CASE REPORT

Anatomy Journal of Africa. 2020. Vol 9 (2): 1831 - 1834.

A RARE SACCULAR ANEURYSM IN CADAVERIC AORTIC ARCH: A CASE REPORT

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ABSTRACT

Aneurysm is the swelling like enlargement present in the walls of the blood vessels. Saccular aneurysm is a rare entity when compared to fusiform aneurysm. Saccular aneurysm in the aortic arch is another rare location. We present a cadaveric case of a 55-year-old male cadaver in which saccular aneurysm was observed during routine dissection teaching for undergraduate students. The lesion was resected and sent for microscopic analysis. The lesion involved the vessel wall only. There were blood clots evident. This report presents the cadaveric presentation and histolopathological findings of the lesion.
Key words: Aneurysm, saccular aneurysm, aortic arch

CASE REPORT

During routine dissection of a male cadaver 55 years of age, a lesion was observed in the wall of the arch of the aorta. It was seen at the root of the left subclavian artery. The lesion was confined to the wall of the vessel not involving the surrounding structures, there was covering of connective tissue around the lesion. The saccular outgrowth of the wall was observed in the arch of the aorta. The left recurrent laryngeal nerve was observed laterally. Pericardial attachment was observed covering the swelling in the vessel wall. The lesion measured 4.5cm across transversely and 5.5cm vertically (figure 1). The swelling was not mobile attached to the vessel wall firmly. A transverse section was made across the root of the swelling to display whether it was involving the lumen. The swelling was seen involving the vessel wall only. There were blood clots evident within the swelling. The section was sent for histopathology. Histopathological section revealed presence of blood clot. The width of tunica intima was reduced. The tunica media was thicker with more abundant collagen fibers. Hyalinization of tunica media was evident. The elastic fibers within the tunica media were fibrosed. Tunica adventitia appeared normal and intact. The histopathological finding revealed the lesion to be a saccular aneurysm (Figure 3). The undergraduate students were allowed to measure the width of the arch of aorta from other normal cadaveric specimens and they were allowed to compare with the width of the saccular aneurysm specimen.

