Large Saccular Renal Artery Aneurysm Reduced with Stent-Assisted Coil Embolization

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PURPOSE

Renal artery aneurysms (RAAs) are rare with an incidence of about 0.1% and are associated with significant morbidity and mortality (1). RAAs, like other aneurysms, are due to weakening of the vessel wall which may lead to life-threatening rupture. RAAs have traditionally been treated surgically, although endovascular therapy may be offered in a subset of patients meeting anatomic criteria. Here, we report a case of a saccular wide-necked RAA successfully treated with stent-assisted coil embolization. Follow-up imaging 7 and 18 months after treatment showed complete thrombosis of the aneurysm.

MATERIALS & METHODS

A 66-year-old man on warfarin therapy for a mechanical aortic valve was found to have a 2.2 cm right renal artery aneurysm on a CT abdomen and pelvis study performed for gross hematuria **(Figure 1)**. The aneurysm arose from the distal right main renal artery at the hilum and extended beyond the bifurcation into the anterior and posterior divisions. The aneurysm was thought to be amenable to trans-catheter coiling, either with or without a retaining stent. Alternatives included referring the patient to our vascular center for open bench repair and re-implantation. However, the latter option was not recommended for a distal artery aneurysm measuring 2 cm or greater.

Figure 1. Body computed tomography angiography arterial phase demonstrating right-sided RAA.

Figure 2. Angiogram showing a large bi-lobed saccular aneurysm arising from the distal right main renal artery.

RESULTS

Selective angiography of the right renal artery, including cone beam CTA, confirmed a large bi-lobed saccular aneurysm **(Figure 2)**. Endovascular treatment required placement of two vascular stents (4.5 x 30 mm Neuroform Atlas and 4 x 39 mm Codman Enterprise) across the wide neck of the aneurysm. Using a microcatheter, placed in between the interstices of the stents, multiple Penumbra coils were deployed until the sac was completely packed. Completion angiography demonstrated successful embolization of the aneurysm without residual flow into the sac **(Figure 3)**. Additionally, the self-expanding stents across the neck of the aneurysm were widely patent with no evidence of thrombosis or dissection. All segmental and peripheral arteries of the right renal artery were patent with normal parenchymal perfusion. Follow-up CT abdomen and pelvis studies 7 and 18 months following treatment showed complete thrombosis of the aneurysm, adequate perfusion and no evidence of infarction **(Figure 4)**.

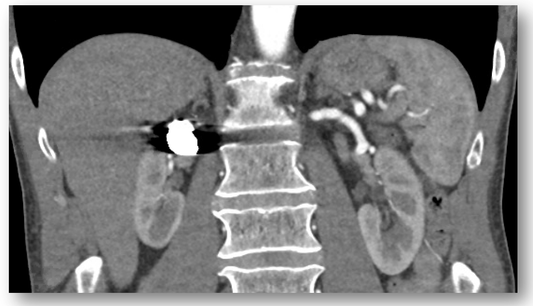

Figure 4. Follow-up body computed tomography angiography coronal view 18 months after treatment.

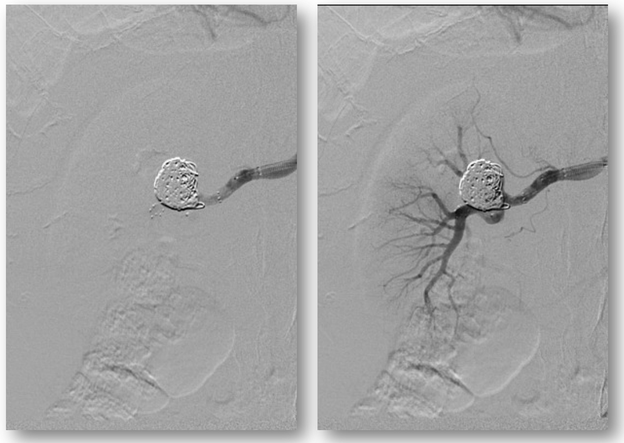

Figure 3. Angiogram showing successful coil embolization of the RAA with preserved flow across the stents and no residual flow into the aneurysm sac.

CONCLUSION

Stent-assisted coil embolization is a promising and feasible alternative method for treating large RAAs and thus should be offered to patients meeting the appropriate criteria.

REFERENCES

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