Aortic dissection in sub Saharan Africa: Difficulty of management in country without cardiac surgery. Clinical case in Congo-Brazzaville

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ABSTRACT

Aortic dissection (AD) is a medical and surgical emergency whose treatment is difficult in most sub Saharan African countries without cardiac surgery. The causes of AD are numerous and the prognosis is poor without surgery in type A aortic Dissection in Stanford classification. The type B has a better prognosis than type A.

The authors report the case of a young man without medical history, admitted for chest pain. The diagnosis of type B aortic dissection and aneurysm expansion was retained by thoracic X-ray, and CT scan.

Key words: aortic dissection, Sub-Saharan Africa, Brazzaville, Congo

INTRODUCTION

Aortic dissection (AD) is a medical-surgical emergency, rarely described in sub-Saharan Africa [1]. In the absence of surgery, the prognosis is very pejorative [1, 2, 3]. The diagnosis was improved by the advent of non-invasive techniques, notably the scanner [1, 4, 5]. The absence of cardiac surgery in most African countries, makes AD often lethal [1, 2, 3]. The type B AD in Stanford classification is most frequent [6]. A surgical indication is formal in case of type A AD. The medical treatment in type B AD relieves the patient, and delayed fatal complications: thromboembolism, cataclysmic hemorrhage and sudden death [3]. The causes of AD are inherited (Marfan's disease, congenital aortic aneurysm among others) or acquired (hypertension, infections, thoracic trauma, surgical or instrumental treatment) [1, 4].

Here, we report the case of a patient who presented non-specific chest pain, and whose thoracic CT scan showed a type B AD with expanded aneurysm.

CASE PRESENTATION

A 45-year-old black patient, admitted to the department of cardiology and internal medicine at Teaching Hospital of Brazzaville for intermittent chest pain, evolving for seven days. These torsional pains had no irradiation, no triggering or calming factors. Patient had no particular medical and surgical history. He does not smoke and takes alcohol moderately. On examination, the weight was 68 kg and height 1.67 m. The blood pressure was 160/90 mmHg. There was no cardiac and vascular murmur. Blood investigations revealed: the cardiac enzymes were normal, glucose, ionogram, serum creatinine, hepatic enzymes, blood lipids were unusual. The electrocardiogram was in sinus rhythm and showed left ventricular hypertrophy (figure 1). The chest x-ray revealed a normal volume heart, a wide aorta with calcifications (figure 2).

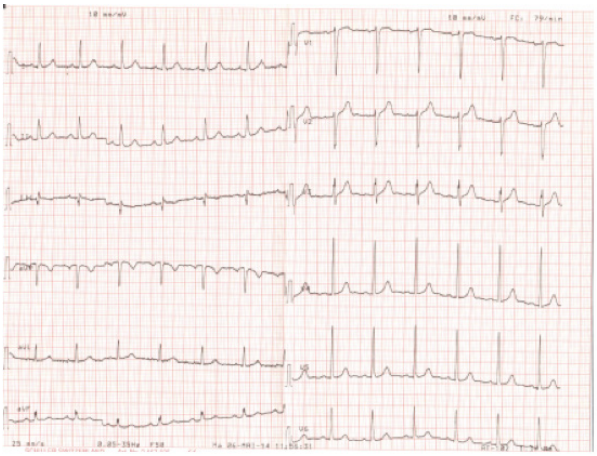

Figure 1: ECG showing sinus rhythm and left ventricular hypertrophy

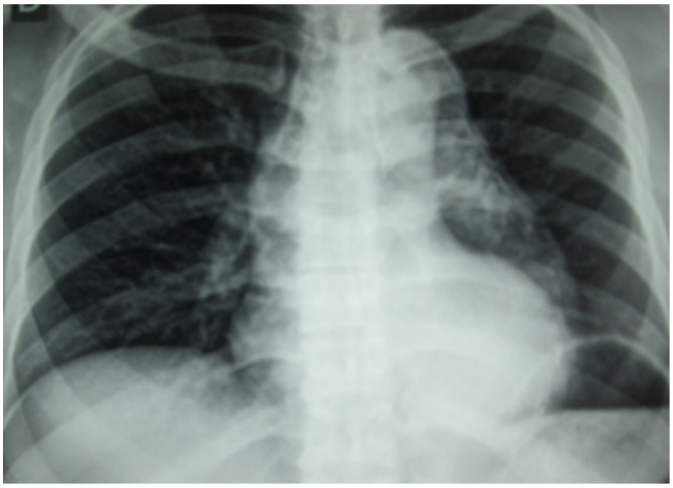

Figure 2: Chest radiograph showing a dilated and calcified aorta

Cardiac ultrasound was normal, there was no valvulopathy, the ejection fraction was 68%, and the initial aorta was not dilated. Thoracic CT scan showed Stanford type B AD (figure 3) on a descending aorta with the largest diameter being 57 mm (figure 4) including 15 mm of false channel. Treatment included analgesics, beta-blockers and calcium channel blockers. The patient is awaiting cardiac surgery due to expansive aneurysm. With a follow-up of 12 months, the patient is asymptomatic, and normal blood pressure. CT scan is pending to evaluate the diameter of the aneurysm, and the patient should immediately consult for chest pain.

