



Simultaneous pachymeningeal and cerebral parenchymal involvement by alveolar echinococcosis

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A 65-year-old female was admitted to our clinic with complaint of headache with histopathological diagnosis of hepatic *Alveolar Echinococcosis*. She suffered from epigastric pain for six months. In neurologic examination, the patient had slight confusion and dysarthric speech. She has no visual field defect. Immunoserologic analysis (*Echinococcus* IgG ELISA test) for *Echinococcus multilocularis* was positive. Magnetic resonance (MR) imaging revealed *alveolar echinococcosis* cyst in the right lobe of the liver (Fig. 1A). Computed tomography (CT) scan revealed a hypodense lesion without calcification in the right occipital lobe. Contrast enhanced T1-weighted three dimensional (3D) volumetric magnetization-prepared rapid gradient echo (MPRAGE) MR sequence demonstrated simultaneous pachymeningeal and parenchymal involvements in the right cerebral hemisphere by the *alveolar echinococcosis* (Fig. 1B). Diffusion-weighted imaging (DWI) showed no restricted diffusion. The occipital parenchymal lesion had intense peripheral enhancement. Surrounding vasogenic edema in T2-weighted MR image was demonstrated in neighboring both the parenchymal and pachymeningeal lesions. The right hepatic and cerebral parenchymal lesions were totally removed with surgical therapy. After surgical treatment, the patient received prolonged medical treatment with albendazole at a dose of 10 mg/kg/day. The patient was recommended to have a control MR imaging every six

months. In follow-up, the right frontotemporal pachymeningeal involvement was completely resolved.

Alveolar echinococcosis is a chronic and progressive disease caused by the *Echinococcus multilocularis* larvae. The condition affects primarily the liver. *Alveolar echinococcosis* occurs as prevalent in the northern hemisphere. Endemic areas for *alveolar echinococcosis* are North America, Central Europe and Eastern Asia. Most human cases in Turkey have mostly been reported from the Eastern Anatolian Region of the country [1].

Cerebral parenchymal metastasis by *Alveolar Echinococcosis* has been rarely reported [2, 3], but the imaging findings illustrated here of the cerebral pachymeningeal involvement are extraordinary. MR imaging is a very sensitive technique in showing cerebral involvement in *alveolar echinococcosis*. Contrast enhanced 3D T1-weighted MPRAGE sequence produces very thin image slices with the sub-millimeter thickness and provides volume acquisitions with multiplanar image reconstruction [4]. Classical MR imaging appearance of *alveolar echinococcosis* lesions of the brain is multifocal or solitary multilocular mass with definite margin. Surrounding edema and peripheral enhancement are commonly demonstrated. The differential diagnosis should be made with cerebral neoplastic metastases and other parasite diseases, such as neurocysticercosis, toxoplasmosis, and tuberculosis [5]. Therapy planning in *Alveolar Echinococcosis* is performed according to PNM classification system based on imaging findings.

Although unusual, *alveolar echinococcosis* may cause pachymeningeal cerebral involvement. In symptomatic patients, adequate visualization of the pachymeningeal involvement pattern by high-resolution MR imaging sequences is very important for appropriate therapy planning.

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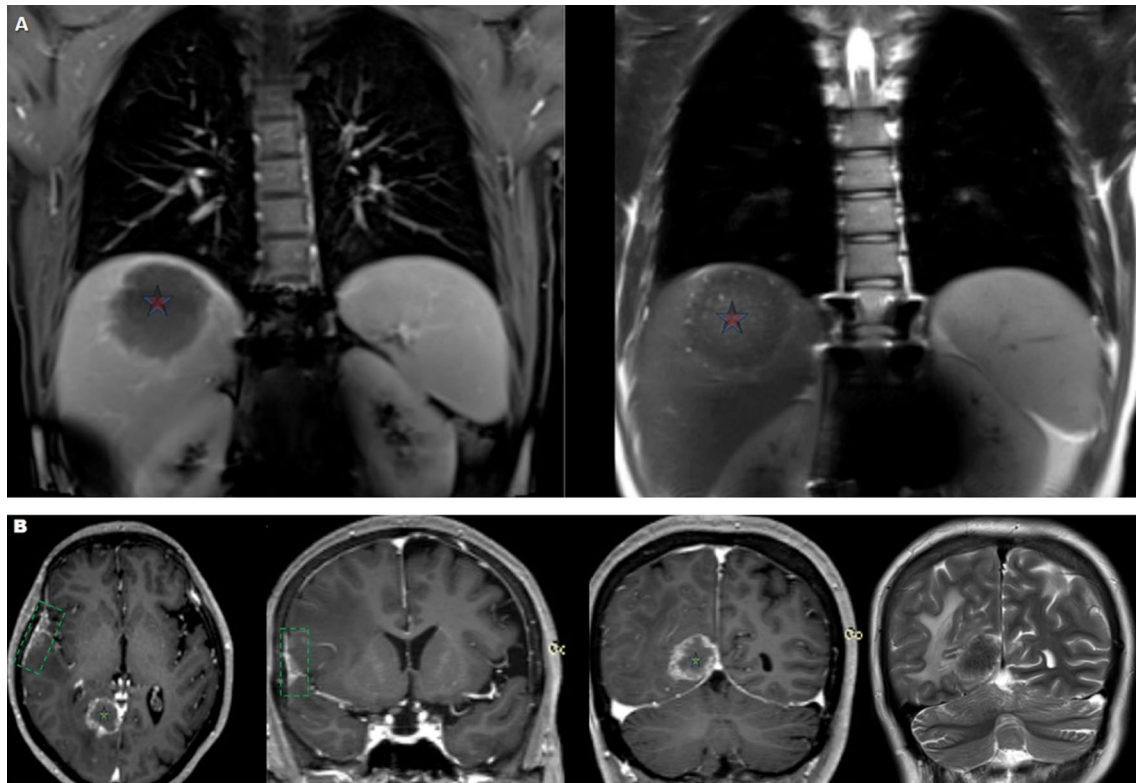


Fig. 1 **A** Coronal post-contrast T1-weighted and T2-weighted MR images show *Alveolar Echinococcosis* lesion (star) in the liver dome. **B** Axial and consecutive coronal post-contrast T1-weighted and cor-

onal T2-weighted MR images demonstrate enhanced the right perisylvian pachymeningeal involvement (frame) and the right occipital parenchymal lesion (star) with surrounding edema

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Declarations

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