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Case Report

First Tirone David's Intervention In Mali : About A Case At The Festoc Centre In Bamako

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Abstract

Surgery to replace the aortic root with a valved tube, whether mechanical or biological, remains the most widely used technique for correcting diseases affecting this segment of the aorta. Although mechanical valves are usually used, they expose patients to the risk of thromboembolic complications associated with anticoagulation. We report the case of the first Tirone David operation performed at the Festoc centre in Bamako. The patient was 60 years old and had been referred for dilatation of the ascending aorta in the context of stage 3 dyspnoea. Physical examination revealed a Musset's sign and a diastolic murmur of intensity 3/6 at the aortic focus. Ultrasound revealed severe aortic insufficiency associated with dilation of the ascending aorta, with the aortic annulus measured at 23.5 mm, the sinus at 50 mm and the sino-tubular junction at 61 mm. Thoracic angioscan showed a saccular aneurysm of the initial segment of the ascending aorta. Coronary angiography was normal. The operation performed was an ascending aorta replacement with preservation of the aortic valve and re-implantation of the coronary arteries. Following the operation, a haemorrhagic syndrome with pre-buffering occurred, prompting repeat surgery 24 hours after the initial operation. The outcome was favourable and the drains were removed 48 hours later.

Introduction

Surgery on the ascending aorta is nowadays better understood and described. It mainly involves aortic dissections, a life-threatening emergency requiring multidisciplinary management, and aneurysms of the ascending aorta. Aneurysms of the ascending aorta are a significant cause of death, and are usually managed by surgical intervention.

Surgery to replace the aortic root with a valved tube, whether mechanical or biological, remains the most widely used technique for correcting diseases affecting this segment of the aorta [1]. Although mechanical valves are usually used, they expose patients to the risk of thromboembolic complications associated with anticoagulation. We report on the first Tirone David operation performed at the Festoc centre in Bamako.

Observation

This is a 60-year-old patient with no known hypertension or diabetes who was referred to us with dilatation of the ascending aorta in the context of NYHA stage 3 dyspnoea. Physical examination revealed a Musset's sign and a diastolic murmur of intensity 3/6 at the aortic focus.

The chest X-ray showed cardiomegaly with a cardiothoracic index of 61%.

Cardiac ultrasound (Figures 1 & 2) showed severe aortic insufficiency associated with dilation of the ascending aorta, with the aortic annulus measured at 23.5 mm, the sinus at 50 mm and the sino-tubular junction at 61 mm. The ejection fraction was 53%. There was also functional grade 2 mitral insufficiency. The left ventricular end-diastolic diameter was 71 mm in diastole.

Thoracic angioscan (Figures 3 & 4) showed a saccular aneurysm of the initial segment of the ascending aorta measuring 74*61 mm with no parietal abnormalities or associated intimal flap.

Coronary angiography was normal. Biological tests were also unremarkable.

The patient was initially treated with beta-blockers.

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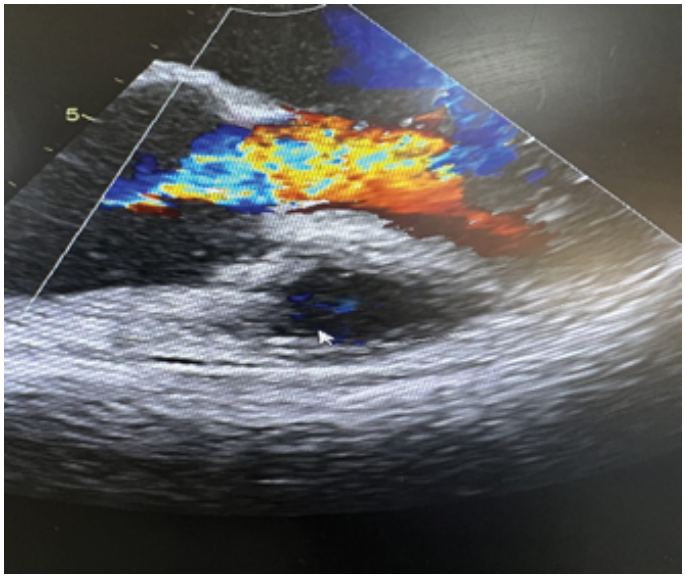

