

Bilateral Renal Artery Aneurysm: Clinical Case Report

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Abstract

Case Report

Introduction: Renal artery aneurysms are rare vascular anomalies and even more exceptional is they are located in both renal arteries in this case. The literature reports an approximate occurrence of 0.01 to 0.09 in the general population. Its appearance predominates in the female gender and the most common location is in the right renal artery. The peak age of occurrence is between 40 and 60 years. Its physiopathology is generally caused by inflammatory processes and muscular fibrodysplasias; however, when they are intraparenchymal, they are associated with congenital collagenopathies or polytraumatism. **Clinical case:** 74-year-old male patient with a personal history of Parkinson's disease, adrenocortical adenoma and diverticulosis. During the study of his basic pathology, a simple and contrast angiography of the abdomen was performed, after the verification of his renal function, which was within normal ranges (urea 44.4 mg/dl, creatinine 1.04 mg/dl). The presence of images suggestive of aneurysms in the left renal arteries was reported as an incidental finding, therefore he was referred to the Department of Angiology and Vascular Surgery. The clinical case was discussed by the medical staff of the Department of Angiology and Vascular Surgery, concluding that the rare bilateral renal artery aneurysm pathology does not meet criteria for open or endovascular surgery, therefore it is indicated to continue regular monitoring to determine possible growth and intervention in case of risk of rupture. **Conclusions:** With the development of imaging techniques, the incidental finding of renal artery aneurysm is going to be more and more frequent. The presence of symptoms is also fundamental in making decisions regarding the need for surgery. In asymptomatic patients, non-aggressive treatment is recommended; however, the clinical evaluation of each patient should be individualized.

Keywords: Aneurysm, renal artery, bilateral.

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INTRODUCTION

Renal artery aneurysms are rare vascular anomalies and even more exceptional is they are located in both renal arteries in this case. The literature reports an approximate occurrence of 0.01 to 0.09 in the general population. Its appearance predominates in the female gender and the most common location is in the right renal artery. The peak age of occurrence is between 40 and 60 years. Its physiopathology is generally caused by inflammatory processes and muscular fibrodysplasias; however, when they are intraparenchymal, they are associated with congenital collagenopathies or polytraumatism. [1, 2].

Herein, we present a case report of a male patient with incidental finding of aneurysms in both renal arteries, asymptomatic.

CLINICAL CASE

74-year-old male patient with a personal history of Parkinson's disease, adrenocortical adenoma and diverticulosis. His surgical history includes zygomatic arch surgery 20 years ago and appendectomy 10 years ago. The patient does not report any allergies. The habits he reports are social drinking and smoking.

The patient is admitted to the hospital with symptoms of lower gastrointestinal bleeding. During the study of his basic pathology, a simple and contrast angiography of the abdomen was performed, after the

verification of his renal function, which was within normal ranges (urea 44.4 mg/dl, creatinine 1.04 mg/dl). The presence of images suggestive of aneurysms in the left renal arteries was reported as an incidental finding, therefore he was referred to the Department of Angiology and Vascular Surgery.

In the assessment performed by the Department of Angiology and Vascular Surgery, the patient does not report any symptoms. Physical examination without evidence of arterial or venous pathology. Simple and contrast angiography of the abdomen is analyzed, where the presence of aneurysmal calcification in both renal arteries is verified.

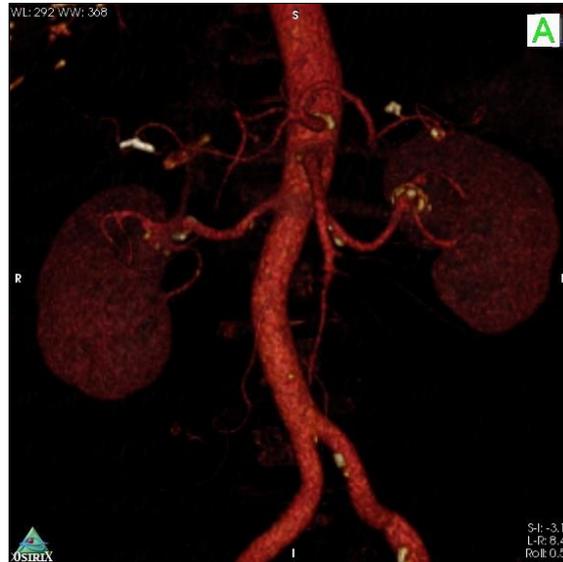


Figure 1: 3D reconstruction showing images with aneurysmal calcification in both renal arteries.

On the right side there is a saccular aneurysm, classified according to its location as Type II (in the renal hilum) measuring 1.10 cm x 1.12 cm, while on the left

side there is a saccular aneurysm, classified according to its location as Type II (in the renal hilum) measuring 1.31 cm x 1.19 cm.

