

Adrenal Paragonimiasis Simulating Adrenal Tumor - A Case Report -

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We describe a case of adrenal paragonimiasis with its computed tomographic and ultrasonographic findings. Computed tomogram showed a well enhancing oval mass at right adrenal gland and ultrasonogram showed a dumbbell-shaped hyperechoic mass saddling on the top of the right kidney. Surgical specimen was multicystic mass filled with creamy material.

Key Words : Adrenal gland, Parasites

INTRODUCTION

It is well known that *Paragonimus westermani* causes ectopic parasitism of various sites in human hosts. However, as a site of ectopic paragonimiasis, the adrenal gland is very rarely involved. To our knowledge, this is the first ultrasonographic and computed tomographic report of adrenal paragonimiasis in English language literature. In this article, we describe a case of adrenal paragonimiasis presenting as a discrete mass on preoperative ultrasonogram (US) and computed tomogram (CT), which was multicystic on the surgical specimen.

CASE REPORT

A 70-year-old Korean man was admitted with voiding difficulty for 20 days. On admission, he was febrile (103.6 °F). Chest X-ray showed old calcific granulomas in the left lower lung with adjacent pleural thickening. Laboratory finding revealed leukocy-

tosis (11,000/mm³), elevated ESR (117mm/h), and C-reactive protein (105mg/l). Abdominal CT showed a highly enhancing, 8×3×5cm oval solid mass at the upper aspect of the right kidney (Fig. 1). US demonstrated a dumbbell-shaped, hyperechoic solid mass saddling on the right kidney, compressing it (Fig. 2).

Under the diagnosis of hypernephroma, radical nephrectomy of the right kidney including the mass was performed. The right adrenal gland was totally replaced by multilobulated mass. Cross section of the surgical specimen revealed variable-sized, multicystic mass and the cysts contained mucopurulent creamy content (Fig. 3). CT and US of the specimen demonstrated multiple cysts within the mass (Fig. 4). Light microscopic examination revealed chronic granulomas with extensive fibrosis and necrosis, and numerous eggs of *P. westermani* (Fig. 5).

DISCUSSION

Paragonimiasis is a parasitic disease caused by trematoda, *P. westermani* or other species of *Paragonimus*. Human infection is brought by ingestion of raw or incompletely cooked freshwater crab or crayfish infested with metacercaria (Kim, 1971; Beaver et al., 1984). The main habitat of adult paragonimiasis is the lung. Once the infested crustaceans are eaten, the metacercaria excyst in duodenum, penetrate the intestinal wall and begin to wander

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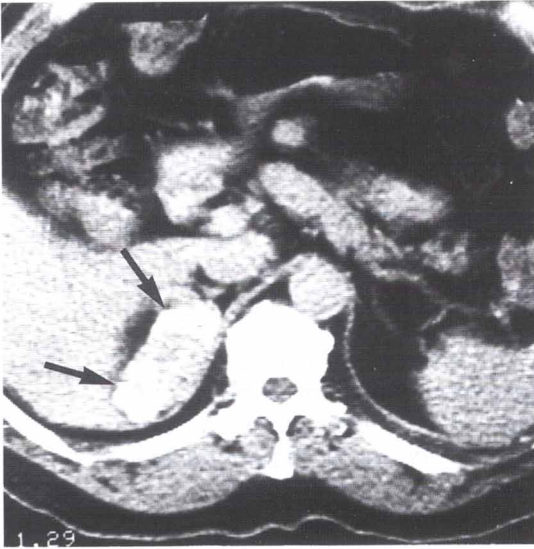


Fig. 1. Postcontrast CT of the abdomen shows a highly-enhancing oval mass in the right adrenal gland (arrows).

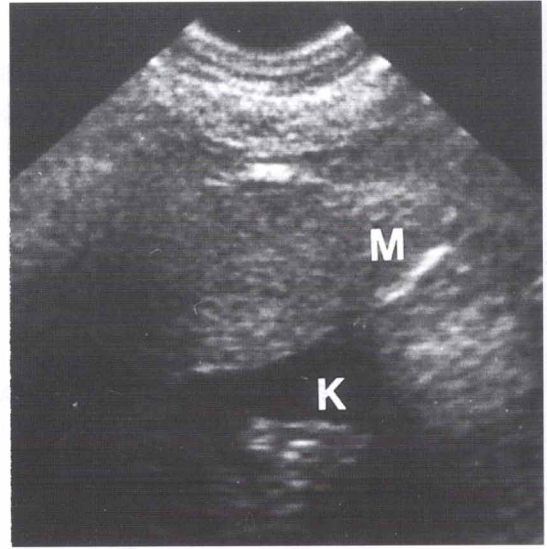


Fig. 2. Abdominal transverse ultrasonogram shows a dumbbell-shaped, hyperechoic mass (M) saddling on the right kidney (K) and compressing it.

