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HIV-Related Aneurysm of the Aortic Root in a Patient Outside Africa: A Case Report

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ABSTRACT

We report a patient infected with human immunodeficiency virus (HIV) with an aneurysm of the aortic root. No definitive histopathological diagnosis was entertained in this case. Based on the existing literature, we discuss a potential causative relationship between HIV and aortic aneurysm.

INTRODUCTION

The incidence of aneurysms of the thoracic aorta has been calculated at 5.9/100,000 person-years; the median age at presentation is 65 years for male patients and 77 years for female patients [Bickerstaff 1982]. Risk factors for aortic aneurysm are hypertension, congenitally bicuspid and unicuspid aortic valves, Marfan syndrome, atherosclerosis, and the use of tobacco products. [Joyce 1964, Murdoch 1972, Pressler 1980, Bickerstaff 1982, Pressler 1985]. The treatment of choice for aortic aneurysm is surgical repair.

In Africa, HIV infection has been sporadically associated with vasculitic aneurysms of the elastic arteries, including a single aneurysm from the thoracic aorta in a 27-year-old African woman [Chetty 2000, Chetty 2001]. Vasculitis occurring in the course of HIV infection is protean in clinical presentation and histological findings [Gisselbrecht 1998, Chetty 2001]. There have been no reports outside Africa of HIV-related aneurysms of the ascending aorta.

CASE REPORT

A 59-year-old white man presented with acute cardiac failure. He was HIV-positive and undergoing remission therapy. He was not being treated with any other medications. Retrospective review of medical records and literature were done. The patient consented to having his case history published. He volunteered history of treponemal infection and denied use of tobacco products, was normotensive, and appeared otherwise healthy. There was no family history of cardiovascular disease. The patient did not have features associated with Marfan's syndrome. Lipid screen was normal. An echocardiography revealed left ventricular dilatation, aortic stenosis, and an aneurysm of the ascending aorta. Computed tomography scan and magnetic resonance imaging confirmed the aortic pathology. He was referred to us for surgery. Protease inhibitor therapy was continued until the morning of the operation.

During the operation, we took standard universal precautions for exposure-prone procedures: staff access was restricted in the operating suite, use of sharps was minimized, and protective clothing, including masks with visors, was worn.

Following left groin incision and simultaneous median sternotomy, femoroatrial cardiopulmonary bypass was instituted. Myocardial and cerebral protection was pursued with systemic hypothermia to 22°C, aortic cross-clamping, topical ice cooling, and direct cold crystalloid cardioplegia. We found a tri-leaflet calcified stenotic aortic valve and a large fusiform aneurysm of the ascending aorta. The intraoperative impression was that of a syphilitic process ("luetic-type").

The aortic root was replaced with a 29-mm composite Dacron graft with direct coronary re-implantation (standard Bentall's procedure [Singh 1972]). There was no untoward exposure incident and the patient made a rapid recovery.

A left inguinal incisional hematoma was treated conservatively and the patient was discharged on the fifth postoperative day.

The patient resumed remission therapy on the second postoperative day. He receives lifelong warfarinisation with a target INR of 2.5 to 3.0.

Histopathology excluded treponemal and degenerative pathology: atheromatous changes were very mild indeed, in keeping with findings in patients of comparable age and race. The special elastic stain showed normal elastin pattern in the ascending aorta.

He was well on clinical and echocardiographic follow-ups at 3 months.

DISCUSSION

We present a 59-year-old patient with a fusiform aneurysm of the ascending aorta being operated on with a standard method. We note the absence of classic risk factors, apart from syphilitic infection and the relatively young age at presentation.

Interestingly, although history and perioperative findings suggested syphilis as the cause, histopathological examination

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did not support this explanation. No other definitive pathological process was confirmed.

Large-vessel aneurysms with "nonspecific" pathology have been reported in young African adults with untreated HIV [Chetty 2000]. No similar pathology has been reported outside Africa. We propose that the same HIV-related nonspecific mechanism [Gisselbrecht 1998] may have been responsible for the aneurysm of the ascending aorta in our patient.

Validation of this hypothesis with future case studies may prove to be of some clinical interest. We feel it is worth noting the possibility of further referrals of similar nature.

We also note that high-exposure surgery has once again been performed in an HIV-positive individual and that, in addition, any potential concern for the short-term effects of the extra-corporeal circulation into the levels of antiviral medication was not justified in this isolated case study.

REFERENCES

Bickerstaff LK, Pairolero PC, Hollier LH, et al. 1982. Thoracic aortic aneurysms: a population-based study. Surgery 92:1103-8.

Chetty R, Batitang S, Nair R. 2000. Large artery vasculopathy in HIV-positive patients: another vasculitic enigma. Hum Pathol 31:374-9.

Chetty R. 2001.Vasculitides associated with HIV infection. J Clin Pathol 54:275-8.

Gisselbrecht M, Cohen P, Lortholary O, et al. 1998. Human immunodeficiency virus-related vasculitis. Clinical presentation of and therapeutic approach to eight cases. Ann Med Interne (Paris) 149:398-405.

Joyce JW, Fairburn JF, Kincaid OW, et al. 1964. Aneurysm of the thoracic aorta. A clinical study with a special reference to prognosis. Circulation 29:176-81.

Murdoch JL, Walker BA, Halpern BL, et al. 1972. Life expectancy and cause of death in the Marfan Syndrome. N Engl J Med 286:804-8.

Pressler V, McNamara JJ. 1980. Thoracic aortic aneurysm. Natural history and treatment. J Thorac Cardiovasc Surg 79:489-98.

Pressler V, McNamara JJ. 1985. Aneurysm of the thoracic aorta. Review of 260 cases. J Thorac Cardiovasc Surg 89:50-4.

Singh MP, Bentall HH. 1972. Complete replacement of the ascending aorta and the aortic valve for the treatment of aortic aneurysm. J Thorac Cardiovasc Surg 63:218-25.