

## Syphilitic Aneurysm Revisited

KHALID E. AL-EBRAHIM, FRCS(C)

*Department of Cardiovascular Surgery, Faculty of Medicine & Allied Sciences,  
King Abdulaziz University, Jeddah, Saudi Arabia*

**ABSTRACT.** A very rare disease entity of what thought to be eradicated in most parts of the world is described in this paper with review of the literature.

**Keywords:** Syphilitic aneurysm, Cardiopulmonary bypass.

### Case Report

A 42 year old indian male was referred to our cardiac unit with the possibility of a dissecting aortic aneurysm in a Marfan patient. He was complaining of increasing shortness of breath over the previous last week. No history of chest pain or other symptoms. He also denied any previous diseases or hospital admissions. He was about 170cm height and 60kg body weight . He had no obvious features of Marfan disease. His vital signs were stable. The pulse was collapsing and palpable all over. Blood pressure was 130/150 mmHg. His jugular venous pressure was not elevated. There was no hepatomegaly or pedal edema. Chest examination showed shifted apical beat to the sixth intercostal space at the anterior axillary line, early diastolic murmur and bilateral basal crepitation. The electrocardiogram showed left ventricular dilation with strain pattern. Chest roentgenograph revealed large ascending aortic aneurysm, cardiomegaly and pulmonary edema. His blood work was within normal values apart from slight elevation of both urea and creatinine. Echocardiography confirmed the presence of a huge ascending aortic aneurysm about 8 cm in maximal horizontal diameter and severe aortic regurgitation with left ventricular dilatation and dysfunction. Cardiac catheterisation showed the previous findings and absence of coronary disease or cephalad displacement of the coronary ostia. There was no signs of aortic dissection. The patient was taken to the operating room. Median sternotomy incision explored a huge as-

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Correspondence & reprint requests to: Dr. K. Al-Ebrahim, Department of Cardiovascular Surgery, Alhada Armed Forces Hospital. P.O. Box 1347, Taif, Saudi Arabia. Accepted for publication after revision June 4 1997. Received December 10th 1996.

ending aortic aneurysm extending up to the innominate artery and measuring about 8 cm in diameter. There was also severe aortic regurgitation and biventricular enlargement. Size 25 dacron tube was selected and preclotted for preparation. Cardiopulmonary bypass was established using femoral artery cannulation and right atrial two-stage cannula. The patient was cooled to 28°C. The aorta was cross-clamped as high as possible, just proximal to the innominate artery. The aneurysm was opened longitudinally and blood cardioplegia was given through both coronary ostia. The aneurysm wall was thick and fibrous. Specimens were sent for histology and microbiology examinations. Aortic valve replacement was done using size 27 St Jude mechanical valve. The distal end of the aneurysm was trimmed and the cuff was sutured to the dacron tube. The anastomosis was checked for haemostasis by releasing the aortic cross clamp. Another shot of cardioplegia was given and the proximal end of the aorta was sutured to the dacron tube using a similar stitch. There was no cephalad displacement of the coronary arteries. Following filling of the heart with blood and the de-airing procedures, the aortic clamp was removed. Both anastomotic lines were haemostatic. The patient was rewarmed and the heart resumed beating after single defibrillation of 20 joules. The aortic wall was wrapped around the dacron tube. The patient was weaned-off cardiopulmonary bypass successfully on minimal doses of inotropes. He was extubated the following day. Histopathology revealed syphilitic aortic aneurysm with medial elastic fragmentation and inflammatory infiltrates composed of plasma cells and lymphocytes surrounding the vasa vasora in the media and the adventitia. Microscopic dissection was also noted. The patient's VDRL was negative while the PRP was weakly positive(1:16). He was discharged home on warfarin and penicillin to be followed by the infectious diseases specialist.

### Discussion

Syphilis and its complications are very rare diseases nowadays especially in our Islamic countries and after the introduction of antibiotics. The general public awareness and education also contributed to its almost disappearance except in some parts of Africa and Asia in uneducated, crowded and low socioeconomic classes. Tertiary syphilis is characterised by two forms; the localized gummata and the diffuse inflammatory lesions. The gummatous reactions are usually composed of large areas of necrosis surrounded by lymphocytes, plasma cells and proliferating fibroblasts. It usually affects the liver, subcutaneous tissues and bones. The second form of tertiary syphilis is the diffuse inflammatory lesions affecting primarily the cardiovascular and the nervous systems. Neurological diseases include general paralysis of the insane and tabes dorsalis. The ascending aorta and the arch are the most common part of the cardiovascular system usually affected with tertiary syphilis. This may be because of its rich content of the usually infected vasa vasora. The abdominal aorta, the subclavian and the popliteal arteries are rarely involved<sup>[1-3]</sup>. The pathophysiology of the ascending aortic aneurysm formation is explained by the histopathology. The spirochetes, *Treponema Pallidum*, in the vasa vasora cause inflammatory reaction containing plasma cells and lymphocytes in the adventitia and the media. This will result in elastic tissue destruction and medial

weakening resulting in dilatation and aneurysm formation of the ascending aorta<sup>[4]</sup>. This dilatation may extend down to the aortic sinuses and the annulus and end up in aortic regurgitation<sup>[5]</sup>. The spirochetes also stimulate fibroblasts and cause fibrosis in some parts of the media. Coronary ostia may get involved and become narrowed and thus causing myocardial ischemia and composite grafts may be needed for repair<sup>[6]</sup>. Surprisingly, our case showed early microscopic signs of dissection with separation of the intima from the media. Rupture in to the pericardium, the bronchus or the esophagus are the main fatal complications of these aneurysms<sup>[2,7]</sup>. Although this form of syphilis is less infectious than the previous two forms, the primary and the secondary syphilis, it should be treated with the appropriate antibiotics.

Fulton *et al*<sup>[8]</sup> reported syphilis aneurysm eroding the sternum. A recent study on sexually transmitted diseases in domestic expatriate workers (DEWs) in Jeddah in which 1648 DEWs were screened for treponemal infection, HIV and hepatitis B virus between April 1987 and November 1994 showed that the relative frequencies for syphilis and HIV were 23.8% and 19%, respectively<sup>[9]</sup>. Dot-Immuno Gold Filtration Assay (DIG-FA) as a screening test for syphilis is the most recent test for the rapid detection of the reaginic antibody in the serum of syphilitic patients<sup>[10]</sup>. In conclusion, syphilitic aortic aneurysm is very rare and physicians and surgeons should be made aware of its existence and should be prepared to face it every now and then.

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## تمدد الأوعية الدموية الناتج عن الإصابة بمرض الزهري

خالد البراهيم

قسم جراحة القلب والأوعية الدموية

كلية الطب والعلوم الطبية ، جامعة الملك عبد العزيز

جدة - المملكة العربية السعودية

المستخلص . يعتبر هذا المرض من الأمراض التي قد تم استئصالها من غالبية بقاع العالم . تستعرض هذه الورقة حالة لهذا المرض مع مراجعة الأبحاث المنشورة في هذا المجال .