Radiology Case Reports : Right supernumerary kidney

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Abstract :

A supernumerary kidney is an extremely rare congenital renal anomaly, defined by the presence of one or more extra kidneys. Only a few case reports of supernumerary kidenys have been reported.

Introduction :

Supernumerary kidney is a rare congenital anomaly in which an individual has an additional kidney, distinct from the normal pair of kidneys. This anomaly is often asymptomatic and is usually discovered incidentally during imaging studies for unrelated reasons. However, there can be complications such as urinary tract infections, calculi formation. We report a case of right supernumerary kidney with no other anomaly (1-2) (see Figs. 1-3)

Case summary :

A 52 years male came in the radiology department with abdominal pain. The ultrasound abdomen was suggestive of the right Supernumerary Kidney. She further underwent computed tomography with urography phase which was suggestive of Right Kidney measuring 90 × 42 mm with renal pelvis facing anteromedially with renal artery arising from anterolateral aspect of aorta at L2-L3 level. Another kidney 118 × 43 mm fused to upper native kidney having renal pelvis facing anterior with renal vessels arising from left common iliac artery. Both Kidneys having separate renal veins joining the inferior vena cava for the upper native kidney and the left common iliac vein for the lower kidney
Ureters of both kidneys were joined below the pelvicalyceal system of the supernumerary kidney.

Discussion :
Supernumerary kidney is a rare anomaly that occurs in approximately 0.25% of the population. It can be unilateral or bilateral and may be located in the pelvis, abdomen, or thorax. The embryological development of supernumerary kidney is not completely understood, but is believed to result of the abnormal division of nephrogenic cord into two metanephric blastemas with or without division of ureteric bud. The supernumerary kidney may have partially or completely duplicated ureters.
The supernumerary kidney may be associated with other anomalies such as ureteral atresia, vaginal atresia, horseshoe kidney, complete duplication of urethra and penis with an ectopic ureteral opening into the vagina or introitus, imperforate anus, ventricular septal defects, meningomyelocele, and coarctation of the aorta. (3) Our patient had no such associated congenital anomalies.
Individuals with supernumerary kidney are usually asymptomatic, and the condition is often discovered incidentally during imaging studies for unrelated reasons. In some cases, however, patients may present with flank pain, urinary tract infections, calculi formation, or renal

hypoplasia, which may require medical intervention. Imaging studies, such as ultrasound, CT scan, or MRI, are the main diagnostic tools for supernumerary kidney. Treatment is not usually necessary unless there are complications, in which case, if surgical intervention is planned, CT angiography or MR angiography is recommended to demonstrate the blood supply and the anatomical environment. (4)

Conclusion

In conclusion, supernumerary kidney is a rare congenital anomaly that is often asymptomatic and is usually discovered incidentally. While most cases do not require treatment, patients should be monitored for potential complications such as urinary tract infections or calculus formation. Further research is needed to better understand the embryological development and clinical implications of supernumerary kidney.

References

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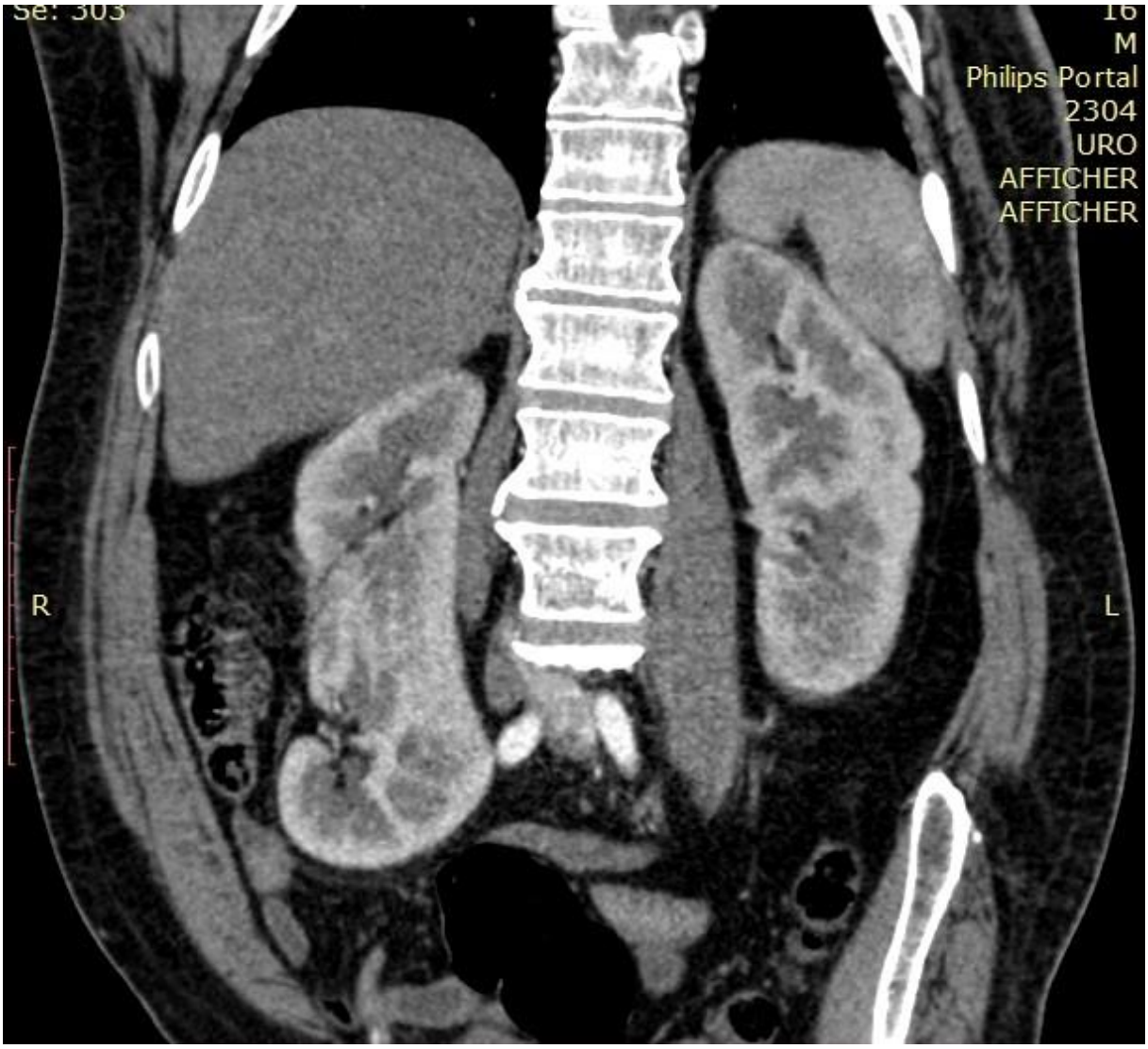

