Syphilitic aortitis: The bigger picture

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In this issue of *The Journal of Cardiovascular and Thoracic Surgery*, Isbir and colleagues¹ report on the successful repair of a contained rupture of a syphilitic ascending aneurysm that had fistulized into the lung.¹ The patient subsequently had tertiary syphilis diagnosed and, after repair, received an appropriate and curative course of antibiotics. We are all interested in the surgical details of a repaired ruptured aneurysm, but it is especially important for cardiothoracic surgeons to keep syphilis in the differential diagnosis, because the long-term sequelae of an unrecognized case of this resurgent disease can have profound epidemiologic impact.

In 2015, the Centers for Disease Control and Prevention reported 74,702 new cases of syphilis in the United States. This was nearly double the reported incidence of human immunodeficiency virus infection during the same year. The

overall number of cases has increased during the last 6 years in all regions of the United States and is not limited to urban populations (Figure 1).² The infection arises from exposure to the bacterium *Treponema pallidum*, and untreated it can

The incidence of syphilis is increasing across all regions of the United States.²

Central Message

Syphilitic aortitis commonly leads to ascending aortic aneurysms. Complications such as rupture or fistula formation are common. Successful surgery and postoperative antibiotics can be curative.

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FIGURE 1. Centers for Disease Control and Prevention graph of primary and secondary syphilis rates of reported cases by region in the United States, 2006 to 2015.²

lead to serious health sequelae, including neurologic, ocular, cardiovascular, and congenital syphilis. Tertiary syphilis, as seen in this case report, can appear 10 to 30 years after the infection was acquired. The diagnosis can be made by nontreponemal testing (Venereal Disease Research Laboratory rapid plasma reagent), but this is fairly nonspecific, and treponemal antibody testing (as in this case) is often required to confirm the diagnosis.³ Syphilitic aneurysms have a 2-year mortality greater than 80% when left untreated. Most of the deaths are attributable to aortic rupture or fistulization into adjacent structures, because the obliterative endarteritis of the vasa vasorum infection leads to an intense inflammatory reaction that creates these complicated situations.⁴

In one of the larger reviews on syphilitic aneurysms, Roberts and colleagues⁵ found that the mean age at presentation was 66 years, but the range of ages presenting with aneurysm in their series was 33 to 84 years of age. There was no gender bias, but 78% of those specimens examined came from Caucasians. There was a fusiform aneurysm of the ascending aorta in all 23 cases, 52% had arch involvement, and 43% had descending aortic disease. The abdominal aorta was not involved. Fewer than one-quarter had a saccular component on top of the fusiform aneurysm, and very few had positive nontreponemal serologic results at the time of presentation. All cases of syphilitic aortic

involvement were confirmed after surgery by either antibody testing or pathology.

The treatment for syphilis is quite effective and dependent on the stage of disease at presentation. As Isbir and colleagues¹ note in their case report, patients with a diagnosis of tertiary syphilitic aortitis will require 21 days of therapy with benzathine penicillin after surgery. Lifelong surveillance of the remainder of the aorta is required because of the high incidence of downstream aortic involvement. Although we are surgeons, the diagnosis begins with us. Increased awareness can make a significant positive contribution to the successful treatment of this concerning and growing epidemiologic scourge.

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