

Thoracic Renal Ectopia: A Case Report

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Abstract:

Thoracic ectopic kidney is a rare anomaly, the rarest of all renal ectopia types (0.005%). An adult lady diagnosed as a case of ovarian carcinoma, found to have a mass in the left thoracic cavity. The results showed evidence of a renal mass which was diagnosed as an ectopic kidney through computed tomography (CT). This case is being reported to stress the importance of recognizing the thoracic kidney, thus avoiding surgery or biopsy.

Key words: *Thoracic kidney; Renal ectopia; Ectopic kidney.*

Introduction:

Thoracic renal ectopia is a rare developmental anomaly, encountered once in a series of 13,000 autopsies and accounting for less than 5% of all renal ectopies [1,2,3]. It is most often discovered as a posterior mediastinal or juxta diaphragmatic mass by chest radiography. In most cases, its structure and functioning are totally normal, and thus avoiding surgery or biopsy.

Case report:

A 35 year old female patient sought treatment for lower abdominal mass. She had anorexia, pain abdomen and urinary problems. She was operated for transabdominal hysterectomy 3 years back. Investigation revealed anemia, mass per abdomen and non-visualized left kidney. KUB X-ray revealed absence of left kidney in its normal position. No trauma or any prior complaint of respiratory or urologic illness was reported. Subsequently, we requested for a computed tomography of the chest, where an oval – shaped area of extreme density was found at the base of the left hemithorax and was diagnosed as renal ectopia. The contour and collecting system of both kidneys were normal. Pelvic/ureteral systems were dilated bilaterally with delayed contrast excretion. Evidence of a homogeneously enhancing mass noted in the pelvis between the bladder and rectum producing mass effect over the posterior wall of the bladder and urethra causing bilateral hydronephrosis. The ureter is elongated to accommodate the excessive

distance to the bladder. The renal arteries arise from either the normal or a cranial portion of aorta. The protruding portion of the kidney is surrounded by a flimsy membrane, which separates the kidney from the pleural space. The adrenal gland is seen in its normal location, below the ectopic kidney.

Discussion:

Thoracic renal ectopia denotes either a partial or a complete protrusion of the kidney above the level of the diaphragm into the posterior mediastinum. There appears to be a slight left sided predominance of 1.5:1 and the sex ratio favours males by 2:1 [2,4]. Clinically, renal ectopia is more readily recognized in females because they undergo urologic evaluation more frequently than males as a result of higher rate of urinary infection and/or associated genital anomalies in them.

The kidney reaches its adult position by the end of the 8th week of gestation. At this time, the diaphragmatic leaflets are formed as the pleuroperitoneal membrane separates the pleural from the peritoneal cavity. Mesenchymal tissues associated with this membrane eventually form the muscular component of the diaphragm [2].

A variety of embryological causes have been proposed. The superior migration of the metanephros before completion of diaphragmatic development during the eighth week of gestation is common to most of these theories. In our patient, the left kidney resides entirely above the diaphragm in a posteromedial diaphragmatic defect

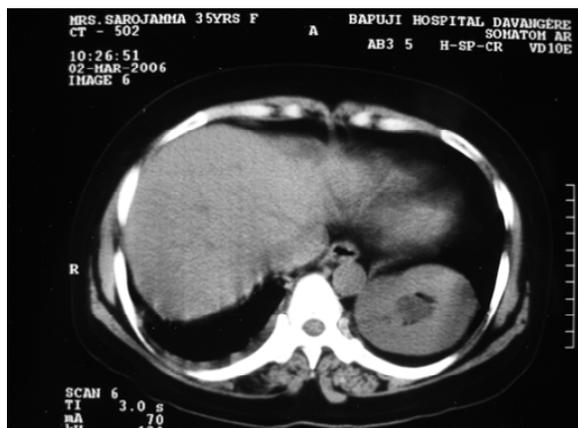


Fig. 1 : Axial CT scan at Th 9 level shows the left kidney situated in the left posterior inferior thorax



Fig. 2: Axial CT scan at Th12 level shows the splenic mass on the left side and right kidney in its normal location capped by fibrous tissue. This could be explained by the theory of Fleischner et al, who suggested that the diaphragmatic malformations might be caused by a delay in the disappearance of the mesonephros during development, leading to a diaphragmatic defect that later could be occupied by the kidney [1,2,5]. Therefore the kidney is not within the pleural space, and there is no pneumothorax [2]. The renal artery might be elongated unless it originates at a higher level than in a normal kidney. In most cases the adrenal gland is located typically, as it develops from different foetal structures [6].

Conclusion:

The significance of thoracic kidney lies in its potential confusion with other intrathoracic masses and the possibility of accidental removal. As an intrathoracic location of the kidney typically does not affect renal function or cause symptoms, it requires no surgical intervention.

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