ISSN: 0975-8585

Research Journal of Pharmaceutical, Biological and Chemical Sciences

Crossed Fused Ectopic Kidney.

Kalaivani S*, and Vathsala Venkatesan

Sree Balaji Medical College and Hospital, Chrompet, Chennai 44, Tamil Nadu, India.

ABSTRACT

A patient came for master checkup was found to have crossed renal ectopia of right side, in ultrasound abdomen.It was confirmed by CT and other causes were ruled out. On the left side, kidney was not found.Right side ureter opens into right side of the bladder and left side ureter crosses the midline and opens into the left side. In our case, lower pole of right kidney and upper pole of left kidney are fused and located in the right illiac fossa. This case was found to be type of inferior crossed fusion.

Keywords: crossed renal ectopia ,ultra sound abdomen, inferior crossed fusion.

Corresponding author

ISSN: 0975-8585

INTRODUCTION

Crossed fused renal ectopia is an anomaly where the kidney are fused and located on the same side of the midline. When the ectopic kidney crosses over to the contra lateral side it is called crossed renal ectopia . Crossed Renal ectopia is not an uncommon condition .Incidence is around 1 in 1000.It is common on right side. Male to female ratio is around 1:2. Usually the ureter of crossed renal ectopia again crosses the midline and opens to its respective side. In many cases, the two kidneys are fused together [90%] yet retain their own vessels and ureter.

Case Study

A 35 years old man came for master checkup and crossed fused ectopic kidney was found incidentally by ultrasound. CT abdomen shows absence of both kidney on lumbar region, absence of kidney on the left side, on right side lower pole of right kidney fused with the upper pole of left kidney and located on right iliac fossa. Other routine investigations were found to be normal except pus cells were present in urine routine. Patient was asymptomatic and no other anomalies were found.

DISCUSSION

The definitive human kidney arises from two distinct sources. The excretory tubules (or nephrons)are derived from the lowest part of the nephrogenic cord. This part is the metanephros, the cells of which form the metanephric blastema. The collecting part of the kidney is derived from a diverticulum called the ureteric bud, which arises from the lower part of the mesonephric duct .The ureter arises from the ureteric bud. The urinarry bladder derived from cranial part of vesico uretheral canal. The kidney develops in pelvic region around 4 t0 8 weeks and ascends to lumbar region at the end of second month. The left kidney is slightly at higher level than the right kidney, because of the liver on right side. Rajesh Sharma [1], reported that " The crossed kidney usually lies inferior to normal kidney" Hilum of the right kidney faces anteriorly and the hilum of the left kidney faces antero-medially.

Etiology

One theory states that the ureteric bud crosses to the opposite side and induces nephron formation in the contralateral metanephric blastema. Another theory states that abnormally situated umblical artery prevents normal cephalic migration. Other causes may be poor development of kidney bud, defect in the kidney tissue responsible for prompting the kidney move to its usual position,genetic abnormalities ,maternal factors like exposure to drugs and chemical which causes birth defect .

