



Different Surgical Approach to Saccular Renal Artery Aneurysm: Case Report

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Abstract

Renal artery aneurysms are rare and are often detected incidentally in examinations for different purposes. Fifty-six-year-old female patient, intraarterial digital subtracting saccular in 25 mm × 20 mm originating from the renal artery angiography revealed the presence of an aneurysm. Midline aneurysm was excised by laparotomy. Saphena 2 cm × 2 cm patch and 6.0 prolene form over and over was implanted with sewing technique. Cross-clamp time was 13 minutes. Successful surgical correction is possible with almost complete intervention. The repair technique was safe with patchplasty. We believe that a successful alternative surgical option of saphenous patchplasty technique.

Keywords: Artery; Aneurysm; Surgery; Saphena; Patchplasty

Introduction

Renal artery aneurysms are rare balloons that appear incidentally in the arterial wall, which are rarely seen in studies to make it complicated. Prevalence is reported between 0 and 1% for different studies [1]. Renal artery is defined as an aneurysm when the diameter of the renal artery segment is greater than 50% of its normal diameter. Renal artery aneurysm may occur with symptoms related to hypertension, pain, hematuria and parenchymal renal infarction. Although the prognosis of patients with asymptomatic disease is better, the risk of rupture and fistula increases with increasing diameter. In this study, we aimed to discuss treatment approaches by reviewing successful surgical repair of renal artery aneurysm and renal artery aneurysm in a 56-year-old woman who was diagnosed with hypertension.

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Case Presentation

A 56-year-old female patient was referred to our center for surgical treatment after detection of hypertension etiology and a 25 mm × 20 mm anastomosis originating from the right renal artery was detected in the abdominal ultrasonography and renal angiography. There was no feature in the story. Laboratory examinations included full blood count, biochemistry, and urinalysis. Abdominopelvic ultrasonography revealed a 23 mm × 17 mm × 14 mm hypoechoic lesion in the right renal hilus posterior to the renal vein. In examining color renal doppler; Right kidney long axis was 96 mm, left kidney 96 mm, parenchymal thicknesses were calculated as 13 mm on the right and 14 mm on the left.

Both renal parenchyma echoes were naturally detected. Anechoic cystic structure with peripheral calcification of approximately 23 mm × 17 mm was observed in the right renal sinus at the middle kidney. Doppler is in review; It was observed that there was current in the cognitive structure. The findings were thought to be compatible with segmental renal artery aneurysm. Flows from both renal arteries had Early Systolic Peak (ESP). The index of renal intrarenal arterial Resistivity (RI) was 0.58 on the right and 0.61 on the left. The main renal artery velocities were within normal limits at the exit site of the aorta. Intraarterial Digital Subtracting Angiography (DSA) revealed a 25 mm × 20 mm size aneurysm originating from the renal artery (Figure 1). Surgical treatment decision was made because of the symptomatic nature of the patient and the size of the lesion.

Median laparotomy was performed under general anesthesia, and transperitoneal approach was reached in the right renal hilus and surgical dissection was performed. The right aneurysmatic segment originating from the right renal artery was uncovered and suspended proximal and distal (Figure 2). A 2 cm long safen ven graft was prepared at the same time in the right lower extremity.



Figure 1: Digital subtraction angiography view of the patient.



Figure 2: Intraoperative view of the aneurysm.

Separated from the middle, the patch was made. Vascular clamps were placed 3 minutes after intravenous administration of 5000 iu conventional heparin. The kidney was topically cooled with ice water. The aneurysm was excised. Safen 2 cm × 2 cm patch graft 6.0 was implanted with over-and-over stitch technique (Figure 3). Clamp was removed after air removal. The cross-clamp time was calculated as 13 minutes. After the bleeding control, one abdominal drain was placed and closed according to the anatomy of the folds and the operation was terminated. One day, intensive care follow-up was performed and discharged on postoperative day 5. Follow-up and treatment are continuing smoothly at the third month of follow-up.

Discussion

Renal artery aneurysms constitute 22% of visceral aneurysms [2]. The prevalence in the general population is reported to be 0,1%-1% [1]. Anatomically classified as saccular, fusiform, dissectaneous and mixed, 70%, 22.5% and 12% of cases with subacute, fusiform and dissecting aneurysms generally, the age of detection is 46 ± 18 years, men and women are equally affected and the aneurysm is most commonly located in the main renal artery.

Men and women are equally affected and the aneurysm is most commonly located in the main renal artery. It most commonly occurs due to fibromuscular dysplasia and atherosclerosis [3].

There are no pathognomonic symptoms and signs associated with renal artery aneurysm. The most common finding in symptomatic patients is hypertension (30%), flank pain (11%) and headache due to hypertension (11%) as well as asymptomatic patients [2].

