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Visual Diagnosis

Multiple Intracranial Cystic Brain Lesions: A Diagnostic Dilemma

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Patient Description

This 19-year-old male presented in an unconscious state with refractory generalized tonic-clonic seizures. He had not experienced fever, vomiting, immunocompromise, metabolic derangement, trauma or surgery. Management was based on our status epilepticus protocol. Routine laboratory parameters were within normal limits. Magnetic resonance imaging (MRI) (Fig 1) revealed multiple thin-walled cystic lesions of varying sizes in both cerebral hemispheres, highly suggestive of hydatid cysts. Extensive evaluation failed to reveal primary disease in other organs. Finally, magnetic resonance spectroscopy (MRS) revealed a pyruvate peak that led to the final diagnosis of hydatid cystic lesions (Fig 2). The patient was started on corticosteroids and an anticonvulsant, but, owing to the uncontrolled seizures he required mechanical ventilation. Despite heroic management efforts he developed superrefractory status, and he died after 48 hours after admission.

Comment

Cerebral hydatidosis represents 0.05% of all intracranial mass lesions. In endemic regions of the world and in the Indian endemic zone, intracranial hydatidosis is rare and accounts for only 1% to 2% and 0.2%, respectively. These lesions are usually solitary.[1–3] Multiple intracranial hydatidosis is an extremely rare phenomenon, either developing spontaneously or following trauma or surgery.[1,3,4] Our patient most likely developed the lesions spontaneously. If these cystic lesions directly affect the brain parenchyma without involving other organs, they are classified as primary disease. Primary intracranial hydatid disease is a rare phenomenon, and primary multiple disease is extremely rare with only isolated cases documented in the literature.[3,4] Headache, vomiting, weakness, and features of raised intracranial tension are the most common and earliest manifestations but did not occur in our patient.[4] Although seizures are not uncommon, they represnet the least frequent presentation.

Multiple intracranial hydatidosis is a potentially lethal disease, so timely diagnosis is imperative. These multicystic lesions could have various presentations on imaging, with a differential diagnosis ranging from astrocytoma to infective lesions.[2] The timely differentiation of these lesions from other multiple intracranial abnormalities is important. Although MRI is superior to computed tomography for diagnosing such cases, MRI itself will not suffice. A pyruvate peak on MRS represents a very specific *in vivo* marker particularly for the hydatid cystic lesion.[5,6] Even though multiple primary hydatid intracranial cystic lesions are rare, this diagnosis should be considered in individuals from endemic areas.

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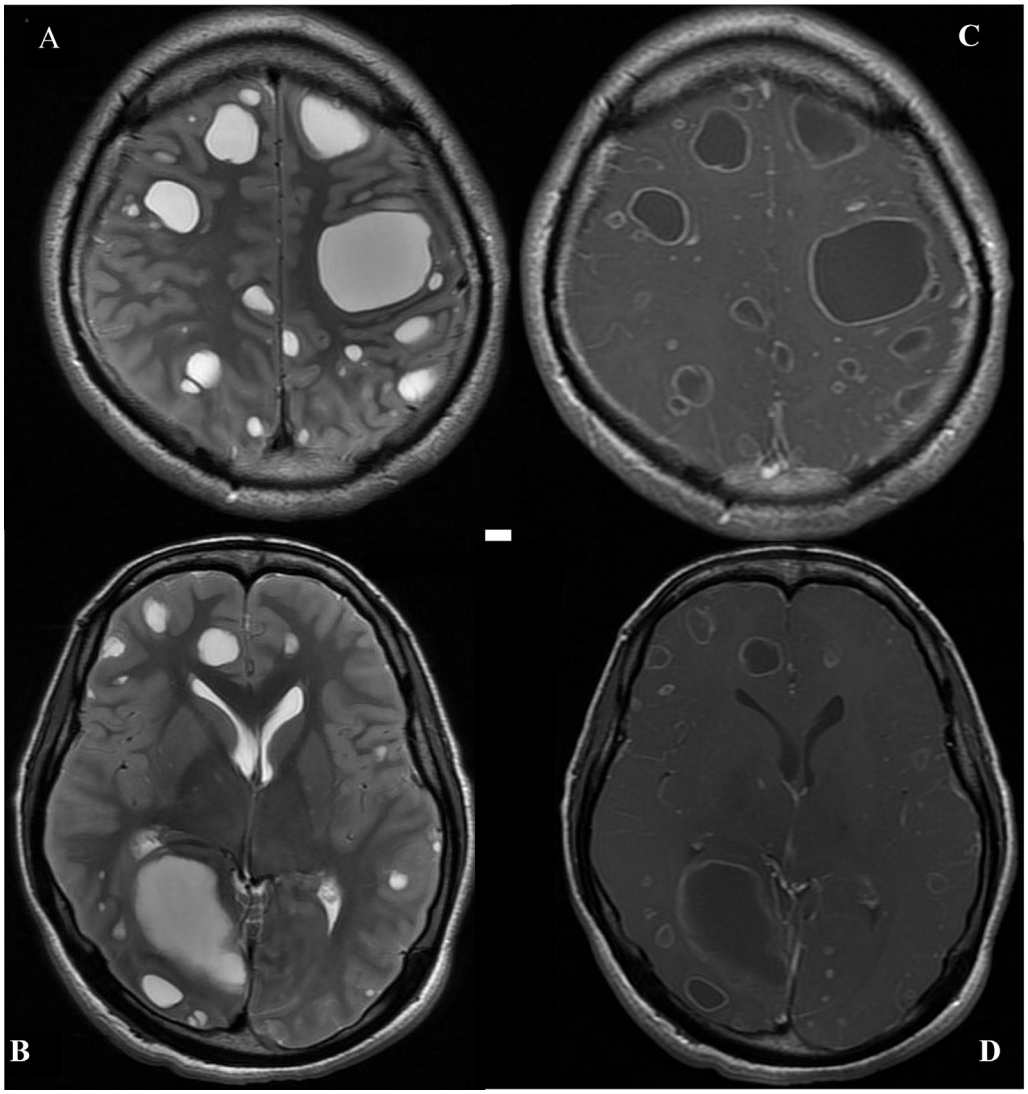

