AFRICAN JOURNAL OF MEDICINE
and medical sciences

VOLUME 15, NUMBERS 3/4, SEPTEMBER/DECEMBER 1986

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BLACKWELL SCIENTIFIC PUBLICATIONS
Oxford London Edinburgh Boston Palo Alto Melbourne

ISSN 0309-3913

Afr. J. Med. med. Sci. (1986) **15**, 99–101.

Ectopic thoracic kidney

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Summary

A case of congenital thoracic kidney recently encountered at the University College Hospital, Ibadan, Nigeria is presented. Ectopic intrathoracic kidney, although very rare, should be considered in any patient with a mass at the base of the lung on a chest radiograph. Intravenous urography is diagnostic and may obviate the need for extensive investigation and operation for an asymptomatic kidney that functions normally and requires no treatment.

Résumé

Un cas de rein thoracique congénitale récemment constaté a University College Hospital, Ibadan (Nigeria) est présenté. Le rein ectopique intrathoracique quoique très rare, doit être considéré chez le malade avec une masse sous le poumon sur une radiographie de la poitrine. L'urographie intraveineuse est de caractère diagnostic et peut epargner de la nécessité d'une investigation comprehensive et d'une intervention chirurgicale d'un rein asymptomatique qui fonctionne normalement et n'a pas besoin de traitement.

Introduction

Ectopic intrathoracic kidney is a very rare developmental anomaly, and is the least frequent of all ectopic kidneys. Only about fifty cases have been reported in the world literature (Kirshenbaum, Puri & Rao, 1981). In 15,919 autopsies of children, Campbell in 1930 found twenty-two cases of ectopic kidney, and only one was an intrathoracic kidney. Wolfromm, in 1940, was the first to describe an intrathoracic kidney in a living patient.

Unlike low ectopic kidneys, which are frequently prone to infection, obstruction and stone formation, most intrathoracic kidneys function normally and require no medical or surgical therapy, once identified (Gondos, 1955; Ang & Clan, 1972). Awareness of this innocuous condition may obviate the need for extensive investigation and prevent an unnecessary operation. This is a report of a case, the first reported case of intrathoracic kidney from Nigeria, and indeed from West Africa.

Case report

A 70-year-old Nigerian man with no previous history of trauma was referred, with a diagnosis of post-gonococcal urethral stricture, for ascending urethrography, routine chest radiograph and intravenous urogram by the Urology unit. The chest radiograph showed a smooth roundish mass within the cardiac silhouette that was continuous with the outline of the left hemidiaphragm (Fig. 1). A lateral view confirmed the posterior location of the mass. The main differential diagnoses included diaphragmatic hernia, neurogenic tumours, diaphragmatic, pleural or pulmonary lesions amongst others.

However, the intravenous urogram revealed that the mass was due to an intrathoracic left kidney (Fig. 2). The kidney was slightly rotated along its longitudinal axis and its lower pole was medially displaced. The left ureter was abnormally long but otherwise normal. The bladder was thick-walled and its base was elevated by a moderately enlarged prostate. Ascending urethrography revealed multiple penile urethral strictures characteristic of post-gonococcal infection and also an elongated and narrowed prostatic urethra. His haematological and biochemical profiles were essentially normal, but he had urinary tract infection for which he was treated with furadantin.

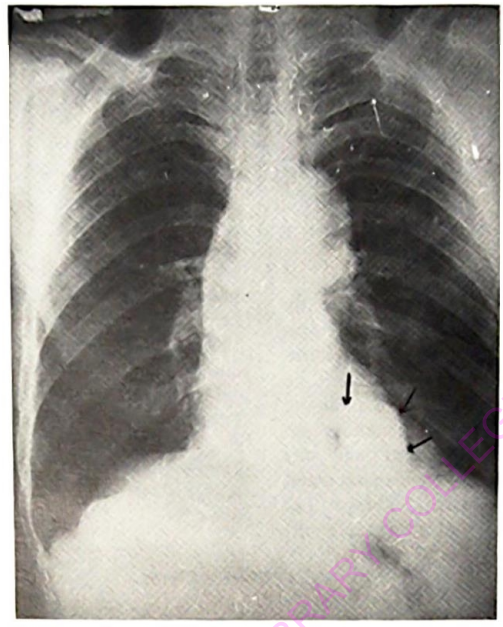

Fig. 1. P. A. Chest radiograph showing a smooth rounded mass through the cardiac silhouette, continuous with left diaphragmatic outline (arrows).

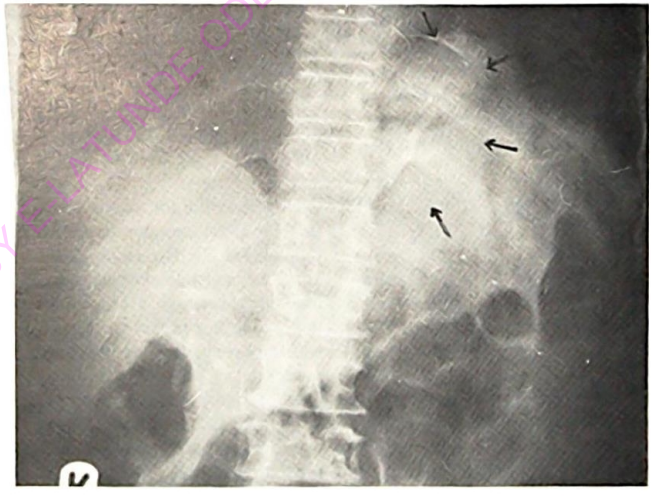

Fig. 2. Intravenous urogram showing the left thoracic kidney (arrows). Note the medial displacement of its lower pole and slight rotation of the kidney along its axis.

Discussion

Ectopic intrathoracic kidney is an extremely rare congenital anomaly. It has been attributed to delay in the transformation of the mesonephros to metanephros, which results in the continuation of the ascent beyond the eighth embryonic week, at which time the pleuro-peritoneal membrane (diaphragm) has not completely closed (Malter & Stanley, 1972). It is usually asymptomatic. The most common presentation, as in this case report, has been the incidental finding of a mass in the posterior lower thorax on a routine chest radiograph at any age, mostly on the left and of male preponderance (Ang & Chan, 1972). Diagnosis is made on intravenous urogram, which also helps to differentiate it from other posterior mediastinal masses including neurogenic tumours, neuro-enteric cysts, meningocoeles, pericardial cysts and Bochdalek herniation.

The anatomic features of an intrathoracic kidney are (i) rotational anomalies, (ii) a long ureter, (iii) high origin of the renal vessels and (iv) medial deviation of the loweer pole of the kidney (Spillane & Prather, 1952; Gondos, 1955). This case report had three of these anatomic features. Renal arteriography was considered unnecessary in this patient with an asymptomatic left ectopic intrathoracic kidney, with normal function as shown on urography.

Differentiation must also be made between congenital ectopy and superior displacement by an intra-abdominal mass lesion. Trauma to the diaphragm may also result in herniation of the kidney, but this seems unlikely unless the kidney has a long renal artery and ureter. There was no intra-abdominal mass or a history of trauma in the patient reported here.

Thoracotomy and nephrectomy are virtually always unindicated for establishing the diagnosis, yet an operation may be necessary for associated malformation of the reproductive system, pelvis, adrenals and lungs (Norhan *et al.*, 1974).

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(*Received* 28 *January* 1986; *accepted* 3 *February* 1986)