

# Asymptomatic Thoracic Kidney

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**I**SOLATED asymptomatic intrathoracic kidney is a rare congenital anomaly. Approximately 30 cases have been reported,<sup>1-17</sup> only four of them in children.<sup>3, 8, 10, 15</sup> We describe here a fifth child with asymptomatic thoracic kidney, stressing the importance of intravenous pyelography with any patient who has an asymptomatic radiopaque lower thoracic mass.

## Case History

A ten-month-old white girl was referred to the University of Michigan Medical Center because of an asymptomatic lower thoracic radiopaque mass found on chest x-ray during an upper respiratory infection.

Physical examination on admission revealed normal vital signs and no physical abnormalities. Laboratory studies included: white blood cell count of 9,600 with a normal differential; hemoglobin, 7.7 Gm./100 ml.; normal urinalysis; reticulocyte count, 0.8%; negative stool guaiac; BUN, 15 mg./100 ml.; and normal electrolytes.

Chest x-ray showed a radiopaque mass in the right lower thorax (Fig. 1a, b). An upper gastrointestinal series was normal, but an intravenous pyelogram showed the thoracic mass to be an ectopic right kidney (Fig. 1c).

## Discussion

Asymptomatic intrathoracic kidney is associated anatomically with either a diaphragmatic eventration or a perforation.<sup>1-17</sup> Embryologically, as the early kidneys migrate cephalad from the pelvic portion of the coelom to their adult position,<sup>18</sup> the abdominal opening of the muscular part of the diaphragm closes off by proliferation of tissue above the kidneys, the pressure from below by the large suprarenal glands possibly contributing to the closure.<sup>21</sup>

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Thus, there are two hypotheses for the development of intrathoracic kidney: (1) the ascending kidney and the suprarenal gland proceed too far cephalad and closure of the diaphragm occurs below them; or (2) there is defective development of the diaphragm at the particular site where the kidneys and suprarenal glands are rising.<sup>3</sup>

All thoracic kidneys reported before 1938 were found at autopsy.<sup>20, 21</sup> That year, Wolfromm<sup>17</sup> reported the first asymptomatic thoracic kidney in a living 43-year-old woman. Thirty cases have since been reported, most asymptomatic<sup>2-17</sup> and four with minimal symptoms of intermittent chest pain or hemoptysis.<sup>1</sup> The four living children with isolated intrathoracic kidney were asymptomatic.<sup>3, 8, 10, 15</sup>

Most of the reported cases have been uncovered in routine chest x-rays. Conclusive diagnosis usually has been made by thoracotomy,

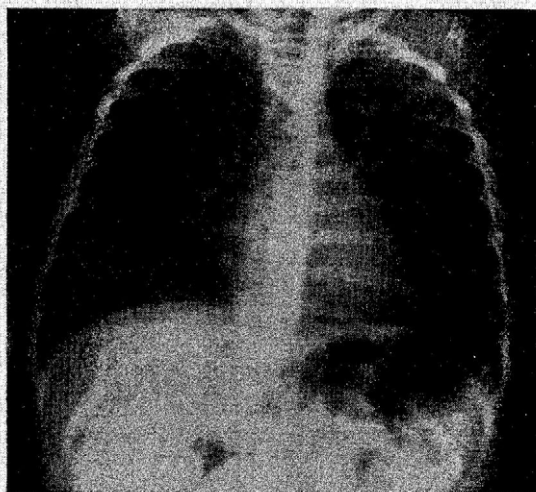


FIG. 1a. Chest x-ray (anteroposterior view) of ten-month-old girl showing radiopaque mass in right lower thorax.



FIG. 1b. Chest x-ray (lateral view) of same child showing mass in posterior lower right thorax which on intravenous pyelography (Fig. 1c) proved to be an ectopic right kidney.

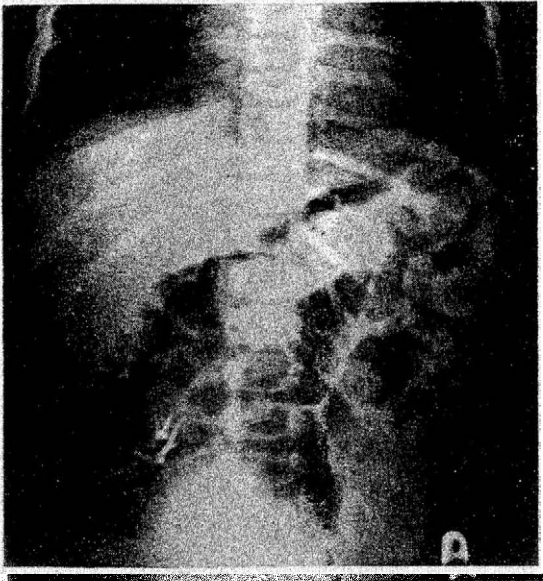


FIG. 1c

retrograde pyelography or pneumoperitoneum. Five cases<sup>2, 3, 11, 14, 15</sup> were diagnosed by intravenous pyelography. Among the pediatric cases, two were diagnosed by thora-

cotomy,<sup>8, 10</sup> one by pneumoperitoneum<sup>15</sup> and one by intravenous pyelography.<sup>3</sup>

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