

## EMBOLISATION OF RENAL ANGIOMYOLIPOMA: CASE SERIES

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### Abstract

Renal angiomyolipomas (AML) are benign lesions usually left alone. However, lesions larger than 4 cm carry the risk of spontaneous haemorrhage and need treatment. Angiography and embolisation are the current standard of care particularly in patients with high operative risks. Angio-embolisation is a safe, minimally invasive procedure preserving maximum renal parenchyma, with the added advantage of preventing peri-procedural morbidity. Two cases of AML are presented in this case series.

**Key words:** Angiomyolipoma, embolisation, renal

### Introduction

Renal angiomyolipomas (AML) are benign lesions usually left alone. However, lesions larger than 4 cm carry the risk of spontaneous haemorrhage and need treatment. Angiography and embolisation are the current standard of care particularly in patients with high operative risks.<sup>[1-3]</sup> We share two cases of AML presenting with peri-tumoral haemorrhage treated with angiography and embolisation.

### Case Report

#### Case 1

A 59-year-old lady with multiple comorbidities (Diabetes, hypertension, prior history of cardiac valve surgery, CABG and pacemaker *in situ*) presented with left flank pain. Computed tomography showed a large left renal lower pole AML measuring 7 cm with a perirenal haematoma. After obtaining medical and cardiac fitness, antiplatelet and anticoagulant therapy was held to obtain normal coagulation status. Angiography demonstrated an ectatic aneurysmal segmental left renal artery supplying AML. Embolisation was performed using two vials of PVA particles (500–700  $\mu$ ) through a 4 Fr C2 catheter.

Post-procedure angiogram demonstrated preserved left renal parenchyma without any flow into the AML.

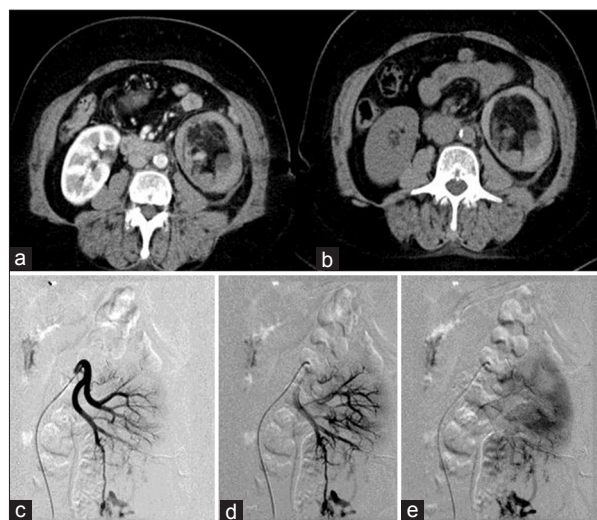
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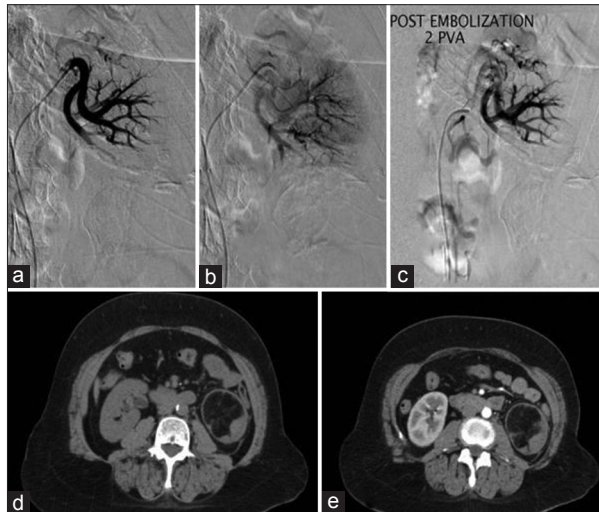
[Figure 1a-e] Patient had an uneventful recovery and anticoagulant therapy was reinstated the following day after the procedure [Figures 1 and 2a-e].

#### Case 2

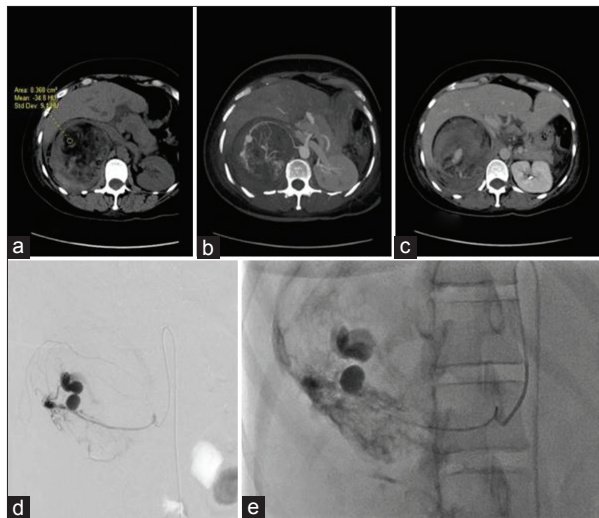
A 44-year-old lady with no comorbid presented with severe left flank pain followed by hypotension. She was



