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CT Angiography Contribution in Diagnosis of Multisegmental Aortic Aneurysms: A Case Report

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Abstract **Case Report**

We report a case of multisegmental aortic saccularform aneurysms diagnosed at the radiology department of university center hospital mother-child Luxemburg in Bamako (Mali) with review of the literature. The aim was to clarify the contribution of CT angiography in his diagnosis. The aneurysm of the aorta is a permanent and local dilatation of the aortic diameter (≥ 50% of the normal value) with a loss of parallelism of its edges. It was a 38-year-old man. He comed from a rural area with poor socio-economic conditions. He was a farmer and a fisherman. He had been received for abdominalpelvic pain radiating to the back. The beginning of the disease would go back to a year. He had a history of smoking. The physical examination had a general deterioration of the condition, a conjunctival pallor, a temperature at 37.8 ° C, blood pressure at 140/90 mmHg, a systolic murmur associated with a pulsatile abdominal mass. Biological assessment showed microcytic anemia, thrombocytosis and elevated CRP. An abdominopelvic ultrasound showed abdominal aortic dilatations. CT angiography of the thoracoabdominal aorta confirmed multifocal saccular dilatation from the descending thoracic aorta to the primary iliac arteries. Staged saccular multiple aortic aneurysms are rare. CT angiography remains the gold standard for diagnosis.

Keywords: Multisegmental, saccularform, aneurysms, CT angiography.

INTRODUCTION

The aorta is the largest artery of the body. This is the main axis of blood distribution. It can be prone to several pathologies including the aneurysm [1].

The aneurysm of the aorta is a permanent and localized dilatation of the aortic diameter (≥ 50% of the normal value) with a loss of the parallelism of its edges, in the shape of bag (Saccularform) or spindle (fusiform) [1]. This dilatation frequently affects the thoracic aorta but also concerns the abdominal aorta or both simultaneously [2].

Although they are slightly less common than abdominal aortic aneurysms, thoracic aortic aneurysms have an incidence of 6/100 000 per year and a risk of rupture ranging from 50% to 75%. Very often both stages are associated with inflammatory or mycotic aneurysms [3].

The discovery may be incidental during abdominal ultrasound coupled with color doppler or other signs of call such as abdominal and / or lumbar pain.

The CT angiography remains the reference examination for diagnosis. We report a case of aortic saccularform aneurysms in a young man in order to specify the contribution of CT angiography.

OBSERVATION

It was a 38-year-old man. He came from a rural area with poor socio-economic conditions. He was a farmer and a fisherman. He had been received for alteration of the general condition and abdominal-pelvic pain radiating to the back. The beginning of the disease would go back to a year. He had a history of smoking.

The physical examination had a general deterioration of the condition, a conjunctival pallor, a temperature at 37.8° C, blood pressure at 140/90

mmHg, a systolic murmur associated with a pulsatile abdominal mass. The rest of the physical examination was unremarkable.

The following biological assessment was performed. Fasting blood glucose, serum creatinine and transaminases were normal. HIV serology, VDRL serology, and tuberculin IDR were negative. The blood count showed microcytic anemia with hemoglobin at 8.8g and thrombocytosis with a platelet count of 499,000/mm3. The hematocrit level was 27.6%. Widal serology and thick drop were Negative. CRP was elevated to 48 mg / l. The lipid profile was normal.

Electrocardiographic (ECG) scanning and cardiac ultrasound were normal. An abdominopelvic ultrasound showed dilatations of the abdominal aorta. CT angiography of the thoracoabdominal aorta revealed multifocal saccular dilatations ranging in size from 10 mm to 69 mm in diameter. They started from the descending thoracic aorta to the primary iliac arteries. It is associated with aneurysmal involvement of the celiac trunk (Figs 1 and 2). Renal arteries were spared. There was no thickening or calcification of the aortic wall.

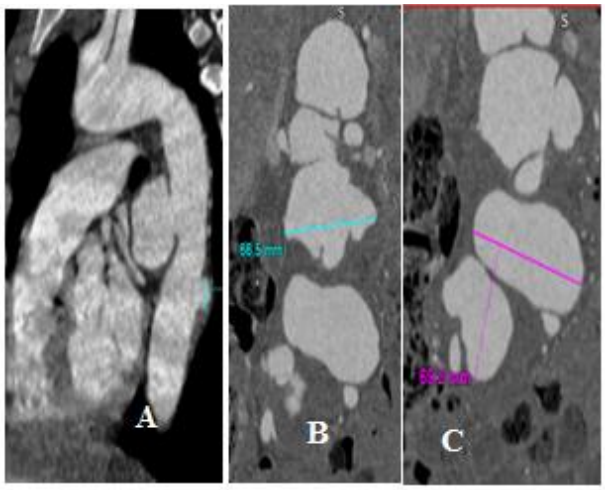

Fig-1: Multisegmental aortic saccularform aneurysms. CT angiography of the thoracoabdominal aorta. Sagittal thoracic reconstruction of MIP showing two aneurysms of the descending aorta (A) and coronal bony window at the abdominal level (B, C)

Fig-2: Multisegmental aortic saccularform aneurysms. CT angiography of the thoracoabdominal aorta. 3D reconstructions in right side view (A) and in front view (B) showant multi-stage aortic aneurysms up to primary iliac arteries

Given the appearance of computed tomography images, we have retained the diagnosis of multiple saccularform aneurysms of the thoracoabdominal aorta extended to the primary iliac arteries.

DISCUSSION

The aneurysm of the aorta is a permanent and localized dilatation of the aortic diameter (≥ 50% of the normal value) with a loss of parallelism of its edges, in the form of bag (saccular form) or spindle (fusiform) [1].

Although they are slightly less common than abdominal aortic aneurysms, thoracic aortic aneurysms have an incidence of 6/100 000 per year and a risk of rupture ranging from 50% to 75%. Very often both stages are associated with inflammatory or mycotic aneurysms [3].

There are two main anatomical forms

True aneurysms: the arterial wall is distended but it constitutes the wall of the aneurysm. Depending on its appearance, these aneurysms may be saccular-form or fusiform.

False aneurysms: it is the organization of a pocket formed by extravasation of blood, located next to and around the artery which feeds it; the wall is fibroconjontive and neoformed [4]. In our patient they were true saccular-form aneurysms.

Aneurysms can be single or multiple. Their main location is the infrarenal abdominal aorta but all segments of the aorta can be affected [4]. We found multiple thoracoabdominal aneurysms in our patient.

CT angiography with 3D reconstruction is the exam of choice in the exploration of this pathology. It allows to better appreciate the size of the aneurysm, to identify the transition zone between the collar of the aneurysm and healthy zone, to specify the extension towards the iliac vessels and to study the relations with the organs of neighborhoods especially venous [5]. The case reported here had a thoracoabdominal involvement up to the arteries primary iliac arteries.

The aneurysm appears as a hypodense mass, contrasting with early arterial time [5, 6] as observed in our patient. Several etiologies are mentioned in the literature, including atheroma, infections, hereditary diseases of the arterial wall, vasculitis and traumatic [4, 7]. We could not determine the exact cause of the multiple aneurysms observed in this young patient. The biological assessment performed has not found any infectious cause. In his antecedents, we did not notice anything particular, especially no similar case in his family. Only he had a history of active smoking.

CONCLUSION

Staged saccular multiple aortic aneurysms are rare. CT angiography remains the gold standard for a positive diagnosis. The etiological diagnosis of these cases is a challenge for the radiologist.

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