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Comparison of In Utero Findings with Neonatal Findings by Imaging, Prenatal Diagnosis and Postnatal Diagnosis

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ABSTRACT

Herein, we report an interesting case of young woman with fetal renal congenital anomaly, showing In Utero imaging findings similar to neonatal imaging finding.

We report on a term neonate with a birth weight of 2600g antenatal suspected to have crossed fused ectopia. Postnatal ultrasound confirmed a Right Pelvic kidney seen in the left pelvis (the ectopic right kidney) attached to the lower pole with normal left kidney location forming crossed fused renal ectopia.

The neonate remained hemodynamically stable throughout the NICU stay with Normal blood pressure and renal function tests. He is currently 8 months old now and on regular follow-up with normal growth development. We describe the approach and management of this rare condition of cross fused kidney.

INTRODUCTION

Crossed fused renal ectopia is a rare congenital malformation, wherein both kidneys are present unilaterally, with the ureter of the crossed kidney opening into the bladder on the contralateral side. It has varied presentation from incidental detection to renal impairment. Crossed fused renal ectopia is a rare congenital variants that are often asymptomatic but may be associated with other developmental anomalies. Here we present a case of ante natal diagnosis of congenital crossed fused renal ectopia. Antenatal Anomaly scan revealed Right kidney not seen at Right renal fossa, seen at Lt renal fossa below the level of Lt Kidney, Right ureter seems crossed to Right side with mild dilated PCS bilaterally.

Most children presented within one year of age with urinary tract infection being the commonest cause.

Renal fusion anomalies were first described by Wilmer in 1938, with the classification being expanded by McDonald and McClellan in 1957. Classification is based on characteristics such as crossed or uncrossed, and fused or unfused. They may be further subdivided, as described below.

The term pelvic kidney encompasses a range of anatomical abnormalities when the kidney fails to rise from the

pelvis in its metaphors stage during embryogenesis. Most cases are asymptomatic, although they are generally associated with higher risks for traumatic injury, urinary tract infections, renal calculi, and other urological problems. They may also complicate other surgeries, such as for aortic aneurysms.

Congenital renal anomalies are among the most common birth deformities, exceeded only by cardiac and skeletal defects. Of all the different renal fusion anomalies, the horseshoe kidney is the most common, while a pancake or lump kidney is the rarest.

An ectopic kidneys' vascular supply is not consistent, and they may receive vascular access from a range of vessels as the fetal blood supply can be retained. Multiple vascular sources may supply the ectopic kidney. The iliac arteries, direct branches from the aorta, mid sacral vessels, or the hypogastric arteries have all been found supplying ectopic kidneys.