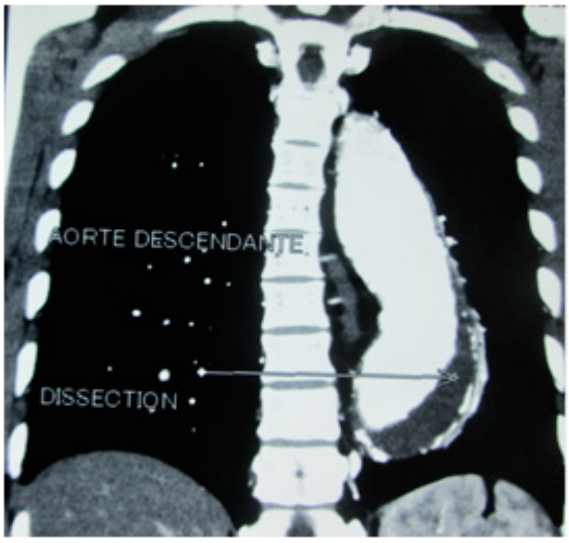

Figure 3: CT scan, thoracic coronal section section showing the dissection (57 mm) with the false channel (15 mm)

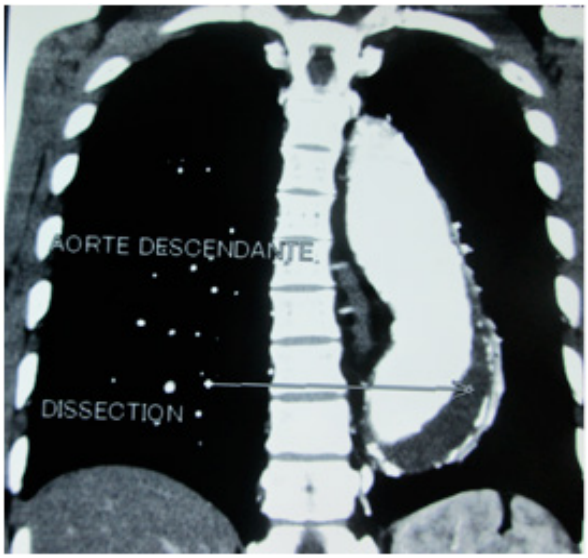

Figure 4: CT scan, thoracic sagittal section: calcifications and extension of the dissecting aneurysm

Incidence of AD is 5.4 per 10,000 in patients with cardiovascular disease, 4.7 per 100,000 inhabitants in Italy, and 19.8 per 100,000 population in the very elderly (age> 80 years) [1, 4]. It is mainly concerned young patients in Africa, unlike the developed countries where the elderly are most affected [1, 2, 3, 4]. In Brazzaville, six cases were described over 22 years in a cardiology department [1]. This affection is more frequent and more severe in the black population [6]. The patients where vascular fragility predisposes to the occurrence of aneurysms of aorta and AD such as constitutional diseases or malformations (Marfan syndrome, aortic bicuspidia), inflammatory arteritis (Takayasu's disease, Buerger's disease) [1, 4] or consumption of addictive substances [6].

Chest pain is the major sign of AD [7]. Other signs are often non-specific, such as the compression of neighboring organs [7], or related to complications [8]. Hypertension is associated with this disease in half of the cases [1, 3, 6]. Complications include rupture of the aorta which may cause tamponade, shock, cerebral or peripheral ischemia, and sudden death [8]. Diagnosis involves several imaging techniques. Radiography demonstrating an enlargement of the mediastinum as in our case, and cardiac ultrasound especially in transesophageal are useful. The CT-scan and angio-MRI are the gold standard of the diagnosis [5, 9]. The treatment is medical, endovascular and surgical [6, 10]. Beta blockers are used in long courts because they reduce mortality [10]. Endovascular treatment involves interventional cardiology and uses vascular endoprothesis [11]. The vascular endoprosthesis is recommended for patients with high surgical risk [8, 11]. Surgery is especially indicated in young subjects [12]. Indeed, in elderly, surgery is less beneficial [12]. We recall that cardiac surgery and interventional cardiology are unavailable in most countries of sub-Saharan Africa.

In hospital the mortality in type A AD was 26% after surgery, and 58% during medical treatment only [8]. In type B AD, intra-hospital mortality is 31.4% with surgery, and 10.7% with medical treatment only [8]. In our case, given the young age of the patient and the risk of rupture, a surgical indication is required, and the presence of thrombosis is a risk factor for dilatation [13]. Surgery is indicated for aneurysm whose diameter is greater than 55 mm in type B AD (in our case: 57 mm). The other surgical indications in type B AD are: persistent or recurrent intractable pain, aneurysm expansion, peripheral ischaemic complications, and rupture [8]. The risk of sudden death is not ruled out. In view of these facts, the training of cardiovascular surgeons and the acquisition of appropriate equipment for the management of AD will be the only guarantee of optimal management to improve the prognosis of patients. The surgery in this patient will need to be carried out abroad, but the wait is very long and exposes the patient to sudden death.

Conflict of interest: none

CONCLUSION

The diagnosis of aortic dissection has been improved in our environment with the contribution of non-invasive imaging. Management is not optimal in the absence of cardiovascular surgery, thus exposing them to a high lethal risk in type A aortic dissection of Stanford classification, and type B with complications.

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