Development Goals or other campaigns. While facility-level staff are often urged to 'improve' performance, they have difficulty assessing quantitatively how their facility should contribute to the intended outcome of each strategic initiative. The tool uses data that are readily available to district managers for the purpose of setting targets, measuring progress and optimising resources at each facility.

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CLINICAL IMAGES

Reversible nephrotic syndrome secondary to pulmonary hydatid disease

Tahar Gargah, Rim Goucha-Louzir, Youssef Gharbi, Rachid Mohamed Lakhoua

Most patients with pulmonary hydatidosis are children. The disease may be asymptomatic or revealed by unusual events such as a glomerulopathy.[1]

Case report

An 8-year-old boy from a rural part of Tunisia presented with generalised oedema and macroscopic haematuria. There was no familial history of renal disease. He had a normal blood pressure (100/60 mmHg), and a pleural effusion was detected. Urinalysis showed nephrotic range proteinuria (375 mg/kg/d) and microscopic haematuria. His serum total protein concentration was 40 g/l and his serum albumin was 10 g/l. Renal biopsy showed capillary wall thickening and duplication, and mesangial cell proliferation in the glomeruli, characteristic of mesangiocapillary glomerulonephritis. Renal and abdominal ultrasound images showed increased echogenicity of the kidneys and mild ascites. Radiology revealed three large pulmonary hydatid cysts (Figs 1 and 2). The largest cyst occupied the entire right upper lobe and compressed the superior vena cava. Hydatid disease was confirmed by a strongly positive serum enzyme-linked immunosorbent assay (ELISA) for echinococcus.

The patient was treated with high protein intake, dipyramidol and captopril; both right lung cysts were resected,

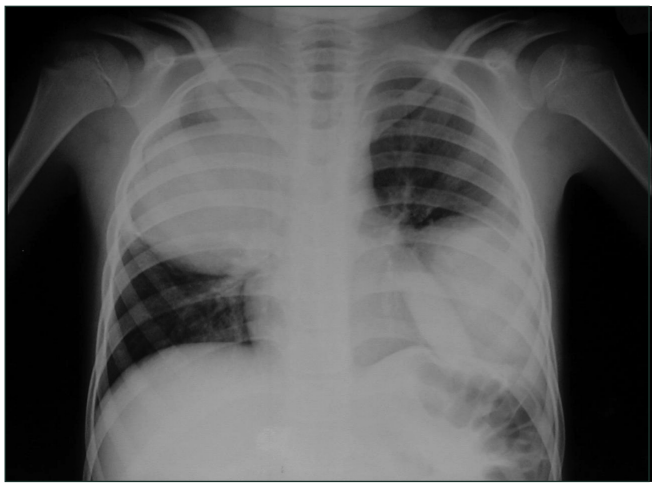

Fig. 1. Chest radiograph showing a bilateral well-circumscribed dense lesion.

followed by the left pulmonary cyst 4 weeks later. Hydatid cyst was confirmed histopathologically. He recovered well, the serum ELISA for echinococcus became negative, and follow-up urine examination and thoracic computerised tomography were normal 6 months after surgery, confirming good renal recovery and absence of pulmonary hydatid disease.

Discussion

Renal involvement during hydatid disease is well recognised.[1] The most common manifestation is proteinuria, with or without nephrotic syndrome. Several histopathological types have been demonstrated.[1-3] The pathogenesis of glomerular disease in patients with hydatid disease is not well understood, with most supporting an immune complex-mediated mechanism. Echinococcal antigen and corresponding antibody in the glomeruli have been demonstrated by immunoperoxidase studies.[4] The site of

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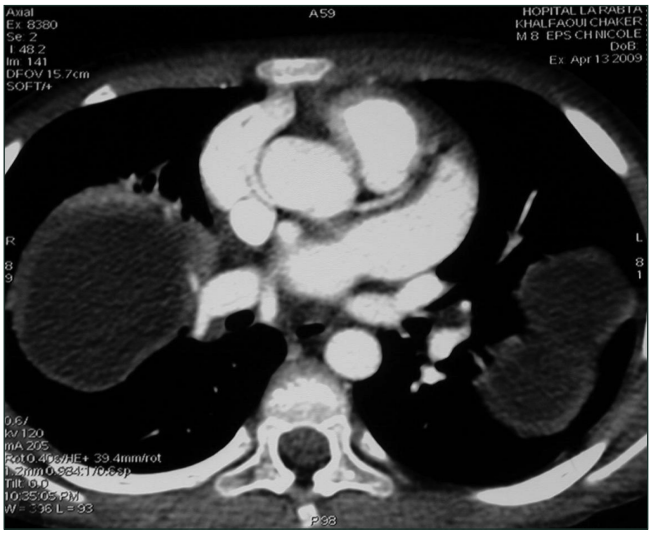

Fig. 2. CT scan showing bilateral hydatid cysts of the lungs.

the hydatid cyst appears to be crucial in the development of glomerular damage, since all reported cases are of either hepatic or pulmonary location. However, this deduction may be unfounded as hydatids occur most frequently in these locations.

Renal involvement during hydatid disease is not confined to the glomeruli. A case of predominantly chronic tubulo-interstitial nephritis with mesangioproliferative glomerulonephritis in a patient with hepatic hydatid cyst which responded to cyst resection was reported.[5] In our patient, the lesions were confined to the glomeruli which have the typical features of a mesangiocapillary glomerulonephritis. Most cases of glomerular lesions associated with hydatid disease, including ours, are reversible by medical or surgical treatment of the hydatid;[3] this demonstrates the causal relationship between hydatid disease and glomerulopathy. Our observation is believed to be the first in a child in the first decade, with renal histological confirmation.

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