

Abdominal Aortic Aneurysm: A Case Report in Western Maharashtra, India.

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ABSTRACT

An arterial aneurysm is defined as a permanent localized dilatation of the vessel at least 150% compared to a relative normal adjacent diameter of that artery. Abdominal aortic aneurysm (AAA) is defined as localized enlargement of the abdominal aorta such that the diameter is greater than 3 cm. AAA is potentially life-threatening finding. AAA may be detected incidentally or at the time of rupture. We reported a case of fusiform type of abdominal aortic aneurysm in a donated cadaver which was found during the routine dissection of a 76-year-old male died of acute myocardial infarction in western Maharashtra. The dimensions were measured by using both manual and verniers caliper method. The dimensions were 7 cm in length, 3.5cm in width, 11 cm in circumference, unruptured and positioned below the renal arteries, just above the aortic bifurcation. Owing to the vital role of aorta in the abdomen, we believe that the knowledge of this vascular pathology will be enlightening the field of medicine.

Keywords: aneurysm, Aorta, Cadaver, Dissection

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INTRODUCTION

An aortic aneurysm is a permanent localized dilatation of the vessel at least 150% compared to a relative normal adjacent diameter of that artery. The most common and serious aneurysms occur in aorta (Hiratzka et al. 2010). The abdominal aortic aneurysm (AAA) has been referred to as the most common potentially life-threatening condition. About 85% occur below the kidneys with the rest either at the level of or above the kidneys (Kc 2014). Tobacco use, increasing age, male sex, family history and

hypertension are the major risk factors for abdominal aortic aneurysm (Ps, Dg, and C 1993). Abdominal aortic aneurysm rupture occurs in 1-3% of men aged 65 or more, the mortality is 70-95% (Js et al. 2005). There were several cases of abdominal aortic aneurysms in clinical studies but very few were discussed cadaveric aortic aneurysm. The present report we describe a 76-year male cadaver presenting unruptured abdominal fusiform aortic aneurysm below the level of renal arteries in the abdomen.

METHODS AND CASE REPORT

During routine dissections for the medical undergraduates at Armed Forces Medical College, Pune, Maharashtra, In a 76 year old male of a donated cadaver we have found fusiform dilatation of abdominal aorta between the origin of renal arteries and

bifurcation of abdominal aorta. The cause of death was checked from the records and it was due to myocardial infarction. We confirmed the dilatation as aneurysm of abdominal aorta and it was fusiform in shape, shifted towards the left side, it was

distal to the origin of inferior mesenteric artery and extends upto the bifurcation of common iliac arteries. The dimensions were measured by using both manual and verniers caliper method. The dimensions were 7 cm in length, 3.5cm in width, 11 cm in circumference, unruptured and very closer to the inferior venacava [Figure 1 & 2]. The lumen of the aneurysm segment of aorta showed plenty of intraluminal thrombi after opening the arterial wall. The termination or bifurcation of abdominal aorta is at normal level and the branches arising from the abdominal aorta normal was noted.

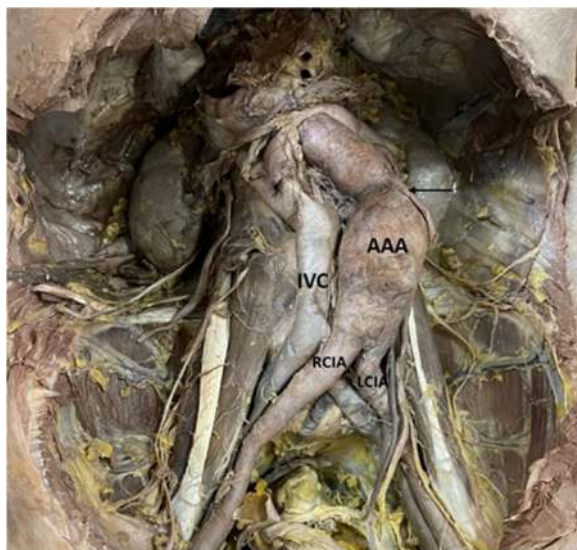


Fig 1: Abdominal aortic aneurysm below the renal vessels and above the level of bifurcation of aorta