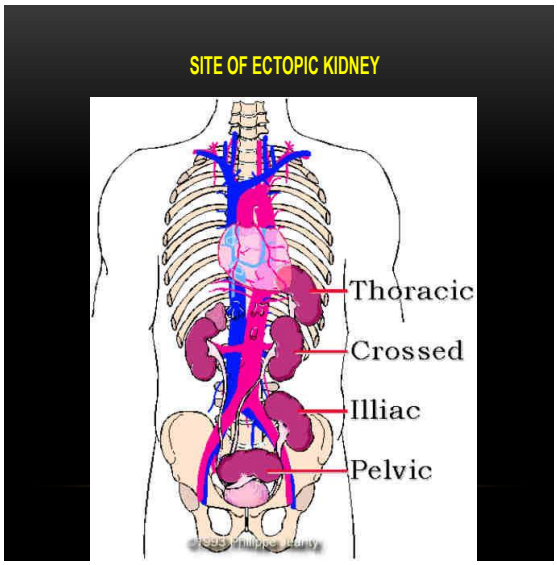

Figure 1: Various site of ectopic kidney

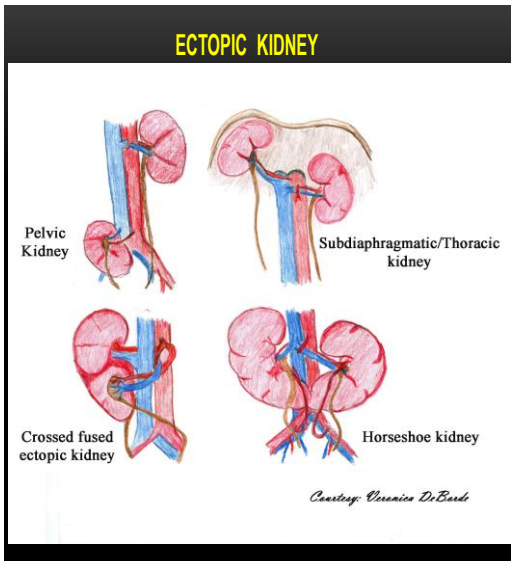

Figure 2: Various type of ectopic kidney

ISSN: 0975-8585

Types

Renal fusion and anomalies were first studied and classified by Wilmer, (1938) later it was revised by McDonald [2] and McClellan. There are 6 types of ectopic kidney. Type A: inferior crossed fusion, type B: sigmoid kidney, Type C: lump kidney, Type D: disc kidney, Type E: L-shaped kidney, Type F: superiorly crossed kidney. In our case, lower pole of right kidney and upper pole of left kidney are fused and located in the right illiac fossa. Roopa Kulkarni [3]. In their study also they found the crossed renal ectopia in right iliac fossa. Right side ureter opens into right side of the bladder and left side ureter crosses the midline and opens into the left side. Hochward[4] denoted that crossed fused ectopia is more common on left side but in this study is located on right side. Inderbir singh [5] stated that in incomplete rotation the hilum of kidney is directed anteromedially and in reverse rotation the hilum is located anterolaterly .In our case hilam of right kidney faces anteriorly and left kidney faces antero medialy, so left kidney undergone incomplete rotation. Patel[6]explained that clinically crossed renal ectopia associated with frequent urinary tract infections, nephrolithiasis, and uroepithelial tumors. In this case also patient was having urinary tract infections but he was asymptomatic. Dra Mónica Gutiérrez [6], quoted that "these pathologies are frequently asymptomatic, the diagnosis is most commonly made after a routine imaging studies due to other causes or when recurrent UTI or urinary obstruction are associated". In this study also patient was diagnosed by master checkup.

Figure 3: Ultrasound abdomen

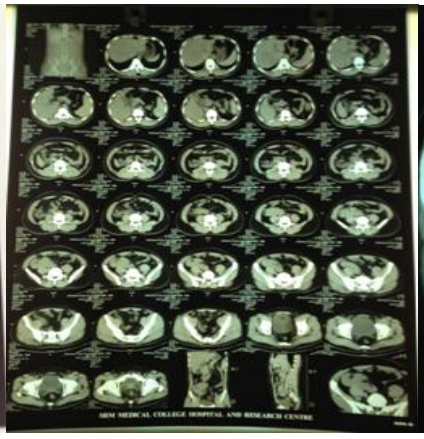

Figure 4: Tabdoman

Figure 5: Crossed renal ectopia

CONCLUSION

Clinically this case may present as urinary tract infection, obstruction or palpable abdominal mass. Sometimes ectopic kidney predisposing to renal cell carcinoma, and wilm's tumor. The possible complication of an ectopic kidney includes vesico-urethral reflex leading to infection, stones, kidney damage trauma, and hypertension Most of the patients with crossed renal ectopia are asymptomatic, Normal functioning ectopic kidney does not require treatment. In case of obstruction, calculi or reflux, surgical correction is indicated. Simple investigation like usg and x-ray kub is enough to diagnose this condition, but for classification and to rule out other associated anomalies we need other investigations like CTkub, intravenous pyelogram ,voiding cystourethrogram (vcug) .Rarely it may be associated with malrotation of the gut. Awareness of such anomalies helps the surgeons and radiologists for diagnosis and planning.This knowledge preventing some complications after and before surgery.

REFERENCES

[1] Rajesh Sharma, Rupali Bargotra. Am J Surg 1957; 93: 995.
[2] Roopa kulkarni, ashwini C appaji, R N kulkarni. Int J Anat Res 2003;2:53-56.
[3] Hochward, R Shaocel. Arch Dis Child 2003:89:704:1136.
[4] Patel T V and A Singh. Kidney Int 2008;73:662.
[5] Inderbir Singh. Human embryology; tenth edition published by Jaypee Brothers Medical Publishers, 2004.
[6] Dra Mónica Gutiérrez , Dr Francisco Rodríguez, Juan Carlos Guerra. Revista de la Federación Ecuatoriana de Radiología 2013;6:24-30.