EMBOLIZATION OF RENAL ANGIOMYOLIPOMA: CASE SERIES

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Abstract:

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

Key words: Angiomyolipoma (AML), embolization, renal

Introduction:

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

CASE 1:

A 59 year lady with multiple co-morbidities (Diabetes, hypertension, prior history of cardiac valve surgery, CABG and pace maker in situ) presented with left flank pain. CT showed a large left renal lower pole AML measuring 7cm with perirenal hematoma. 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. Embolization was performed using 2 vials of PVA particles (500-700 micron) through a 4Fr C2 catheter. Post procedure angiogram demonstrated preserved left renal parenchyma without any flow into the AML. (Figure 1 A-E) Patient had uneventful recovery and anticoagulant therapy was re-instated the following day after procedure (Figure 1&2 A-E)

CASE 2:

A 44 year lady with no co-morbid presented with severe left flank pain followed by hypotension. She was resuscitated at an outside facility and work up showed a large right upper renal pole AML measuring 9cm with large perirenal hematoma, small intraperitoneal haemorrhage and right pleural effusion. The AML was predominantly being supplied by a small branch arising directly from aorta adjacent to superior mesenteric artery leading to multiple large aneurysmal dilatations within the AML (Figure 3 A-E).

It was engaged with 5Fr SIM-2 catheter and 2.7Fr microcatheter was then used to embolize the AML using a combination of 3 vials of PVA particles and 5 coils of various sizes. Post procedure angiogram demonstrated near complete occlusion of the feeding artery (Figure 4A-G). Patient had an uneventful recovery.
Figure 1: Unenhanced CT (A) demonstrating fat containing lesion at lower pole of left kidney with surrounding high density hemorrhage. Note the thickening of lateroconal fascia. Axial post contrast CT (B) remonstrates the AML with hemorrhage and internal high density aneurysmal vessels. Left renal branch angiogram (C-E) demonstrating abnormal tortuous branch supplying the AML.

Figure 2: Post embolization selective angiogram of upper branch of left renal artery (A & B) and left renal angiogram (C) demonstrate complete devascularization of left lower pole. Follow up CT done after 6 weeks (D & E) redemonstrates the AML without any internal abnormal vessels.

Figure 3: Unenhanced (A), MIP arterial phase(B) and venous phase CT(C) demonstrate large right upper pole fat containing lesion with predominant supply from an accessory branch directly arising from aorta adjacent to origin of SMA. Large intralional aneurysms are also seen. Angiogram performed via SIM-2 catheter in the accessory branch from aorta (D) outlines the accessory vessel and intralional aneurysms. Progreat microcatheter in the branch was used to embolize it with 3 vials of PVA (E).

Discussion:

Angiomyolipomas are benign mostly asymptomatic renal masses that are largely detected incidentally. Treatment is necessary in symptomatic patients or when the lesion size exceeds 4 cm (4). The aim is to relieve symptoms and prevent haemorrhage, with priority of preserving renal function. Treatment options include arterial embolization or surgical excision. Angio-embolization carries the advantage of being minimally invasive, preservation of renal function and rapid hemodynamic stabilization in settings of acute intra/peri-lesional haemorrhage (3,5). Optimal candidates for embolization are tumours receiving blood supply by a single arterial branch. In tumours with complex vascular anatomy, embolization of multiple branches is technically challenging with an increased risk of embolizing adjoining normal renal parenchyma with potential functional compromise. (7,8)
**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 AML. These were too tiny to be selectively catheterized and embolization of this branch would compromise right renal interpolar region. It was decided to preserve renal tissue. Follow up CT including unenhanced (E), arterial (F) and venous phase(G) demonstrate interval decrease in lesion size without any abnormal vessels in the lesion.

**Conclusion:**

Embolization 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.

**References:**