(AAA: abdominal aortic aneurysm; IVC; inferior vena cava; Arrow: Inferior mesenteric artery, RCIA: Right common iliac artery, LCIA: Left common iliac artery)



Fig 2. Measurements of abdominal aortic aneurysm below the renal vessels and above the level of bifurcation of aorta (AAA: abdominal aortic aneurysm; IVC; inferior vena cava; Arrow: Inferior mesenteric artery, RCIA: Right common iliac artery, LCIA: Left common iliac artery)

DISCUSSION

The abundance of “silent” abdominal aortic aneurysms presented in the literature emphasizes the importance of considering ominous causes of back pain when forming a differential diagnosis. The pathogenesis of AAA has been frequently associated with atherosclerosis (Lf, Jr, and Ap 1986a). Atherosclerosis is characterized by thickening and loss of elasticity of the arterial walls and formation of atheromas. Atheromas containing cholesterol, lipid material and lipophages are formed within the intima and inner media of a large and

medium sized artery. The risk factors like smoking, sedentary life style, obesity playing the role in the formation of atheromas. Hypertension is considered to be a predisposing factor to AAA (Boline PD et al., 1989). Infection (syphilitic and mycotic), inflammation, trauma, auto-immune disease, cystic medial necrosis, Marfan’s syndrome, genetic predisposition and hemodynamic mechanical factors have also been implicated in the pathogenesis of AAA (Cb 1993a). AAA’s are most often found between the renal arteries and the iliac bifurcation (Lf, Jr,

and Ap 1986b). The most common location of AAA's is at the bifurcation of the aorta into the common iliac arteries. Occasionally, the ascending arch and descending thoracic aorta are affected (La 2001). AAA commonly occurs in adults 60 years of age or older and has been reported to be four times more frequent in males (Stites J et al. 1989). In the present study, the aneurysm was found between renal arteries and the aortic bifurcation. Abdominal aortic Aneurysm associated with intra cardiac thrombus, internal bleeding due to rupture, and vascular variations in the previous literatures. In the present case we found plenty of intraluminal thrombi after opening the arterial wall. Many AAAs will present only as low back pain of insidious onset prior to rupture. Clinical signs of potential rupture include pain, a pulsatile mass in the abdomen and hypotension. This presentation may be considered as a surgical emergency. Adjacent structures may be affected by aneurysms resulting in their respective symptomatology including: compression of ureters, erosion of the anterior vertebral bodies, occlusion of blood supply to the spinal cord, rupture into the peritoneal cavity, and emboli (Boline PD et al. 1989). In the present case no such pressure effects were found during dissection. Aneurysms measuring greater than 5 cm tend to

continue growing and to rupture. At 6 cm there is a 25% chance of death due to rupture in one year and more than 50% chance of rupture in 5 years. At measures greater than 6 cm the chance of death due to rupture is 50% within the first year. The risk of rupture within 2 years is 75%, and within 5 years is 90% (Aggarwal et al. 2011). In the present case the aneurysm was measuring 6 cm in length, 4 cm in diameter and 11 cm in circumference and was found unruptured. Clinically, the most common catastrophe resulting from AAA is acute aortic dissection. Aortic dissection occurs 50% more often than rupture of aortic aneurysms (Cavalcanti et al. 2020). Abdominal aneurysms are usually repaired surgically via prosthetic grafts (Stites J et al. 1989). While surgical intervention has been reported to be an effective treatment, as many as 62% of patients with ruptured aneurysms die prior to reaching a hospital (Cb 1993b). It is advised that the healthy lifestyle, as well as a low-fat diet, a regular exercise and an abstinence from smoking can help prevent or slow down the course of atherosclerosis, a predisposing factor in the development of aneurysms. Hypertension should be carefully controlled to prevent aneurysm formation and its catastrophic consequences.

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