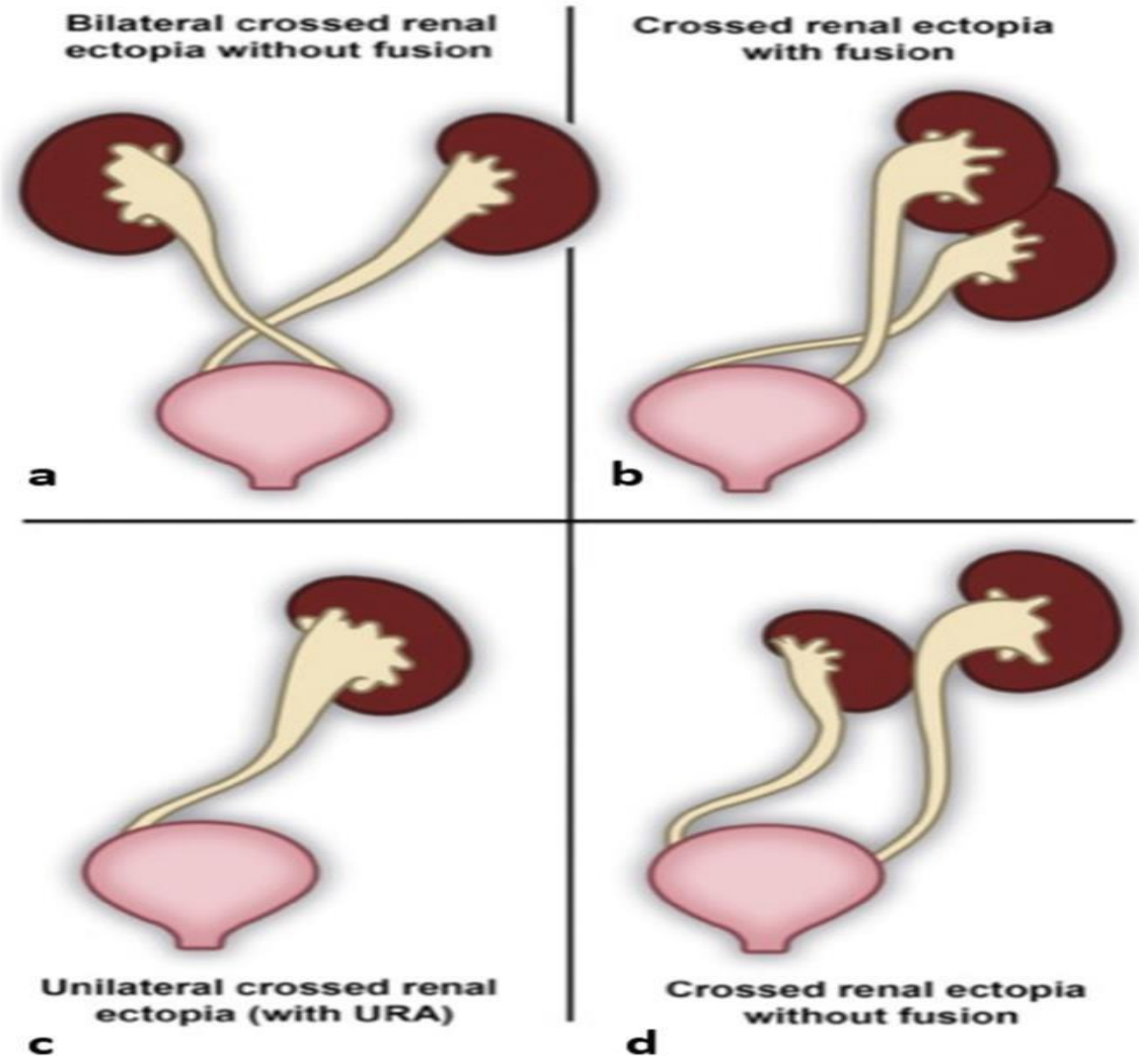

Figure 1: Understanding this anatomy is essential for any surgeon operating on a patient with an ectopic kidney.

Ectopic kidneys are also associated with several other congenital abnormalities. This may be in the pelvis, such as Mullerian agenesis or unicornuate uterus in females. Ectopic kidneys can be a feature of multisystem congenital syndromes such as CHARGE syndrome (coloboma, heart disease, atresia choanae, retarded growth, genital hypoplasia, and ear abnormalities) or VACTERL malformations (vertebral, anal, cardiac, tracheal, oesophageal, renal, and limb anomalies).

