

# Cerebral Echinococcosis

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## Abstract

Cerebral echinococcosis is rare. A child with chronic headache and disturbed gait caused by a primary left hemisphere large echinococcal cyst is described. CT scan confirmed the presence of a large left hemispheric cystic formation with dilatation of the body of the lateral ventricles. Encephalsonography through the left temporal bone as an acoustic window revealed a cystic lesion that exerted a pressure effect on the body of the left lateral ventricle. Surgical exploration of the region with hydatid cystectomy were performed. Adjuvant therapy with albendazole was administered. Ultrasound was sensitive to demonstrate the cystic nature of the lesion, evaluated the severity of the ventricular dilatation and showed that the temporal bone may be used as a satisfactory acoustic window for the detection of large cerebral echinococcal cysts.

## INTRODUCTION

The practical application of the piezoelectric principles in the medical field was first introduced in 1942 to delineate brain tumors. The first use of ultrasonography in an attempt to localize brain tumors using rudimentary equipment was reported in 1951 [1]. The use of A - mode scanners to detect and localize subdural hemorrhage was enthusiastically received in 1965 [2]. Later encephalsonography was used to search for fragments of bones following trauma and further work in characterization of intracerebral mass lesions was also reported [3,4]. This case showed that encephalsonography could be helpful in diagnosing large cerebral hydatid cysts in children with closed fontanel.

haemoagglutination test was positive. The diagnosis of cerebral cystic hydatid disease was made on the above observations and the child was scheduled for surgery. The child made a very good uneventful postoperative recovery and the sixth month later the child was good.

## CASE REPORT

A 12-year-old male child presented with headache and disturbed gait. The patient recounted a history of contact with dogs. His neurological examination revealed left sided hemiparesis. Other systemic radiological examination, were normal for hydatid disease. However, cranial CT scan revealed a large uni-vesicular cystic formation of fluid density occupying almost all the right cerebral hemisphere without surrounding edema and no enhancement on administering of contrast media (Fig 1). Although the fontanel was closed, ultrasound was helpful to demonstrate the cystic nature of the lesion. We utilized the right temporal bone approach, showing a large echo-free unilvesicular cyst in the right cerebral hemisphere leading to compressive dilatation of the body of the lateral ventricles (Fig 2). The serodiagnosis of hydatid disease by indirect

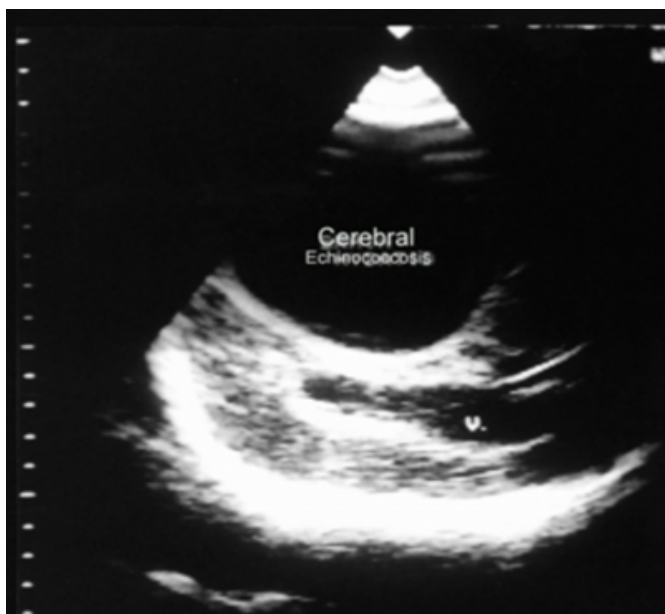
**Figure 1**

Figure 1: Enhanced axial computed tomography scan revealed large right cerebral hemisphereic hydatid cyst in a child.



**Figure 2**

Figure 2: Axial brain Ultrasound Scan showing echo – free cystic lesion of the right cerebral hemisphere and dilatation of lateral ventricles (V).



## DISCUSSION

Brain hydatid cysts are either primary or secondary. Contaminated - uncooked food, e.g salads and vegetables play an occasional role in transmission. The combination of clinically silent persistent ductus arterioses or patent foramen ovale, and the ingestion of unboiled milk obtained fresh from animals might will explain how primary hydatid disease develops in children [5]. In countries where hydatid disease is prevalent, cerebral hydatid cysts may be responsible for as much as 10 % of all intracranial expanding lesions. These may be localized in various anatomical sites within the calvarium as well as the skull itself [6]. The brain is rare site to be involved in cystic hydatid disease (1.5 % of all sites). Cerebral hydatid cysts usually present with intracranial hypertension sometimes associated with localizing neurological signs [7]. The ultrasound features of intact echinococcal cysts are either, univesicular, echo-free or multivesicular, septated. The computed tomography scan features of cerebral hydatid cysts are divided into two groups. In the first, the unilocular group, the cyst is large, spherical in shape, with no surrounding edema and no enhancement on administering of contrast media. In the second group there are multiple and small multilocular cysts, with perifocal edema and after contrast media administration there is enhancement of the cyst wall [8].

The Echinococcus cysts grows very slowly and unless located in a critical anatomic site, it takes many years to evolve [9]. The chronicity and the pressure effect (the osmotic pressure within each cyst may reach 300 ml of water) exerted on the inner table which probably lead to thinning of the already relatively thin temporal bone to become suitable as an acoustic window. However, in our case, details of the internal structures of the cyst were clearly identified, and the dilated lateral ventricles were also visualized. Early diagnosis of cerebral hydatid cysts may avoid serious life threatening complications such as rupture, infection and internal hydrocephalus. In conclusion, Ultrasound is available in most hospitals in endemic countries therefore can be used in conjunction with CT scan to improve the diagnosis of large cerebral echinococcal cysts in children with closed fontanelles.

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