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Case Report

Case Report – Incidentally Detected Subdiaphragmatic Renal Ectopia in Dimercapto Succinic Acid Scan (DMSA) – A Rare Occurrence

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ABSTRACT

Kidney lies outside renal fossa, it is called ectopia. The common cause for renal ectopia is failure of ascend during organogenesis. Renal ectopia is not uncommon; however, high renal ectopia is extremely rare. We report a case of male infant with Edward syndrome.

Keywords: DMSA scan, Subdiaphragmatic kidney, Renal ectopia

INTRODUCTION

In development of human embryo during organogenesis, kidneys ascend to their normal position in their respective renal fosse between 6th and 9th week of gestation.[1] Any change of this process can lead to renal ectopia.[2] There is no migration of kidney after birth. It is a rare event and if there is migration of kidney post-birth; it is generally associated with congenital diaphragmatic hernia.[3-6] The other situation is post trauma when this phenomena can occur.[7]

We report a case of male infant with Edward syndrome in which subdiaphragmatic renal ectopia was detected in 99m Tc Dimercaptosuccinic acid (DMSA) scan which is a rare presentation.

CASE PRESENTATION

A male child born whose parents had non-consanguineous marriage. Full-term normal delivery with no complication at time of birth. The child was diagnosed with Edward syndrome later on. The child was investigated for heart anomalies patent ductus arteriosus. A 4-month-old male child was advised DMSA scan after non-visualisation of the left kidney in ultrasound (USG) abdomen. USG abdomen was done to rule out renal anomalies.

A DMSA scan [Figure 1] was performed at 4 months of age which showed – Left kidney: Normal in size and shape with smooth contour with uniform tracer uptake. Kidney is abnormally located, lying just below the diaphragm on the left side.

Right kidney: Normal in size and shape with smooth contour with uniform tracer uptake. DMSA scan reveals normal differential renal function; 52% on the left kidney and 48% on the right

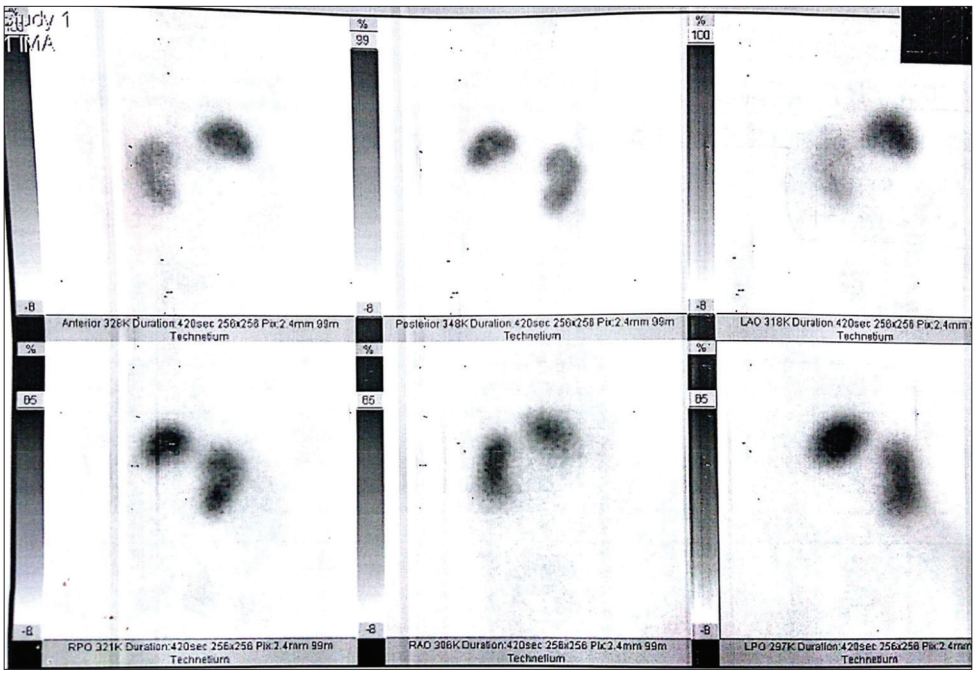

Figure 1: 99m Tc dimercaptosuccinic acid (DMSA) scan planner images show normal size shape location with smooth counter and no cortical scarring of right kidney. Left kidney is ectopically placed in left subdiaphragmatic area with no evidence of cortical scarring..

kidney without any evidence of scarring. There was equal function in the upper and the lower poles of both kidneys with no evidence of duplex system.

DISCUSSION

During embryonic development of human foetus kidney develop and advance through series of phases named that is, pronephros, mesonephros and metanephros. Metanephros is formed during 5th week of gestation and it is most mature phase of kidney, this phase persists as definitive kidney.[1] Metanephros is formed by interaction of ureteric bud and the metanephric blastema at the level of first sacral vertebrae. Kidney ascends to level of 12th thoracic vertebrae by 6th and 9th week of gestation. Ascend of kidney occurs due to differential growth of lumbar and sacral regions. Renal fascia (Gerota's Fascia) keeps the kidneys in renal fossa. This fascia envelops kidney, suprarenal gland and perirenal fat. Ectopia is called if kidney lies outside renal fossa. Most common cause for renal ectopia is failure of ascend during organogenesis. Renal ectopia is not uncommon. High renal ectopia is extremely rare condition. High renal ectopia is more common in man and it is twice on the left side than right.[8] Few common causes of high renal ectopia are congenital diaphragmatic hernia, trauma or associated with congenital anomalies. As we know that postnatal migration of kidney is a rare occurrence.

Edward syndrome is a genetic disorder caused by the presence of all or part of a third copy of chromosome 18.[9] This causes multiple congenital defects and severe developmental delays. It occurs due to an extra chromosome 18. In this syndrome, babies are often born small and have heart defects. Few other features of it are small head, small jaw, clenched fists with overlapping fingers and severe intellectual disability.[9] Children may have multiple other comorbidities in the form of kidney malformation, omphalocele oesophageal atresia, feeding difficulties, breathing difficulties and arthrogryposis.[10,11]

In asymptomatic cases, it can be an incidental finding when imaging is performed for other reasons. In the absence of trauma or anatomical defects, a high renal ectopia is presumed to be a congenital abnormality.[12]

In this case, we report ectopically located left kidney in the subdiaphragmatic region in the DMSA scan.

CONCLUSION

Subdiaphragmatic renal ectopia is an extremely rare condition. This case is discussed to show that apart from congenital diaphragmatic agenesis and traumatic cause subdiaphragmatic ectopia can occur in Edward syndrome, which is highlighted here.

Declaration of patient consent

Patient's consent not required as patients identity is not disclosed or compromised.

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Conflicts of interest

There are no conflicts of interest.

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