Fig 1. Coronal reconstruction of contrast enhanced CT shows Two Kidneys in right lumbar region with partial fusion.

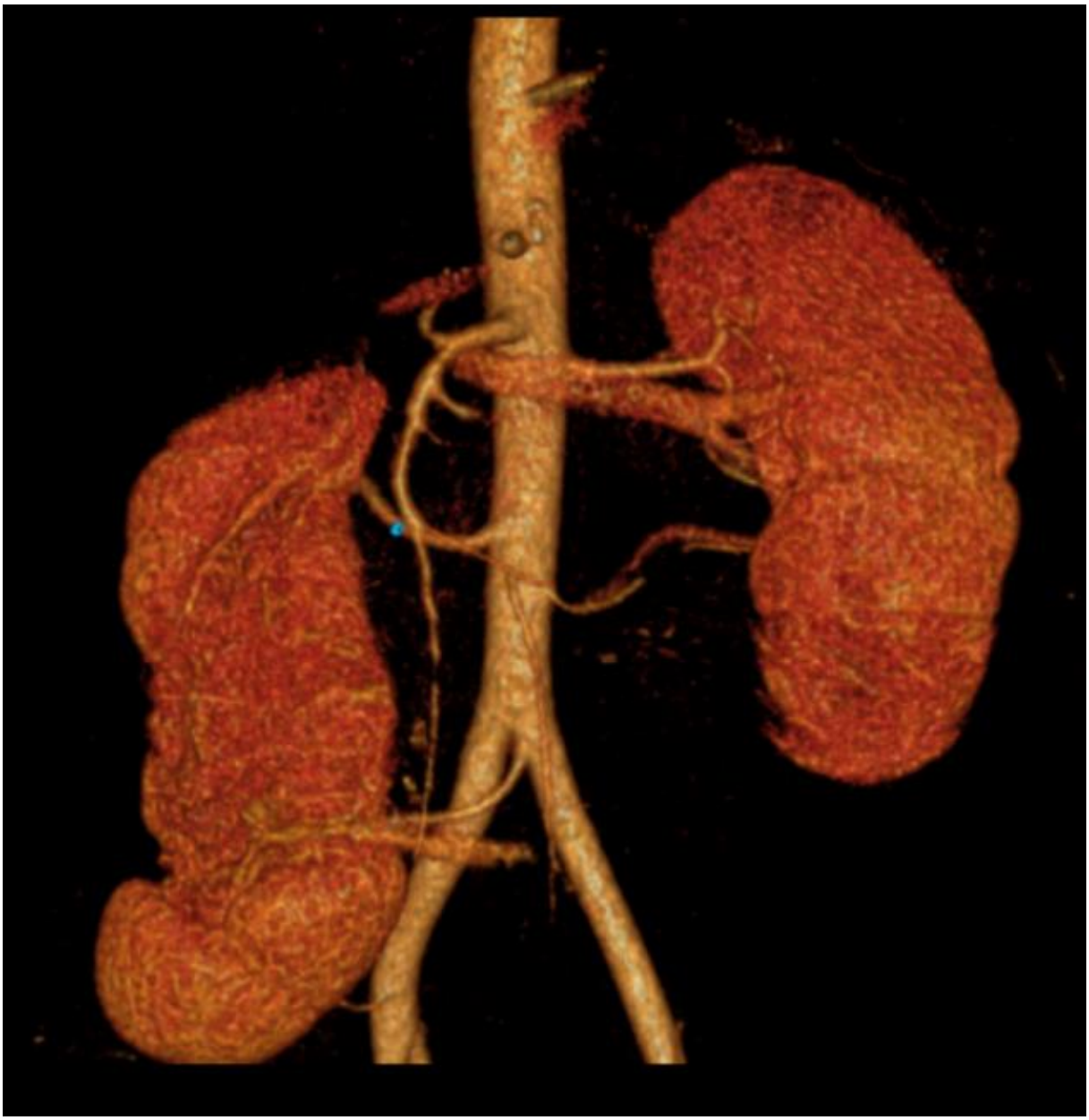

Fig 2. 3 D reconstruction of contrast enhanced CT In arterial phase shows the right Supernumerary kidney with artery arising from left common iliac