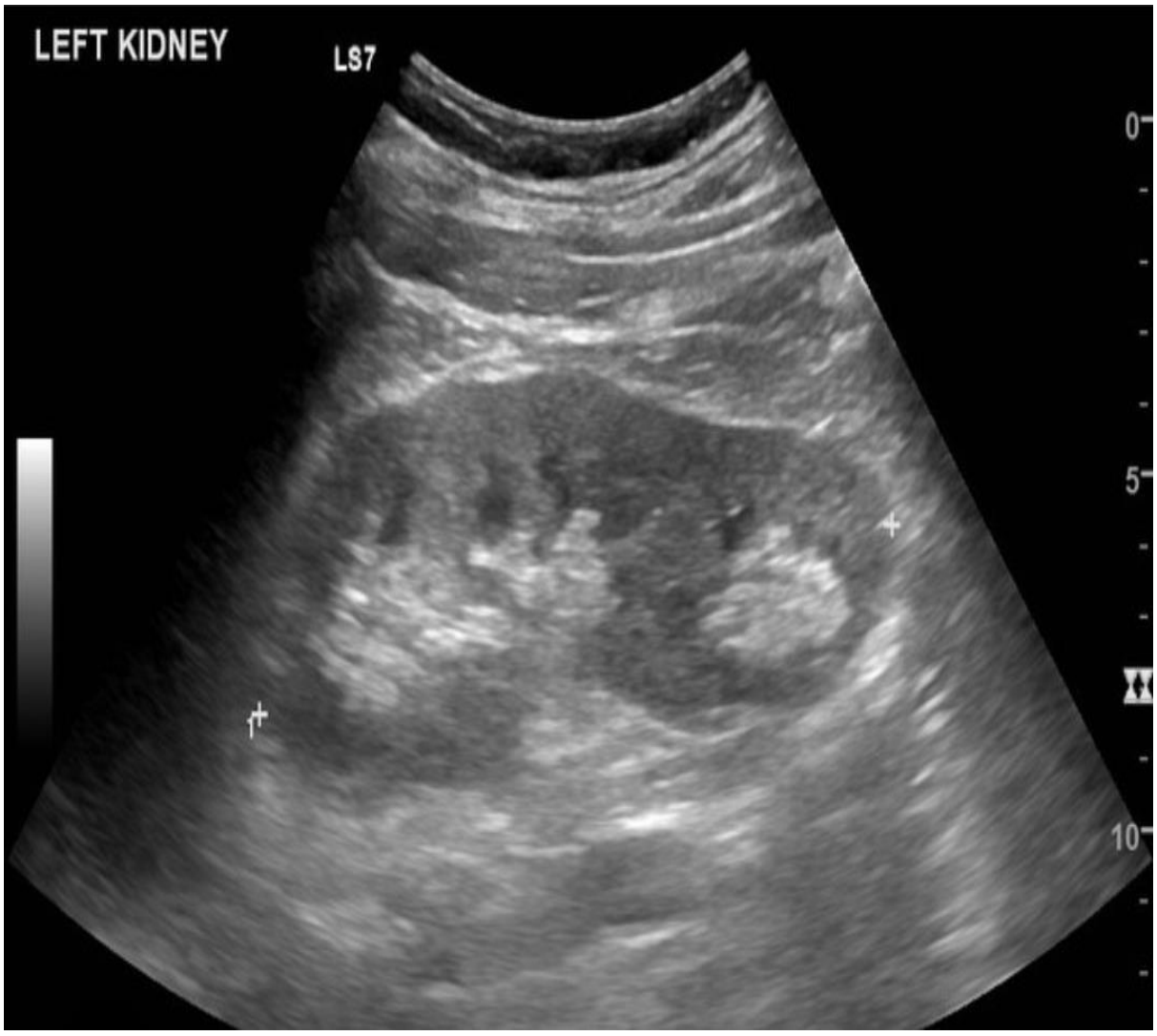

Figure 2. Congenital crossed fused renal ectopia

CASE REPORT

In December 2024, a 28 years old Asian woman, Primigravida, booked at 8 weeks 4 days in the hospital with regular ANC Follow Up visits, Her ANC follow up went uneventful.

Seen In her ANC follow up , scan at 20 weeks revealed normal growth , placenta and amniotic fluid weeks 2 days , Right kidney not seen in the Right renal Fossa , Right Kidney seen in the left renal fossa fused with the left kidney (crossed fused ectopic right kidney)

Patient Had Anomaly scan at 21 weeks which revealed Rt kidney seen in the left renal fossa just below the level of Lt kidney, Rt ureter crossed to Rt side with mild dilated PCS bilaterally, picture suggests crossed fused ectopia. Her ANC went uneventful till she was diagnosed to have FGR at 30 weeks gestation.