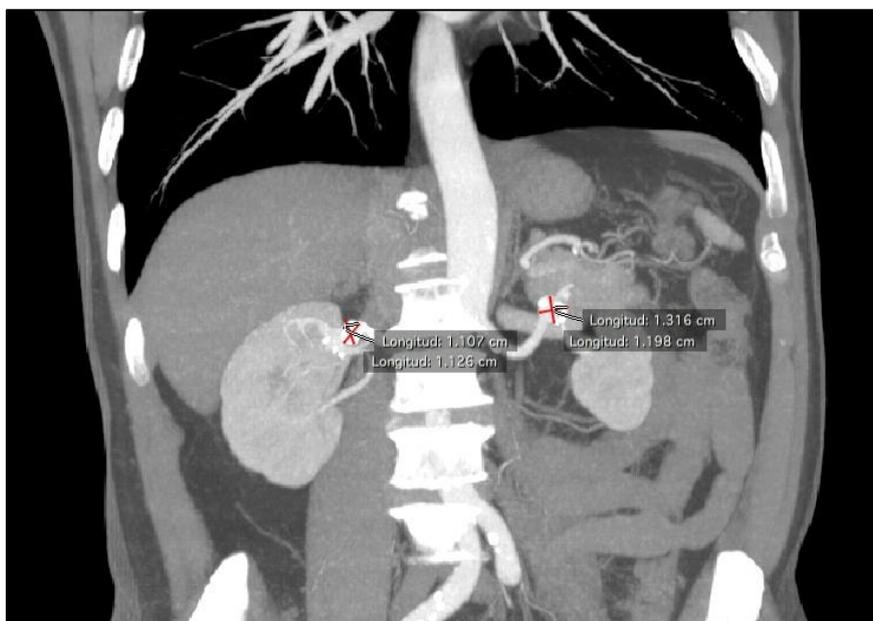


Figure 2: Images of extraparenchymal renal artery aneurysms predominantly on the left side (Classification according to its location: TYPE II)

The clinical case was discussed by the medical staff of the Department of Angiology and Vascular Surgery, concluding that the rare bilateral renal artery aneurysm pathology does not meet criteria for open or

endovascular surgery, therefore it is indicated to continue regular monitoring to determine possible growth and intervention in case of risk of rupture.

DISCUSSION

Renal artery aneurysms are rare vascular anomalies and even more exceptional is they are located in both renal arteries in this case. The literature reports an approximate occurrence of 0.01 to 0.09 in the general population. Its appearance predominates in the female gender and the most common location is in the right renal artery. The peak age of occurrence is between 40 and 60 years. Its physiopathology is generally caused by inflammatory processes and muscular fibrodysplasias; however, when they are intraparenchymal, they are associated with congenital collagenopathies or polytraumatism. [1, 2].

The most important complication is its rupture according to several authors with a risk of up to 3%, with an overall mortality of less than 10%. It increases

exponentially in pregnant women, especially in the third trimester of gestation due to hormonal and physiological mechanisms of pregnancy, raising the risk of mortality up to 70% [1]. Some studies suggest that their natural history may be benign, especially in asymptomatic aneurysms regardless of their size [3].

The most frequent symptoms are the presence of flank pain, hematuria and renovascular hypertension, the association with hypertensive disease is common due to an unknown mechanism. Some hypotheses attribute the distal embolization and turbulence in the renal flow as possible causes [1, 2].

The classification is made according to their location, type I are located in the main renal artery, type II in the region of the renal hilum after the bifurcation of the renal artery and type III are intraparenchymal [4].

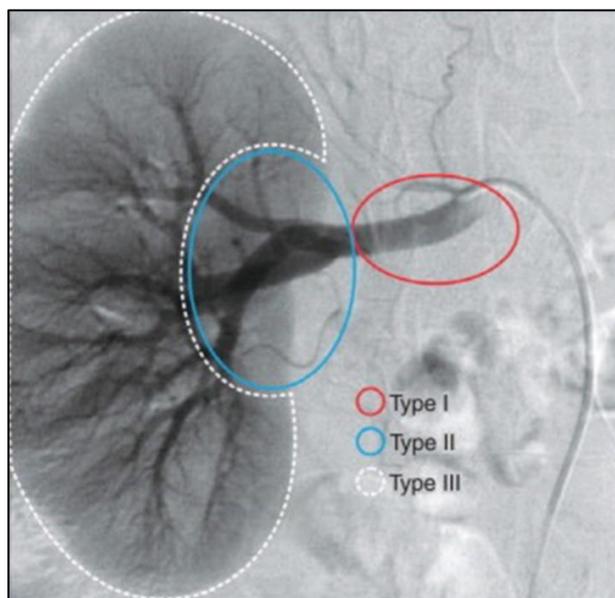


Figure 3: Classification according to their location: TYPE I: main renal artery, TYPE II: renal hilum, TYPE III: intraparenchymal [4]

Regarding diagnosis, most renal artery aneurysms are incidental findings. The Gold standard for evaluation is contrast CT scan followed by magnetic resonance imaging. In the event of calcifications, they can even be observed by conventional radiography [1-6].

Currently, there is consensus that determines when a renal artery aneurysm should be treated with surgery, however, the treatment of asymptomatic aneurysms is controversial due to its benign natural history and low annual growth rate. For these reasons, surgery is not recommended in asymptomatic aneurysms less than 2 cm in diameter [2-7].

In case they are symptomatic, the surgical indications are the following: diameter greater than 3 cm without complications and with acceptable surgical risk; emergency intervention regardless of size, with

symptoms or if there is a risk of rupture; in patients of childbearing age with aneurysms, without complications with a diameter that can be less than 3 cm and in patients with medically refractory hypertension plus renal artery stenosis with a diameter that can be less than 3 cm [1].

Currently, endovascular surgery has allowed the effective treatment of high-risk surgical patients with complex aneurysms. The approaches used are stent placement or angioembolization, both of them are safe options. Short operating time, shorter stay in the intensive care unit and less blood loss are advantages of endovascular techniques. Its most frequent complication is renal infarction [1-6].

In cases of unfavorable anatomy and association with arterial hypertension, open surgery is considered as the first option; this has better results in

permeability and long-term survival [1-7]. Both options prevent aneurysm rupture and, according to the literature, cure or improve hypertension in half of the cases [8].

CONCLUSIONS

With the development of imaging techniques, the incidental finding of renal artery aneurysm is going to be more and more frequent. The presence of symptoms is also fundamental in making decisions regarding the need for surgery. In asymptomatic patients, non-aggressive treatment is recommended; however, the clinical evaluation of each patient should be individualized. If surgery is required, the surgeon's experience and the availability of supplies will determine the most appropriate technique.

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