artery whereas renal artery of upper kidney arising from abdominal aorta.

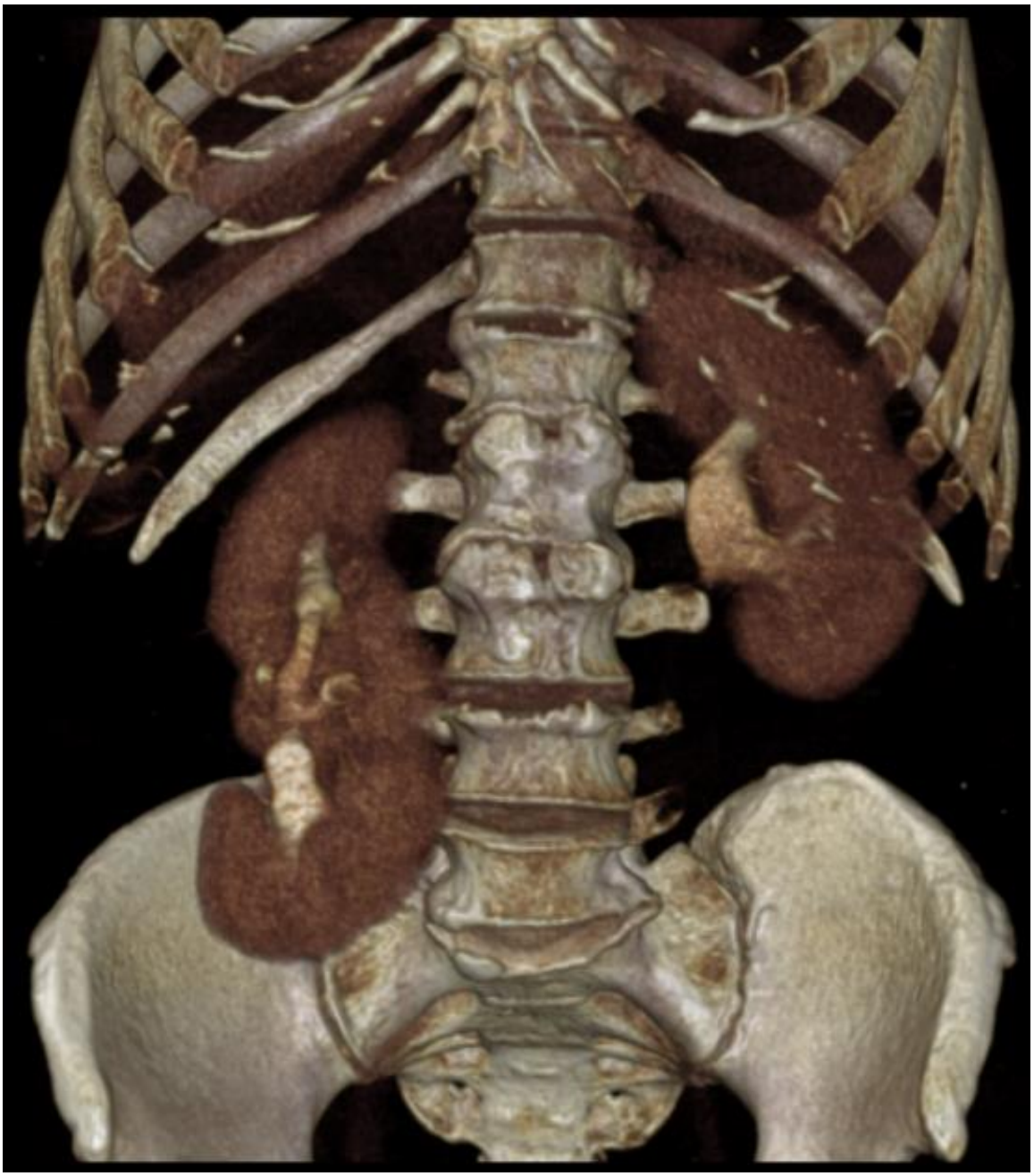

Fig. 3. 3 D reconstruction of contrast enhanced CT in excretory phase showing right supernumerary kidney with lower kidney renal pelvis rotated anterolateral with joining of both ureters.