FIGURE 1. Magnetic resonance imaging (MRI) of the brain showing axial T2 images at the (A) supra-ganglionic level and (B) ganglionic level, having multiple thin-walled cystic lesions with size varying from 2 mm to 7 cm and widely distributed over both the hemispheres. (C, D) MRI of the brain showing axial T1 postcontrast images of the same level, as described above, further delineating the contrast ring enhancement of the walls of the lesions.

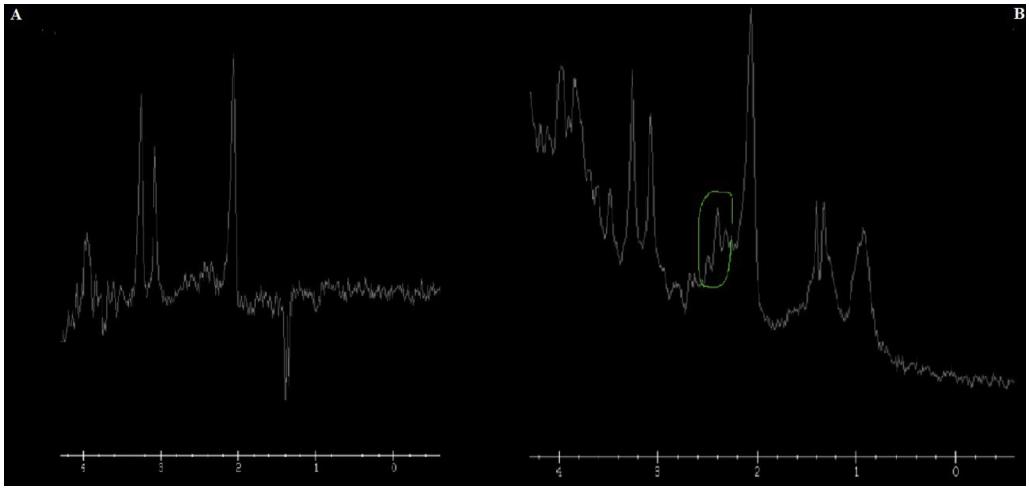

FIGURE 2. *In vivo* magnetic resonance spectroscopy of the lesion over the right parietal region, performed by multivoxel chemical shift imaging technique at (A) Echo time-144 milliseconds and (b) Echo time-35 milliseconds. (A) N-acetyl aspartate peak maintained at 2 ppm, stable creatine peak at 3 ppm, and mildly increased choline peak at 3.2 ppm. An inverted bifid lactate peak was noted at 1.3 ppm due to J coupling. (B) Along with (A) it shows pyruvate peak at 2.48 ppm (encircled in green). These spectroscopic findings are in favor of intracranial hydatidosis. The color version of this figure is available in the online edition.

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