Figure 1. *(Parasternal long-axis Doppler Incidence showing a mosaic diastolic jet on colour Doppler): Massive aortic leak*

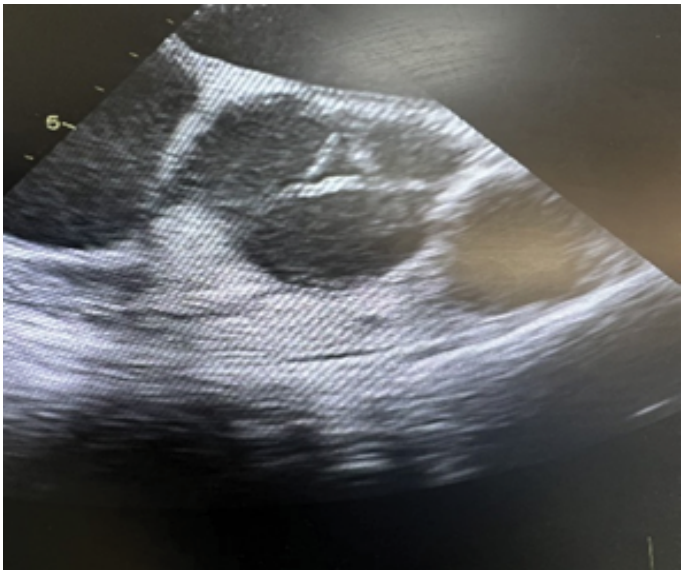

Figure 2. *(Two-dimensional TTE. Left parasternal short axis section of the base of the heart in diastole) annular dilatation with poor coaptation of the aortic sigmoids.*