Patient subsequently undergone Growth Ultrasound at 28 weeks which revealed:

Single live intrauterine gestation in cephalic presentation at present scan of average gestational age 28 weeks and 05 days; EFW: 1230 g ± 182 g (2nd centile). Right kidney not seen in right renal fossa, seen on left side inferior and possibly fused with left kidney. Mild dilated renal pelvis of crossed ectopic kidney noted; maximum diameter of renal pelvis measures approx. 5.0 mm. Right ureter could not be traced further. Fetal artery Doppler -- Borderline reduced diastolic flow in umbilical artery.

She was following regularly every 2 weeks for growth estimation and Doppler study.

Patient was admitted at 32 weeks for fetal monitoring in view of reduced fetal movements. Received course of Dexamethasone and Magnesium Sulphate.

During her admission CTG showed abnormalities where she was taken for emergency caesarean section at 32 weeks 3 days.

Post op period for the patient went uneventful and new-born was admitted in NICU.

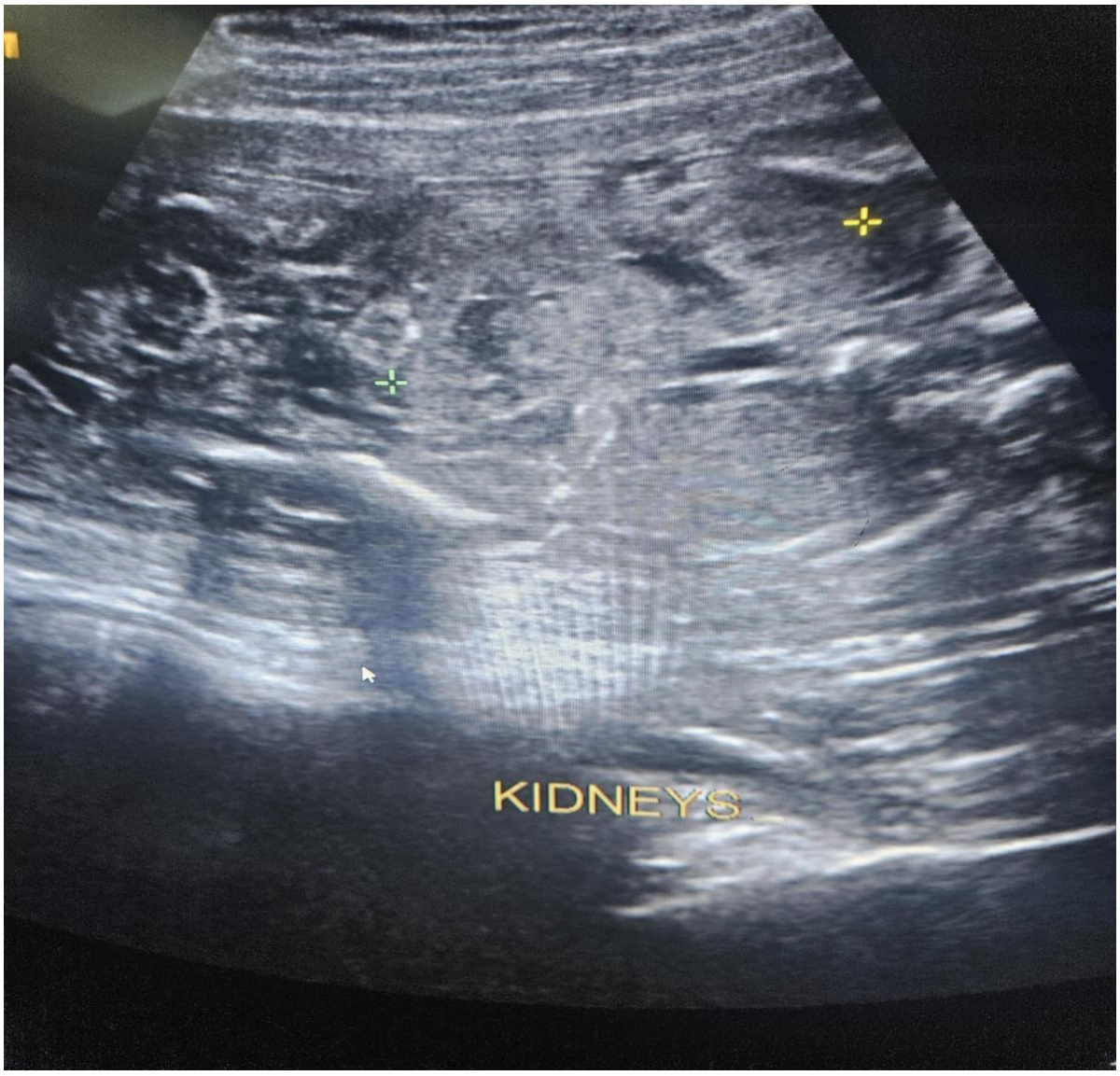

Figure 3. Case report, (Antenatal) Image Ultrasonography, Renal system nomaly scan at 21 weeks which revealed both kidneys seen in the left renal fossa fused with the left kidney.