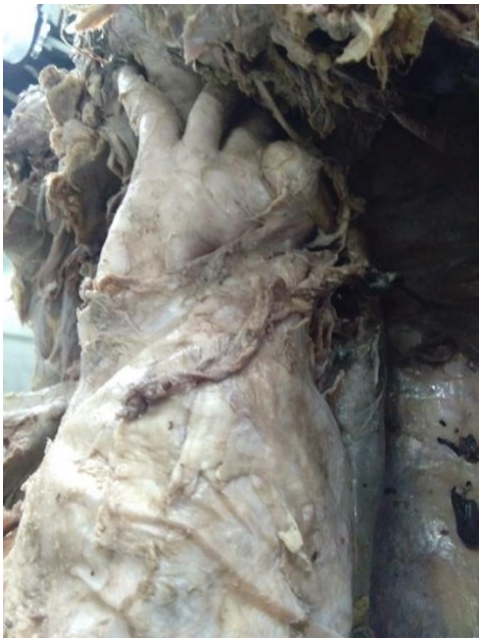

Figure 1: The saccular aneurysm at root of left subclavian artery

Figure 2: The saccular aneurysm with covering of pericardium

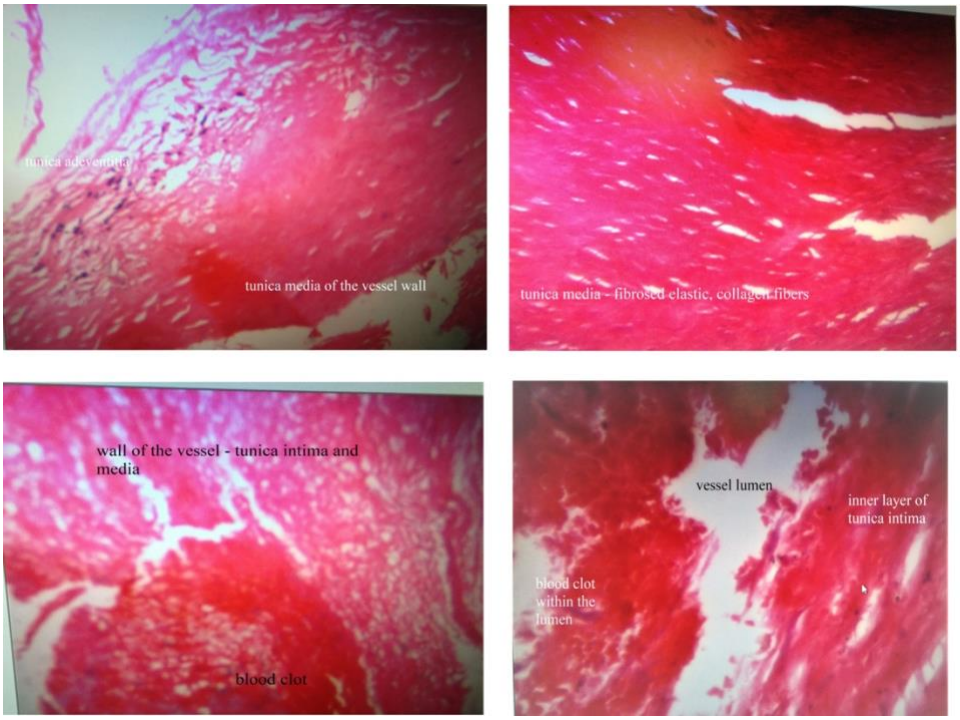

Figure 3: Image showing fibrous changes in tunica intima, tunica media and tunica adventitia

DISCUSSION

Thoracic aortic aneurysms are called "the silent killer" because of the rate of morbidity and mortality they produce. Thoracic aortic aneurysms are relatively uncommon with an incidence of 10.4 per 100 000, occurring mostly in older individuals of either sex (Abraha et al., 2009). The patients with an aortic aneurysm may have multiple lesions or aortic aneurismal lesions involving other regions of the aorta (Crawford and Saleh, 1981; Crawford and Snyder, 1983; Stanley et al., 1986). The disease is frequently multicentric with other aortic segments being involved in over 25% of cases (Crawford and Snyder, 1983).The rupture rate is between 80% and 95% (Pressler and McNamara, 1984; Bickerstaff et al., 1982; Van Beek et al., 2014) which may be reducible if the genetic basis of aortic disease could be better understood, as reviewed by Hasham et al (2002). Aortic aneurysms, whether abdominal or thoracic, generally occur due to a combination of weakening of the artery wall along with increased intravascular pressure. Abdominal aortic aneurysms (AAAs) are more common in occurrence than thoracic aortic aneurysms (TAAs) because the abdominal aortic wall is thinner and less capable of resisting strain than the thoracic aortic wall (Johansson et al., 1995). The aneurysms remain without symptoms and rupture becoming fatal. A key risk factor is cigarette smoking. From a molecular perspective, three processes are involved in the development of Aortic Aneurysm: proteolysis, inflammation, and smooth muscle cell (SMC) apoptosis. Although some symptoms can be linked to AAA, most aneurysms are totally asymptomatic until rupture, which leads to death in 65% of patients (patients who die outside the hospital plus preoperative mortality). The strongest predictor of aneurysm rupture is the diameter (Van Beek et al., 2014; Sakalihasan et al., 2005). It is observed commonly in male when compared to female in the 4th, 5th and 6th decade of life (Cheung et al., 2017). When reported in females, the symptoms become worse than in males. Sex difference in the symptoms need to be studied faster growth of the aortic aneurysms can lead to acute thoracic syndromes. Previous medical history of hypertension, obesity, dyslipedemia and smoking are predisposing factors. The lesion was covered by a layer of pericardium. A section was taken with the arterial wall and aneurysm to compare the histological features. Tunica intima and media was thickened and fibrosed the muscle fibers were hyalinised. Tunica adventitia remains normal. The medial degeneration, loss of nuclei with elastic degeneration is the features of aneurysm. The pathologic condition in these patients was grossly and microscopically the same as that previously described as myxoid or myxomatous degeneration, cystic medial necrosis and Marfan's disease of the aorta. While aneurysms due to abnormalities of the aortic media are better known in the ascending aorta and aortic root (Stanley et al., 1984). The most common reasons of death could be myocardial infarction or rupture of aneurysm. Scientific reporting of these lesions will help to improve the knowledge of the medical students and clinicians.

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