Giant renal artery aneurysm: A case report

Luca Cindolo [1], Manuela Ingrosso [2], Piergustavo De Francesco [2], Pietro Castellan [2], Francesco Berardinelli [1], Franco Fiore [3], Luigi Schips [1]

[1] Urology Dept, Robotic Unit, "S. Pio da Pietrelcina" Hospital, ASL Abruzzo 2, Italy;
[2] Clinica Urologica, "SS Annunziata" Hospital, ASL Abruzzo 2, Italy;
[3] Vascular Surgery, "SS Annunziata" Hospital, ASL Abruzzo 2, Italy.

DISCUSSION

RAA is a rare disease with an incidence of less than 1% worldwide (4). One of the largest series analyzing RAAs was by Henke et al. (5) where it was found that out of 168 patients (107 women, 61 men) there were 252 RAAs encountered over 35 years at the University of Michigan Hospital. They were solitary in 115 patients and multiple in 53 patients being bilateral in 32 cases. The majority of RAA are small and asymptomatic and require no treatment, while giant renal artery aneurysms (GRAA) often represent a dangerous condition for the patient. Disease associations could be hypertension, renal artery fibrodysplasia, systemic atherosclerosis, and extrarenal aneurysms. Other associations include vasculitis, congenital abnormalities, penetrating trauma or iatrogenic causes including biopsy or nephrostomy, infection, neurofibromatosis. Complications include rupture, thrombosis, embolization, hypertension, and arteriovenous fistula. In our case the patient presented hypertension under drug-treatment. The association with renovascular hypertension is unexplained and possible explanations include anatomic kinking of the renal artery, segmental renal parenchymal ischaemia, flow turbulence, or coexistent renal artery stenosis (4). Giant renal artery aneurysms are even rarer than the standard RAA with only a handful of case reports in the world literature offering explanations on management. Looking at the literature it seems as though that the giant renal artery aneurysms documented range in size from 5 to 12 cm (5-7). When the aneurism present these characteristics, a surgical approach is fundamental, if it's possible. The common indications for surgical repair are expanding aneurysm, intractable hypertension, hematuria, and as in our case the destruction of renal parenchyma. Although resection and repair of the aneurysm with preservation of the kidney is the preferred method of treatment, some cases, like this, require nephrectomy. Intact planned nephrectomy should be performed for complex disease which is not reconstructable or those with advanced parenchymal disease. Planned arterial reconstructions may be performed in those with reconstructable disease. Planned arterial reconstructions included aneurysmectomy with bypass grafting, aneurysmectomy with primary angioplasty, or segmental renal artery implantation (4). There is another therapeutic technique for GRAA's management: the transcatheter arterial embolization (TAE) and ablation. Moreover, the materials and agents of embolization have improved and the complications and recanalization have decreased. However, resection of AVM is preferable for the present case, rather than TAE, as the diameter and the position of the aneurysm. In addition, TAE needs a lot of coils, which is expensive. There has been only one case similar to ours (even if smaller) in the aneurysmal type of AVM in Japan (9). The previous case was successfully treated by TAE; however, the long-term follow up was not described and the prognosis or complications are unknown. Therefore, we thought to treat the patient securely and resected the AVM. We advocate an open approach for GRAAs, depending on the anatomic arrangement of the vessels and the location of the aneurysm. In this particular case, a safe approach is the transabdominal approach since the aneurysm was very large, friable, and located on the right side. Before the surgical approach, we posted our case in a discussion forum on the web at "*researchgate.net*", asking for some advice to colleagues from all over the world. From this discussion eventually two points of view emerged: the majority of colleagues agreed for nephrectomy; some proposed a laparoscopic approach, others an open approach. We chose open surgery in association with a vascular surgeon to ensure the best safety for the patient.

REFERENCES

4. Ozkan G, Ulusoy S, Dinc H, et al. Bilateral asymptomatic giant renal artery aneurysm. Hippokratia. 2011; 15:269-271.

5. Henke PK, Cardneau JD, Welling TH III, et al. Renal artery aneurysms: a 35-year clinical experience with 252 aneurysms in 168 patients. Annals of Surgery. 2001; 234:454-463.

6. Reese AH, McAllister MS, Toevs CC. Rupture of a giant renal artery aneurysm. American Surgeon. 2009; 75: 525-527.

7. Paruzel K Krakowczyk L, Olés B. Surgical treatment of a ruptured giant renal artery aneurysm—case report and literature review. Polski Przeglad Chirurgiczny. 2011; 83:343-346.

8. Gyedu A, Karakoyun R, Baltaci S, et al. Surgical repair of a giant renal artery aneurysm: a case report. European Journal of Vascular and Endovascular Surgery. 2008; 36:31-33.

9. Mishina M, Segawa T, Kakei Y et al. Transcatheter embolization of huge renal arteriovenous aneurysm. Acta Urol Jpn. 1991; 37: 273-7.

No conflict of interest declared.