THORACIC KIDNEY

(A Case Report)

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Introduction

Superior renal ectopia (thoracic kidney) is a very rare form of renal ectopia where the kidney is positioned considerably higher than normal. There is partial or complete protrusion of the kidney above the level of diaphragm, into the posterior mediastinum. Since 1940, 92 cases of unilateral thoracic kidney and 4 cases of bilateral thoracic kidneys have been reported [1-3]. We report here a case of thoracic kidney in view of its rarity.

Case Report

A 21-year-old asymptomatic male during routine medical check up was found to have a smooth rounded mass behind the cardiac silhouette and continuous with the outline of the Lt diaphragm on chest radiograph (Fig 1). A left lateral view confirmed

the mass to be situated in the posterior mediastinum (Fig 2). Fluoroscopy revealed the mass to be moving in association with the left hemidiaphragm and a posterior bulge was seen in deep inspiration. There was no past history suggestive of pulmonary disease or major trauma. The patient denied any urinary symptoms. All relevant investigations were within normal limits.

An intravenous urogram confirmed ectopic thoracic left kidney with evidence of mild hydronephrosis. Ultrasound evaluation revealed an unusually high position of the left kidney and only the lower pole could be visualised on deep inspiration.

A non contrast CT scan of chest confirmed intrathoracic left kidney with evidence of hydronephrosis (Fig 3).

Discussion

Thoracic kidney is an extremely rare form of renal ectopia accounting for less than 5 per cent of all renal ectopia. Campbell encountered only one case of tho-

Fig. 1 : Chest radiograph showing rounded mass behind the cardiac silhouette on the left.

Fig. 2 : Left lateral chest radiograph showing a posterior mediastinal mass lesion.

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Fig. 3 : Non contrast CT scan showing intrathoracic left kidney with hydronephrosis.

racic kidney in 15,919 autopsies in children. Before 1940, these cases were diagnosed at autopsy [1].

A variety of embryonic etiological explanations have been proposed for the superior migration of kidney. It is not known whether delayed closure of pleuroperitoneal membrane allows continued renal ascent above the level of future diaphragm or whether the kidney overshoots its normal position because of accelerated ascent prior to normal diaphragmic closure at about 8 weeks of gestation.

There is a slight male preponderance. Thoracic kidney is more common on the left side (1.5:1). Presence of liver on the right side is thought to act as a barrier for superior migration of kidney on this side [2,3]. The thoracic kidney usually lies in the posterior mediastinum. There is usually a very thin membrane of diaphragm covering the protruding portion of kidney. Usually the renal vascular supply is normal. Apart from its abnormal location, the ectopic thoracic kidney is usually normal. Infection and other complications, which occur frequently in low ectopic kidneys, do not occur in this anomaly. The ureter is abnormally elongated but opens in normal site in the bladder.

Majority of individuals with this anomaly are as-

ymptomatic; and most cases are detected incidentally on chest radiographs taken for entirely different purpose. A routine chest radiograph shows the affected hemidiaphragm to be slightly elevated. A smooth rounded homogeneous mass is generally seen partially masked by the cardiac shadow, and continuous with the outline of the hemidiaphragm. A lateral view confirms posterior mediastinal location of the mass. Intravenous pyelography or renal scintigraphy usually suffices to confirm the diagnosis [1-3].

Congenital thoracic kidney needs to be differentiated from traumatic herniation of kidney. Traumatic herniation is usually preceded by history of major trauma, and is usually symptomatic. An abnormally long ureter, intact diaphragm which can be confirmed by diagnostic pneumoperitoneum, and asymptomatic patient favour congenital etiology. Other pointers towards congenital etiology like rotational anomaly, anomalies of renal vasculature (can be diagnosed on selective angiography) may be present.

In our present case, there is evidence of hydronephrosis of the thoracic kidney. However, the cause of hydronephrosis could not be ascertained in this case. To the best of author's knowledge, such a complication has not been described earlier in the literature.

This case is presented in view of extreme rarity of this developmental anomaly. Lack of awareness of this entity may lead to unnecessary and elaborate investigations and even exploratory thoracotomy.

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