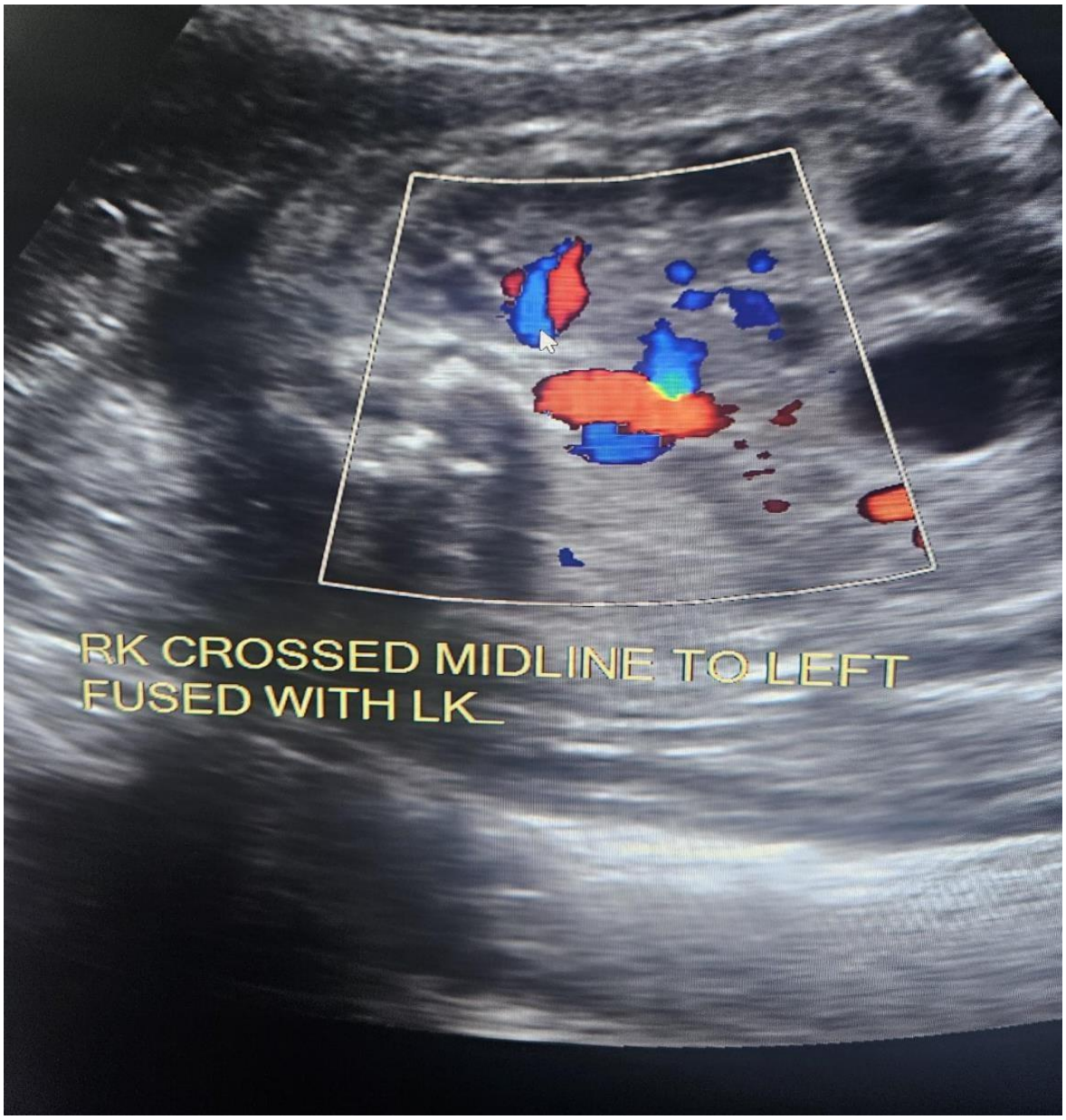

Figure 4. Case report, (Antenatal) Image Ultrasonography, Renal system.
Rt kidney seen in the left renal fossa just below the level of Lt kidney, Rt ureter crossed to Rt side with mild dilated PCS bilaterally, picture suggests crossed fused ectopia

New Born was admitted in NICU, On Day 6 had US KUB and Brain US which revealed: KUB US:
Pelvic kidney seen in the left pelvis (the ectopic right kidney) attached to the lower pole with normal left kidney location forming crossed renal ectopia.
No stones, masses or hydronephrosis, Normal renal sizes, No right kidney seen in normal location and Normal UB.