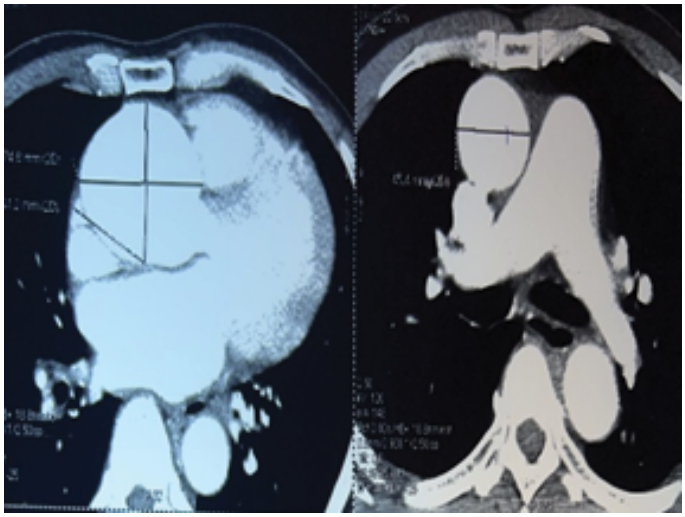

Figure 3. *(angiosanner cross-section) Ascending aortic aneurysm*

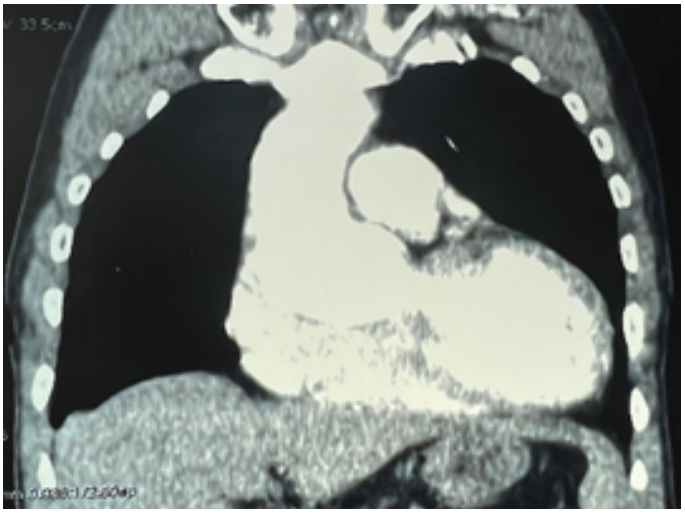

Figure 4. *(angiosanner frontal section): Dilation of the ascending aorta*

The operation involved replacement of the ascending aorta with preservation of the aortic valve, which was dissected and then resuspended inside a straight Dacron prosthetic tube. The prosthesis was fixed to the aortic annulus using large U-shaped stitches on pledget. The coronary arteries were then re-implanted into the tube using two 5/0 prolene hemi-stitches. The extracorporeal circulation time was min and the clamping time minutes. A haemorrhagic syndrome with pre-buffering occurred after the operation, prompting repeat surgery 24 hours after the initial operation. Surgical exploration did not reveal any active bleeding. A decaillotage was therefore performed. The outcome was favourable and the drains were removed 48 hours later.

Discussion

Annuloectasiante disease is a group of diseases with a similar phenotypic expression combining aneurysm of the aortic root and dilatation of the aortic annulus. Its incidence is estimated at 4.5 cases per 100,000 [2-4]. It is the 13th leading cause of death in Western countries [2,3].

Our patient was 60 years old and male. This is consistent with the series by Tirone [4], who also noted a male predominance and a mean age of 64 plus or minus 11 years. Aneurysms of the ascending aorta are divided into two distinct entities according to aetiology and surgical management: aortic aneurysms are degenerative aneurysms. The most common histological lesion

