road for 5 days. Our patient did not have a marfanoid morphotype or a history of known aortic pathology, but dilation of the aortic root shocked by CT angiography predicts pre-existing aortic disease. We found a case of acute type A aortic dissection of Standford where the clinico-electrocardiographic arguments pleaded for pulmonary embolism and corresponded to compression of the right pulmonary artery by rupture of the posterior aspect of the ascending aorta with hemorrhagic suffusion around the trunk of the pulmonary artery and the right pulmonary artery [6]. Another case report of septal rupture of aneurysm of the ascending aorta compressing the pulmonary artery and its right branch which mimed a clinical picture of massive pulmonary embolism also detected at CT scan [7]. These cases illustrate the pivotal role of chest CT angiography for diagnosis. Indeed, the distinction between these two pathological entities is important because the anticoagulant or even thrombolytic treatment for pulmonary embolism is totally outcast in the aortic dissection. Treatment of the only previous case reported in the literature consisted of a step by step surgery with replacement of the aortic hemiarch during antegrade cerebral perfusion and differed pulmonary endarterectomy with periods of circulatory arrest and deep hypothermia. The evolution of this patient was favorable at one week, in the medium and long term [4]. In our case, the ideal treatment would have been surgical management combining a pulmonary embolectomy with an aortal replacement with reimplantation of the coronaries arteries, in accordance with the guidelines [8,9]. Unfortunately, this double surgery remains inaccessible in our country. Moreover, even in the countries where this surgery exists, the prognosis of the dissection of the aorta remains dark.

Conclusion

Aortic dissection is a potentially fatal condition and should be suspected quickly in patients with chest pain, even if they have few risk factors and even if they are young. We should always think about this pathology when we also suspect pulmonary embolism and/or acute coronary syndrome. The technological development (chest CT angiography) makes it possible to make the diagnosis easily and to direct the treatment although not very accessible to us.

Conflicts of Interest

The authors declare that they have no conflict of interest.

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