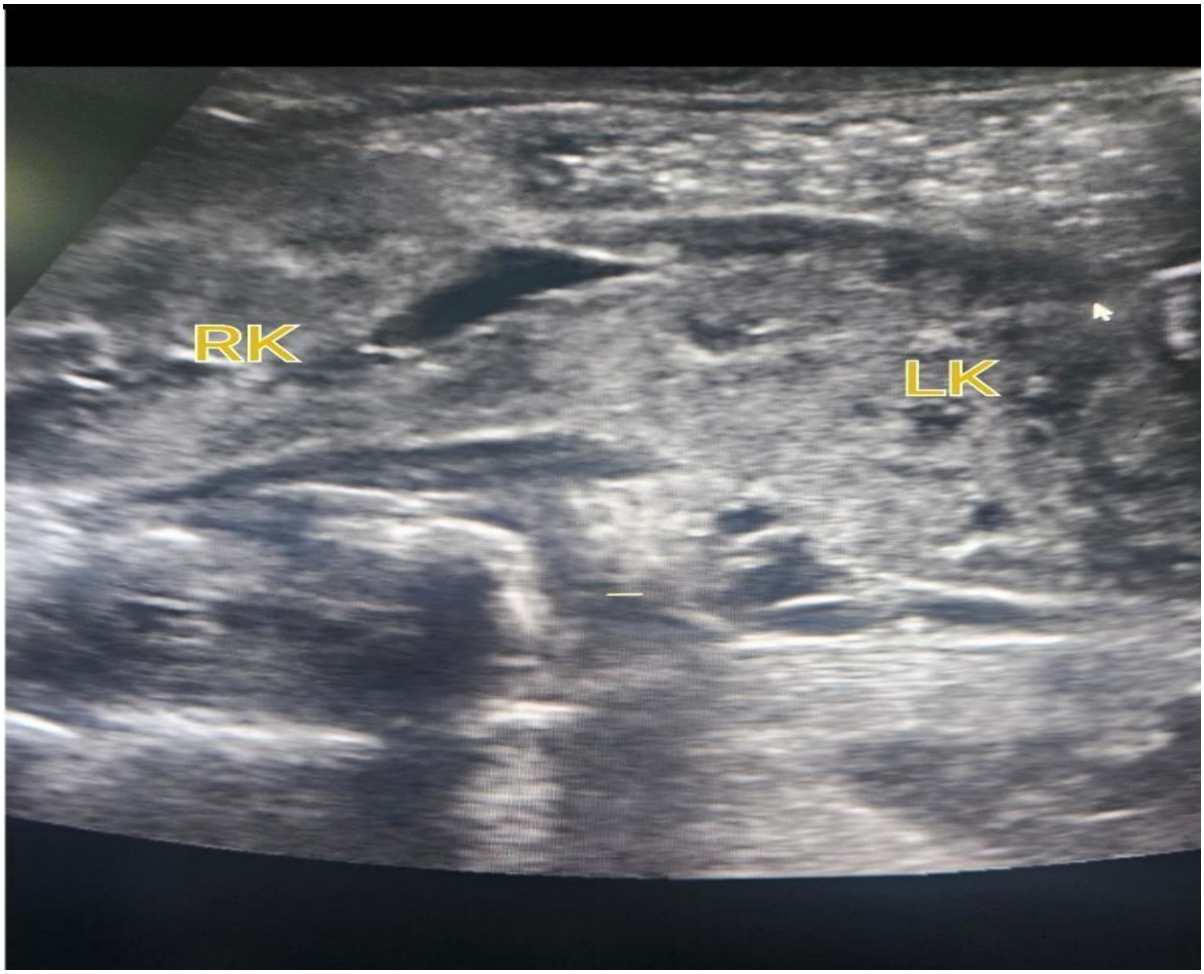

Figure 5. Case report, Image Ultrasonography, Renal system of the newborn: Fused right ectopic kidney

Brain US:

Ventricles & sulci are unremarkable.

No sub ependymal, no intra ventricular & No parenchymal hemorrhages could be seen. No hydrocephalus or periventricular leukomalasia.

No gross anomalies detected.

On Day 27 Newborn was discharged in stable condition and given regular follow up plan. Regular follow up for the baby in pediatiric clinic went uneventful, baby reached 10 months old m, No intervention needed.

On Day 27 Newborn was discharged in stable condition and given regular follow up plan. Regular follow up for the baby in pediatric clinic went uneventful, baby reached 10 months old m, No intervention needed.

DISCUSSION

The cross-fused renal ectopia is an embryological abnormality caused due to abnormal cranial ascent affected by the abnormal position of an umbilical artery with crossing over of the ureteral bud and induction of metanephric blastema differentiation of the opposite side And the disappearance of that on the same side. As in the index neonate, the left-sided inferior ectopia occurring due to the fusion of the lower pole of the orthotropic kidney with the upper pole of the crossed kidney is the most common type. The widely reported Association with this condition includes anorectal malformation and VACTERL.

As reported in a case series including 36 children, vesicoureteral reflux, PUJO, vesicoureteral junction, and strictures can occur in both the crossed fused and the orthotropic kidneys (67% and 56%). As in the index neonate, 50% of cross-fused kidneys with PUJO can also be non-functioning. These non-functioning and dysplastic rental units are kept on follow-up and nephrectomy is offered in case of pain, infections, or hypertension. The Functional solitary kidney requires frequent assessment for functioning including renal function tests and renal scan.

Most cases of cross-fused kidneys often remain asymptomatic and case reports in the adult literature show that are often detected incidentally, especially when there are no other associated abnormalities of the urogenital, gastrointestinal, or musculoskeletal systems.

Hypertension is an uncommon manifestation, and in the absence of complications, the prognosis until adulthood is generally good.

CONSLUSION

Crossed fused renal ectopia is a challenging entity which requires individualized management plans based on the predominant urological anomaly and the functional status. Surgical options are diverse and are guided toward the symptomatic urological problem with focus on preserving the renal function. The long-term prognosis is good in these children.

Crossed fused renal ectopia was detected in most patients during investigation for other problems. It was found more commonly in boys. The left moiety was crossed to the right in the majority of cases. Associated urological problems were found in most cases and required the appropriate surgical management.

The crossed fused ectopic kidneys are often nonfunctioning and can be diagnosed as ectopic or absent kidneys in the antenatal scan. The confirmation of the diagnosis by renal sonography and its functioning by DTPA and DMSA scans in the neonatal period helps in better management of the solitary functioning kidney, in the absence of urinary tract infection the outcome of these neonates is better until early infancy.