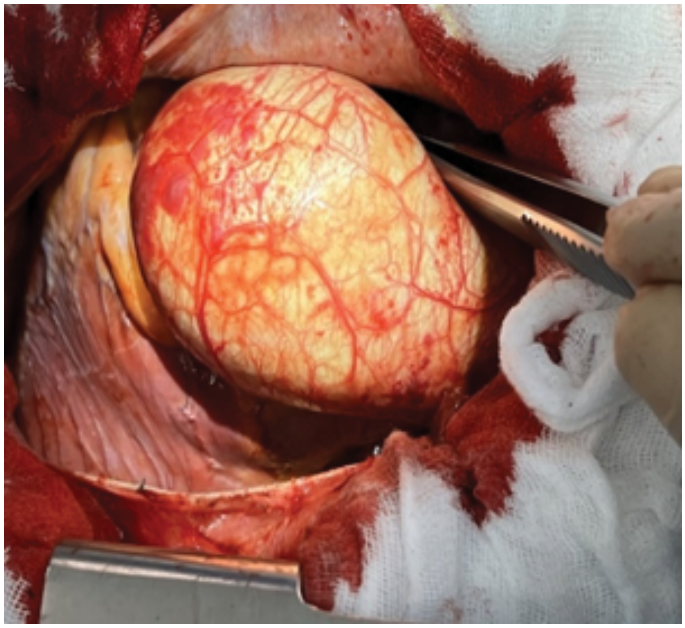

Figure 5. *(upper intraoperative view): Dilation of the ascending aorta*

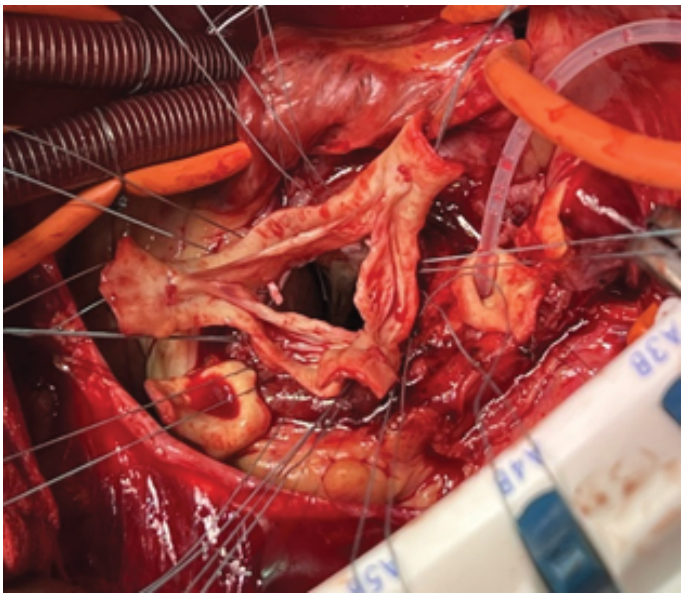

Figure 6. *(upper intraoperative view): Root and coronal dissection and isolation*

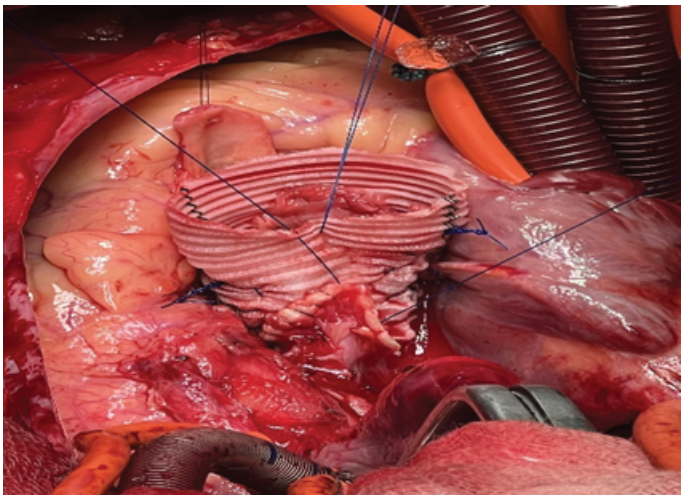

Figure 7. *(intraoperative lateral view): Coronary reimplantation on the Dacron tube*

is media-cystic necrosis. It combines, in the media, a loss of smooth muscle cells, fragmentation and reduction of elastic fibres and finally the accumulation of a basophilic amorphous substance giving the pseudocystic appearance. Aortic root aneurysms (annuloectasitic aortic diseases) may be idiopathic or associated with connective tissue diseases such as Marfan syndrome, Ehler-Danlos syndrome or valvular bicuspidies [2,3,5].

20% of patients with Marfan syndrome undergo surgery for aortic root aneurysms [5,6]. There is a 10-fold association between aortic valve bicuspidism and aortic dissection [2,3,5,6].

Aneurysms of the ascending aorta grow at an average rate of 1-4 mm per year. This rate is greater for bicuspid valves or for Marfan's syndrome.

The incidence of dissection or rupture of an aneurysm increases with its size [5-8]. Laplace's law indicates that as the diameter of the aneurysm increases, so does the tension on the wall, leading to dilation of the aorta.

The risk of aortic aneurysms is aortic dissection or rupture, especially when their diameter exceeds 50 mm.

The surgical strategy is to intervene before the complications of this aneurysmal dilatation appear. While the size of the aneurysm is the main factor to be taken into account when deciding whether to operate, other factors, such as the underlying aetiology, the patient's age, associated aortic insufficiency, the rate of growth of the aneurysm and whether the aortic valve is bi- or tricuspid, must also be taken into account.

Conclusion

The Tirone David procedure is a feasible technique in our context of a developing country and can provide satisfactory results both for aortic ectasia and for AI control. It spares patients from lifelong anticoagulation, given the high cost of

biological valves. Its indications depend more on the state of the sigmoid than on the severity of the regurgitation. It is particularly feasible in ascending aortic aneurysms without valve damage.

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