**Figure 1:** Unenhanced computed tomography (CT) (a) demonstrating fat containing lesion at the lower pole of the left kidney with surrounding high-density haemorrhage. Note the thickening of lateroconal fascia. Axial post-contrast CT (b) demonstrates the angiomyolipomas (AML) with haemorrhage and internal high-density aneurysmal vessels. Left renal branch angiogram (c-e) demonstrating abnormal tortuous branch supplying the AML

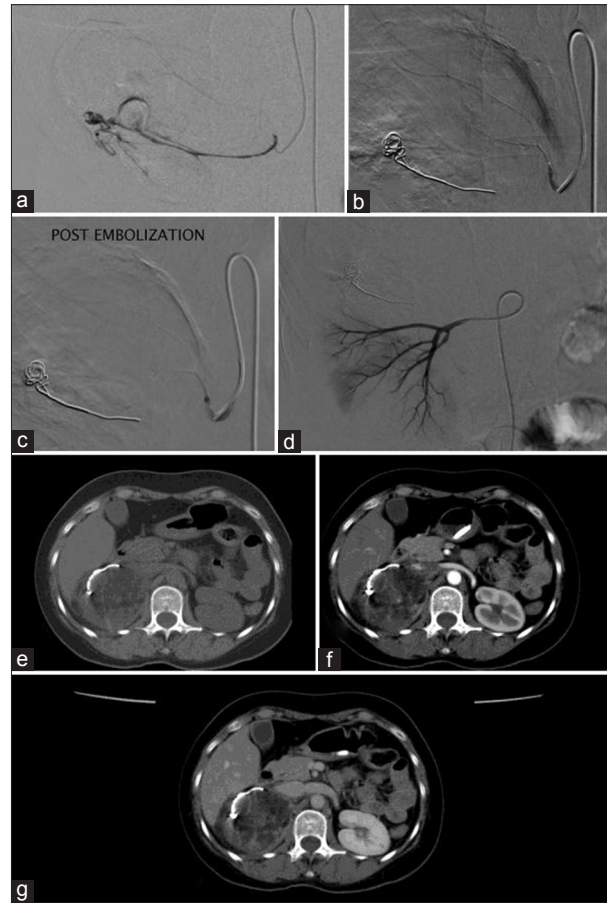


**Figure 2:** Post-embolisation selective angiogram of the upper branch of the left renal artery (a and b) and left renal angiogram (c) demonstrated complete devascularisation of the left lower pole. Follow-up computed tomography done after 6 weeks (d and e) redemonstrates the angiomyolipomas without any internal abnormal vessels



**Figure 3:** Unenhanced (a), MIP arterial phase (b) and venous phase computed tomography (c) demonstrate large right upper pole fat containing lesion with predominant supply from an accessory branch directly arising from aorta adjacent to the origin of SMA. Large intralésional aneurysms are also seen. Angiogram performed through SIM-2 catheter in the accessory branch from aorta (d) outlines the accessory vessel and intralésional aneurysms. Progreat microcatheter in the branch was used to embolise it with three vials of PVA (e)

resuscitated at an outside facility and workup showed a large right upper renal pole AML measuring 9 cm



**Figure 4:** Post PVA angiogram (a) demonstrates persistent flow in the aneurysmal vessels. Multiple coils (b) were used to achieve complete stasis (c). Selective right renal artery angiogram (d) demonstrates very tiny branches supplying the inferior aspect of the angiomyolipomas. These were too tiny to be selectively catheterised and embolisation of this branch would compromise right renal inter-polar region. It was decided to preserve renal tissue. Follow-up computed tomography including unenhanced (e), arterial (f) and venous phase (g) demonstrate interval decrease in lesion size without any abnormal vessels in the lesion

with large perirenal haematoma, small intraperitoneal haemorrhage and right pleural effusion. The AML was predominantly being supplied by a small branch arising directly from aorta adjacent to the superior mesenteric artery leading to multiple large aneurysmal dilatations within the AML [Figure 3a-e].

It was engaged with 5 Fr SIM-2 catheter and 2.7 Fr microcatheter was then used to embolise the AML using a combination of three vials of PVA particles and five coils of various sizes. Post-procedure angiogram demonstrated

near complete occlusion of the feeding artery [Figure 4a-g]. The patient had an uneventful recovery.

### Discussion

AMLs are benign mostly asymptomatic renal masses that are largely detected incidentally. Treatment is necessary for symptomatic patients or when the lesion size exceeds 4 cm.<sup>[4]</sup> The aim is to relieve symptoms and prevent haemorrhage, with the priority of preserving renal function. Treatment options include arterial embolisation or surgical excision. Angio-embolisation carries the advantage of being minimally invasive, preservation of renal function and rapid haemodynamic stabilisation in settings of acute intra/peri-lesional haemorrhage.<sup>[3,5]</sup> Optimal candidates for embolisation are tumours receiving blood supply by a single arterial branch. In tumours with complex vascular anatomy, embolisation of multiple branches is technically challenging with an increased risk of embolising adjoining normal renal parenchyma with potential functional compromise.<sup>[6,7,8]</sup>

### Conclusion

Embolisation of renal AML is a safe minimally invasive procedure preserving maximum renal parenchyma, with the added advantage of preventing peri-procedural morbidity. We recommend it as first-line treatment for all AML's requiring treatment.

### Conflict of Interest

The authors declare that they have no conflict of interest.

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