REFERENCES

1. Cook WA, Stephens FD. Fused kidneys: Morphologic study and theory of embryogenesis. Birth Defects Orig Artic Ser 1977; 13:327-340.
2. Solanki S, Bhatnagar V, Gupta AK, Kumar R. Crossed fused renal ectopia: Challenges in diagnosis and management. J Indian Assoc Pediatr Surg 2013; 18:7-10.
3. Loganathan AK, BAL HS. Crossed fused renal ectopia in children: A review of clinical profile, surgical challenges, and outcome. J Pediatr Urol 2019; 15:315-321.
4. Babu CS, Sharma V, Gupta OP. Renal fusion anomalies: A review of surgical anatomy. Anat Physiol 2015; S5:001.
5. Akdogan L, Oguz AK, Ergun T, Ergun I. The rarest of the rare: Crossed fused renal ectopia of the superior ectopia type. Case Rep Nephrol 2015; 2015:742419.
6. Sarhan O, El Helaly A, Al Otay A, Al Bedaiwi K, Al Ghanbar M, Nakshabandi Z. Crossed fused renal ectopia: Diagnosis and prognosis as a single-center experience. J Pediatr Surg.
7. Anomalies of form and fusion, crossed renal ectopia with and without fusion. In: Alan J, editor. Wein: Campbell-Walsh Urology Book. 9th ed. Philadelphia: WB Saunders; 2007; 3269–304.

8. Patel TV, Singh AK. Crossed fused ectopia of the kidneys. Kidney Int. 2008; 73:662.
9. Meyers MA, Whalen JP, Evans JA, Viamonte M. Malposition and displacement of the bowel in renal agenesis and ectopia: New observations. Am J Roentgenol Radium Ther Nucl Med. 1973; 117:323–333.
10. Dähnert W. Urogenital tract: Anatomy and function of urogenital tract: Developmental renal anomalies. In: Dähnert W, editor. Dänhert – Radiology Review Manual. 4th ed. Phoenix: Lippincott Williams and Wilkins; 1999: 2446.
11. Yuksel A, Batukan C. Sonographic findings of fetuses with an empty renal fossa and normal amniotic fluid volume. Fetal Diagn Ther. 2004; 19:525–532.
12. Bakshi S. Incidentally detected pancake kidney: a case report. J Med Case Rep. 2020;114(1):129.
13. Glodny B, Petersen J, Hofmann KJ, Schenk C, Herwig R, Trieb T, et al. Kidney fusion anomalies revisited: clinical and radiological analysis of 209 cases of crossed fused ectopia and horseshoe kidney. BJU Int. 2009; 103(2):224-235.
14. Eid S, Iwanaga J, Loukas M, Oskouian RJ, Tubbs RS. Pelvic Kidney: A Review of the Literature. Cureus. 2018; 10(6):e2775.
15. D'Alberton A, Reschini E, Ferrari N, Candiani P. Prevalence of urinary tract abnormalities in a large series of patients with uterovaginal atresia. J Urol. 1981 Nov; 126(5):623-624.
16. Fedele L, Bianchi S, Agnoli B, Tozzi L, Vignali M. Urinary tract anomalies associated with unicornuate uterus. J Urol. 1996 Mar; 155(3):847-848.
17. Bakshi S. Incidentally detected pancake kidney: a case report. J Med Case Rep. 2020; 14(1):129.
18. Glodny B, Petersen J, Hofmann KJ, Schenk C, Herwig R, Trieb T, Koppelstaetter C, Steingruber I, Rehder P. Kidney fusion anomalies revisited: clinical and radiological analysis of 209 cases of crossed fused ectopia and horseshoe kidney. BJU Int. 2009; 103(2):224-235.
19. Eid S, Iwanaga J, Loukas M, Oskouian RJ, Tubbs RS. Pelvic Kidney: A Review of the Literature. Cureus. 2018; 10(6):e2775.
20. D'Alberton A, Reschini E, Ferrari N, Candiani P. Prevalence of urinary tract abnormalities in a large series of patients with uterovaginal atresia. J Urol. 1981; 126(5):623-624.
21. Fedele L, Bianchi S, Agnoli B, Tozzi L, Vignali M. Urinary tract anomalies associated with unicornuate uterus. J Urol. 1996; 155(3):847-848.