Right thoracic kidney: a rare case

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Abstract

Congenital thoracic ectopic kidney is a very rare developmental anomaly and the rarest form of all ectopic kidneys. Patients with thoracic kidneys are usually asymptomatic and usually discovered incidentally during routine chest radiography. We report a 30 year old adult male with ectopic right thoracic kidney complaining of pain abdomen with upper respiratory infection and coughing on supine position. Chest X- ray revealed retro-cardiac homogenous opacity at the base of right lung. CT and MRI scan confirmed right thoracic kidney.

Key words: Thoracic kidney, Ectopic kidney, Diaphragmatic-hernia.

Introduction

Thoracic kidney is a very rare form of renal ectopia[1,2]. Most cases are asymptomatic and discovered as incidental finding during the evaluation of a suspected mass on chest radiography or at thoracotomy[1,3]. Intrathoracic ectopia denotes either a partial or a complete protrusion of kidney above the level of the diaphragm into the posterior mediastinum. The incidence of ectopic kidney is 1/1000 birth but less than 10% are detect[4,5]. Fewer than 5% of all patients with renal ectopia have an intrathoracic kidney[4,6].

Since 1988, at least 140 cases with thoracic kidney have been reported in the literature, 4 of whom had bilateral thoracic kidney. There appears to be a slight left-sided predominancy 1.5:1, and the sex ratio favor male by 2:1[7,8,9]. The ectopic kidney may be pelvic, iliac, abdominal, thoracic, contra lateral, or crossed[1,10].

Embryology

The kidney reaches its adult location by the end of the 8th week of gestation. At this time, the diaphragm leaflets are formed as the pleura peritoneal membrane separates the pleura from the peritoneal cavity[11]. Mesenchymal tissues along with this membrane eventually form the muscular component of the diaphragm. It is uncertain whether delayed closure of diaphragmatic anlagen allows for protracted renal ascent above the level of the future diaphragm, or the kidney overshoots its usual position because of the accelerated ascent before normal diaphragmatic closure[6,11]. The kidney is situated in the posterior mediastinum and usually has completed the normal rotation process. Therefore, the kidney is not within the pleural space, and there is no pneumothorax[6,12].

Case Report

A 30 year old man was referred from a Dept of Surgery to the Department of Radiology for abdominal pain and respiratory tract infection since two months. Chest radiograph AP and lateral view revealed right retro-cardiac homogenous opacity (Fig.1)**.** On abdominal sonography the right kidney was not seen in the right renal space (Fig 2)**.** Further investigations yielded the following results, Computed tomography and MRI imaging confirmed the right thoracic kidney.

Discussion

We report a 30 yeas old adult male with ectopic right thoracic kidney. He was complaining of pain abdomen and upper respiratory infection and coughing on supine position since two months. Usually the vast majority of patients who have ectopic thoracic kidney are asymptomatic and

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respiratory symptoms are exceedingly rare.

On chest AP and Lateral view, there was a right retro-cardiac homogenous opacity causing elevation of right dome of diaphragm. On abdominal ultrasound examination there was non visualization of right kidney and left kidney was normal.

CT and MRI scan with coronal and MIP reconstruction images confirmed the right thoracic kidney. In most cases the suprarenal glands, spleen and renal vessels are normally situated, which was the case in our patient.

Conclusion

An intrathoracic kidney is a rare but an important cause of a thoracic 'mass' or 'elevated hemi diaphragm' on a chest radiograph. A thoracic kidney is an asymptomatic condition. A correct diagnosis of this condition would save patients from undergoing unnecessary surgical interventions and image guided biopsies.

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