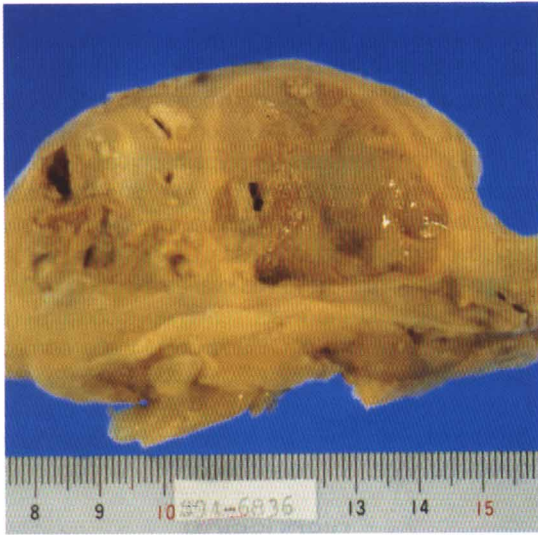


Fig. 3. Cross section of the surgical specimen shows a mass consisting of multiple variable-sized cysts totally replacing the adrenal gland.

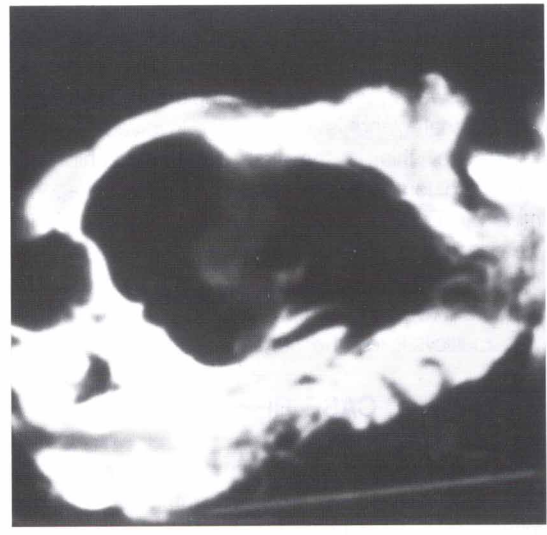


Fig. 4. CT of the surgical specimen demonstrates the variable-sized, multiple cysts within the mass.

within the peritoneal cavity. About 2–8 weeks after infestation, immature worms begin to invade the pleural cavity through the diaphragm. Adults of 8 weeks or older produce eggs (Beaver *et al.*, 1984). Worms in the pleural cavity invade the lung parenchyma after repeated trials. In the initial stage of

lung infestation, the adults migrate considerably.

Although the mechanism of the ectopic (or extrapulmonary) infestation is not yet comprehensively known, ectopic lesions seem to be produced by wandering adults, residing in the abdominal cavity, intracranial cavity and subcutaneous tissues (Chai,

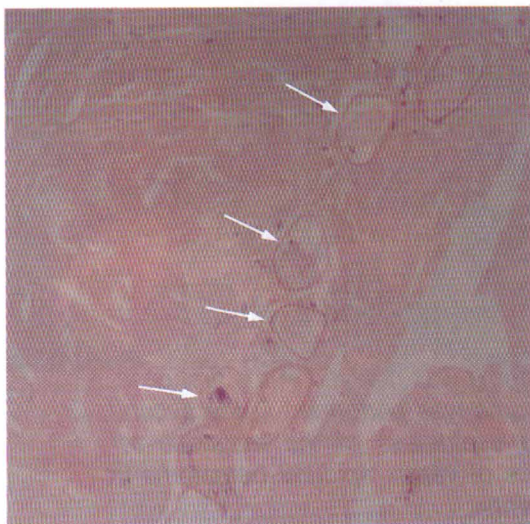


Fig. 5. Microphotograph of the specimen shows chronic inflammation, with extensive fibrosis and necrosis and eggs (arrows) of *P. westermani* (H & E $\times 100$).

1971; Cha et al., 1994). Most cases with active or chronic ectopic lesions have an associated lung lesion or history of lung disease (Cho, 1993). In our case, calcified lung lesions and pleural thickening are considered to be old healed lesions.

Muta (1912) described a case of adrenal paragonimiasis consisting of many encysted tumors varying in size and containing adult *P. westermani* and eggs in adipose tissue around the kidney and in adrenal gland. Although our case appeared to be a solid mass on preoperative CT and US, surgery revealed a variable-sized multicystic mass. The apparent solid appearance on CT and US may be explained by multiple cystic spaces containing creamy fluid. Therefore US and CT of the specimen after evacuation of the thick content of the cyst with

immersing the surgical specimen into formalin for fixation might uncover the true multicystic nature of the lesion. Since both pulmonary and ectopic paragonimiasis have cystic and nodular masses in the involved organs and the cystic masses contain sanguinous or mucopurulent materials (Kim, 1964; Chai, 1971), one should expect that ectopic paragonimiasis may appear to be cystic as well as solid mass on US or CT.

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