Abstract:
Renal arteriovenous malformations (AVM) are abnormal communications between the intrarenal arterial and venous systems. Two types of congenital renal AVM are described. The cirsioid AVM is the most common type. The lesser type is the cavernous AVM. The initial therapy for treatment of AVM is angiographically guided embolization of the malformation. We present our experience with one such case. A 33 years old lady presented with complaints of right loin pain for 3 years which was dull aching and intermittent with radiation to the back. There were no other urological complaints. On examination, the patient was normotensive and had no signs of hyperdynamic circulation except a bruit that was heard over the right renal region. Urine analysis, haemogram and renal function tests were normal. Ultrasound KUB revealed normal sized kidneys with multiple anechoic, tortuous, tubular foci seen in right renal sinus and medulla with intense flow on colour doppler. CT angiogram revealed a 3.5x3.5x 3 cm well defined varicoid lesion in right renal hilum showing early filling of renal vein and vena cava. A segmental artery, probably arising from upper pole was feeding the lesion and a draining vein seen arising from the lesion into the renal vein. After discussing with intervention radiologists, she was planned for therapeutic angioembolization. Under LA, Seldingers technique, using RDC catheter, renal segmental artery of Right upper pole was catheterized, two stainless steel coils of 5 mm diameter were deployed. Since AVM requires more coils, alcohol injection of 2 ml was also injected into AVM. Check angiogram revealed near complete occlusion of the malformation. Post procedure status was uneventful. Patient is on regular follow up. Congenital AV malformations in kidney may be incidental finding when we evaluate a patient for other vague complaints but once it is diagnosed, immediate therapeutic angioembolisation must be done to prevent further complications.

INTRODUCTION:
Renal arteriovenous malformations (AVMS)
are abnormal communications between the intrarenal arterial and venous systems. Two types of congenital renal AVMS are described. The cirrhotic avm is the most common type. The lesser type is the cavernous avm. The initial therapy for treatment of AVM is angiographically guided embolization of the malformation. We present our experience with one such case.

CASE HISTORY:
A 33 years old lady complained of Rt. loin pain for 3 years which was dull aching and intermittent but no other urological complaints. Patient had undergone LSCS twice in 2007 and 2009 and no co-morbid illness found.

Clinical examination was normal. The vitals recorded were PR: 88/min, regular with normal volume and BP: 120/84 MM Hg. Abdomen examination was soft with no mass or free fluid. Renal angles were free. Bruit was heard in the region of Rt. kidney. External genitalia examination was normal.

The investigations were followed, urine routine was normal and urine culture was sterile. Haemoglobin was 10.2 g/dL and renal function tests were within normal limits. USG KUB showed normal sized kidneys with multiple, tortuous anechoic, tubular foci seen in renal sinus and medulla on the right side. Colour doppler was followed which showed intense flow and arterioalisation of the vein CECT revealed a vascular structure of dimensions 3.5 x 3.5 x 3 cm, well defined varicoid lesion in Rt. hilum and sinus abutting the upper pole. CT angiogram also showed early filling of renal vein and IVC, the segmental artery branch probably arising from upper pole feeding the lesion and draining vein seen arising from lesion into renal vein. The 3D reconstructed MIP images added valuable points about the volume of the vessel with better emphasis on the venous phase.

She was planned for therapeutic angio-embolisation after discussing with intervention radiologists. Seldinger’s technique was performed. Under local anaesthesia, RDC catheter was inserted into renal segmental artery of right upper pole. Two stainless steel coils of 5 mm diameter were deployed through the catheter. In addition, alcohol injection of 2 ml injected into AVM. Post procedure period was uneventful and follow up CT angiogram showed near resolution of the AVM. Patient is on regular follow up and asymptomatic.

DISCUSSION:
AVM is described as an entity with a knotted, tortuous appearance of numerous feeding vessels and multiple interconnecting fistulas. Two types are noted, cirrhotic AVM, the most common type and the less common cavernous AVM. AVM in kidney are rare with little more than 200 cases reported. 14–27% of AVM are congenital. 72% of cases present as haematuria due to their location in the calyceal or pelvic submucosa. Other presentations are hypertension (46-50%) and high output cardiac failure (5%). Other materials used for embolisation are autologous clots, gel foam, wool coils, detachable silicon balloons, pvp, absorbable gelatin sponge, etc. Alcohol denatures the proteins within the wall of the arteriovenous malformation (AVM), thereby inducing thrombosis and occlusion of the malformations.
Other treatments offered are ligation of feeding vessels in peripheral AVM, bench surgery with autotransplantation for large and centrally located lesions and partial or total nephrectomy if needed. Surgical intervention is usually reserved for those cases refractory to embolization or those associated with malignancy.

REFERENCES:

1) Renal arteriovenous malformation
   Author: Mark R Wakefield, MD; chief editor: Vincent Lopez Rowe, MD

2) Massive hematuria due to a congenital renal arteriovenous malformation mimicking a renal pelvis tumor: a case report


Stainless steel coil embolization

Post-embolization