Lung metastasis caused by an infection with *Echinococcus alveolaris*

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Abstract

*Echinococcus alveolaris* (*E. alveolaris*) (multi-localaris) is a parasitic agent that commonly affects the liver and poses as a solid mass. In contrast to *Echinococcus granulosus*, *E. alveolaris* tends to invade adjacent structures rather than displace and compress them. Haematogenous dissemination to other organs such as the lungs, brain, or bone is rare. In this case, we report on a 34-year old woman with a history of liver segmentectomy due to *E. alveolaris* infestation and the disease disseminated to the lungs. Computed tomography and magnetic resonance imaging showed multiple opacities and mixed signal intensities in the lungs, mimicking metastatic disease. The biopsy proved that the lesions were a result of metastasis of *E. alveolaris*.

**Keywords:** *Echinococcus alveolaris* • Computed tomography • Magnetic resonance imaging

CASE REPORT

A 34-year old woman was admitted to the clinic with fever and cough that had progressed in the last few months. She also mentioned a slight weight loss. The physical examination was normal. The patient had a history of liver resection due to *E. alveolaris* infestation. She complied with the follow-ups and there was no recorded recurrence of the disease. The whole blood count showed altered white blood cells and signs of chronic anaemia. The serological test for alveolaris parasite was positive. The imaging of the abdomen showed no evidence of recurrent infestation.

Computed tomography (CT) imaging of the thorax with and without contrast material administration was performed. The axial non-contrast-enhanced and contrast-enhanced CT showed multiple non-enhancing opacities with calcifications in the lungs (Fig. 1a and b).

For assessing the contrast-enhancement patterns of the lesion, dynamic contrast-enhanced magnetic resonance imaging (MRI) of the thorax was performed. In axial images, multiple patchy areas of mixed signal intensity were observed. In dynamic series, lesions showed slow progressive contrast enhancement (Fig. 2a and b).

For histopathological diagnosis, Tru-cut biopsy was performed. The results were consistent with *E. alveolaris* dissemination.

DISCUSSION

The clinical symptoms of hydatid disease are silent in many patients in the beginning of the disease. Most of these symptoms result from the excessive growth of the cyst or damage to the liver parenchyma, particularly in *E. alveolaris*. *E. alveolaris* is a more aggressive agent compared to *Echinococcus granulosus*, which represents the hydatid disease. The infestations by *E. alveolaris* resemble neoplastic diseases but show comparatively slower progression. The disease mimics a slow-growing tumour that infiltrates surrounding structures, particularly the porta hepatis, hepatic veins, inferior vena cava and biliary system; displacement of hepatic veins, portal vein and biliary tree is common due to the mass effect.

Central necrosis frequently develops as the ‘tumour’ mass increases. Microcalcifications are common. The mass may also extend outside the liver [1, 2]. For the diagnosis of cysts, serologic procedures, ultrasonography, CT and MRI scans are helpful.

Reported CT findings of liver infestation by *E. alveolaris* include heterogeneous hypodense areas with lack of contrast enhancement, isodense areas with or without contrast enhancement, calcifications, pseudo-cystic necrotic areas and dilatation of intrahepatic bile ducts. MRI is important for diagnosing alveolar echinococcosis in terms of its ability to demonstrate its fibrous and infiltrative nature, and extension of the lesion. MRI, although not used routinely, allows better visualization of mass contours, central necrosis, vascular relationships and extrahepatic extension of alveolar echinococcosis than CT [2–4].

In the treatment of *E. alveolaris*, surgical resection of the affected segment is effective whereas the liver transplantation is the only choice in patients with extensive disease. But one must keep in mind that *E. alveolaris* may spread to the lungs and cause metastatic disease at any stage of the disease.

**Conflict of interest:** none declared

REFERENCES


We read with great interest Karaman et al.’s rare case concerning lung infection with Echinococcus alveolaris [1]. We would like to highlight two points concerning the conservative treatment and imaging characteristics of alveolar echinococcosis (AE). AE is a severe disease, with a mortality of over 90% in untreated patients. Radical surgery combined with chemotherapy for up to 2 years after surgery is recommended. Inoperable cases or patients who have undergone liver transplantation require continuous chemotherapy for many years. Long-term chemotherapy may significantly prolong survival [2]. Benzimidazoles, albendazole and mebendazole are presently used as chemotherapeutic agents. Failures in drug treatment as well as the occurrence of side effects have been reported, leading to the discontinuation of treatment or to progressive diseases [3]. Intravenous amphotericin B (preferably as a lipid emulsion) may be used as rescue chemotherapy in patients resistant or intolerant to benzimidazoles. Pilot trials with interferon- gamma and nitazoxanide were unsuccessful. Interferon-alpha has yet to be tested in a pilot trial.

With regard to diagnosis, ultrasonography, computed tomography (CT) and magnetic resonance (MR) with standard and diffusion-weighted sequences all provide useful information and serve complementary roles in detecting and characterizing echinococcal lesions. Cross-sectional imaging is crucial for differentiating echinococcosis from malignant processes. CT is most useful for depicting the peripheral calcifications surrounding established echinococcal cysts, and MR imaging is most helpful for identifying echinococcosis of the central nervous system [4].

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References