It is suggested that hypertension is due to renal ischemia (microinfarcts originating from distal embolization, folding or compression of the renal artery) [4]. Abdominal murmur may be helpful in diagnosis and may be detected in about 10% of patients." 5. Hematuria may be microscopic or macroscopic. In fact, the murmur was not detected in this case, which was obese, and hematuria was not detected.



Figure 3: Intraoperative aneurysmal safen patchplasty repair image.

Etheiology is responsible for atreosclerosis, fibrodysplastic diseases. Secondary renal artery aneurysm; [3,4]. In our present case, the present findings (female patient, lack of significant hypertension, renal (renal), hypertension, hypertension, hypertension, diabetic retinopathy, Arterial appearance, location of the aneurysm) was not considered fibrodysplasia, but atherosclerosis was considered as the underlying etiology.

The definitive diagnosis is to show the lesion by angiography. Peripheral dissection, thrombosis, renal infarction, hemorrhage, and rupture are potential complications of renal artery aneurysms [5]. We believe that hypertensive cases should be investigated by doppler ultrasonography for renal artery disease.

Presence of hypertension, diameter greater than 2 cm, increase in pregnancy and progressive diameter increase rupture risk 2. There is no consensus on the indications for surgery in publications related to aneurysm size. Researchers who reported that operations should be performed on lesions larger than 1-1.5 cm or 2.5 cm. However, the risk of rupture in aneurysms smaller than 1 cm in diameter is low and operation is not recommended [2,5].

In addition, there are opinions that asymptomatic cases can be seen conservatively regardless of the aneurysm size1. Surgical indications for symptomatic and/or diameter of the aneurysm as >2 cm, renal infarct and/or uncontrolled hypertension, or accompanying pregnancy and growth aneurysms should be treated as surgical indications 3,6. Surgical treatment indications are the most controversial diameter of the aneurysm. Some studies report rupture of aneurysms of diameter less than 2 cm, but other studies have indicated that surgical treatment is not required for aneurysms of this diameter [2] other major surgical indications for aneurysm rupture and surrounding tissue erosion are [1,4,5].

Resection and primary repair for repair, end-to-end anastomosis, ven graft, arterial aortic reimplantation, synthetic graft and splenorenal anastomosis are surgical methods. In this study, aneurysm resection and patchplasty with vena safena magna were performed. We believe that it is possible to complete the shorter cross-clamping process with Safen patchplasty repair technique. It also has the advantages of autogenous grafts, lower thrombogenic activity, less bleeding problems and more economic benefits. We believe that closure of the primaries in the cases may be helpful in avoiding the risk of stenosis of the renal artery, the increase in blood flow velocity and the risk of progressive renal parenchyma damage and hypertension.

We also believe that topical hypothermia can reduce renal

parenchyma damage and provide good protection against possible prolonged cross-clamp times.

Although surgical repair is usually preferred, percutaneous interventional methods have been reported to be successful [5-7]. In cases of high risk for operation, percutaneous treatment options include balloon coiling or onyx embolization, stent coiling with stents, Embolization and alcohol injection into the aneurysm [3,5,6]". In our case, an aneurysm was located distal to the renal artery and branching zone, so endovascular intervention was not appropriate and surgical treatment was preferred. Collateral branches should not be obliterated in endovascular procedures.

References

1. Yadav S, Sharma S, Singh P, Nayak B. Pregnancy with a ruptured renal artery aneurysm: management concerns and endovascular management. *BMJ Case Rep.* 2015;2015.
2. Okamoto M, Hashimoto M, Sueda T, Munemori M, Yamada T. Renal artery aneurysm: the significance of abdominal bruit and use of color Doppler. *Intern Med.* 1992;31:1217-19.
3. Tan WA, Chough S, Saito J, Wholey MH, Eles G. Covered stent for renal artery aneurysm. *Catheter Cardiovasc Interv.* 2001;52:106-9.
4. Lumsden AB, Salam TA, Walton KG. Renal artery aneurysm: a report of 28 cases. *Cardiovasc Surg.* 1996;4:185-9.
5. Pershad A, Heuser R. Renal artery aneurysm; successful exclusion with a stent graft. *Catheter Cardiovasc Interv.* 2004;61:314-6.
6. Alsalehi S, Kocamaz Ö, Köksal C, Sunar H. Safen ven greftiyle sag aortorenal baypas. *Kosuyolu Kalp Dergisi.* 2012;15:87-9.
7. Usman R, Jamil M, Safdar A, Cheema FA. Successful Repair of a Pseudoaneurysm of Renal Allograft Artery. *J Coll Physicians Surg Pak.* 2015;25:142-4.