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Case Report

Cystic Brain Lesion in A Child Most Likely Hydatid Cyst: The Computed Tomographic Findings and A Case Report

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Abstract

Hydatid disease of the brain is a very rare disease entity, and accounts for about 1-2% of all Echinococcus granulosis infections.

This is a fifteen-year-old male child that presented from a peripheral health facility for an enhanced computed tomography of the brain on account of a six-month history of recurrent headaches, feeling of heaviness in the head and repeated convulsions.

The enhanced computed tomography demonstrated a non-enhancing multiple cystic area with a central solid area with no surrounding edema but causing erosion, areas of irregularities and discontinuity of the adjacent skull vault.

The CECT findings with the patient's clinical history rose a suspicion of hydatid cyst of the brain, currently the patient is placed on medical treatment and been prepared for surgical excision of the cystic lesion.

Keywords: hydatid cyst; child; brain; computed tomography

Introduction

Hydatid disease is a rare disease and endemic in Middle East, Southern Europe, Australia, New Zealand and South America [1]. The disease is caused by infestation of the larvae of Taenia echinococcus, with brain involvement been rare and about 1-2% [1-3].

Cerebral hydatid disease is very rare, and could either be primary or secondary, the primary is entirely caused by direct infestation of the brain without concomitant involvement of other organs. The primary disease is most probably from patient's immune incompetence, patent ductus arteriosus, patent foramen ovale and special brain architecture [3,4].

Hydatid disease basically involves mainly the liver and lungs, with involvement of the brain very rare and in about 1-2% of cases. The cerebral disease is most commonly seen in childhood and often solitary causing varying neurologic manifestations, some of which are seizures and paralysis [1-6].

Hydatid disease of the brain may be located in any part of the brain, but most often times seen in both hemispheres along the middle cerebral artery territory with the parietal lobe of the brain the most frequently involved site of affectation [1,6 ,7].

Imaging plays a vital role in diagnosing hydatid cyst of the brain; the imaging modalities are mainly computed tomography and magnetic imaging resonance of the brain [1-8]. Histopathological examination is however the gold standard in its diagnosis [2,8].

The treatment for intracranial hydatid cyst is mainly by surgical removal of the cyst following the Dowling's technique with pre and post administration of Albendazole prophylactically and to reduce the rate of occurrence of the cyst [1-9].

Case Report

This is a fifteen-year-old male child that presented from a peripheral health facility for an enhanced computed tomography of the brain on account of a six-month history of recurrent headaches, feeling of heaviness in the head, multiple swellings in the fronto-parietal skull vault and repeated convulsions.

The patient was conscious and oriented, not dehydrated, not pale, anicteric and acyanosed. The neurological assessment was normal. The cardiovascular assessment also was normal for the patient's age. Serological examination to rule out the possibility of infestation of the abdominal organs with hydatid disease was negative.

The enhanced computed tomography demonstrated a huge non-enhancing multiple cystic area with a central solid area with no surrounding edema

but causing erosion, areas of irregularities and discontinuity of the adjacent skull vault. These findings are demonstrated on figures 1-5.

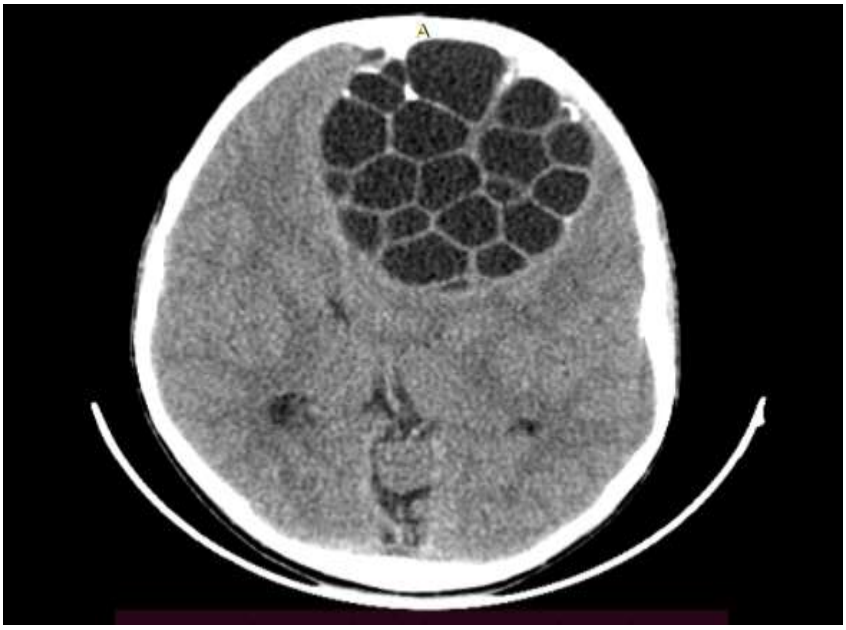

Figure 1: Non-enhanced computed tomographic image of the brain at the level of the lateral ventricles anteriorly demonstrating multiple well demarcated and non-communicating cysts having a honey-comb pattern.

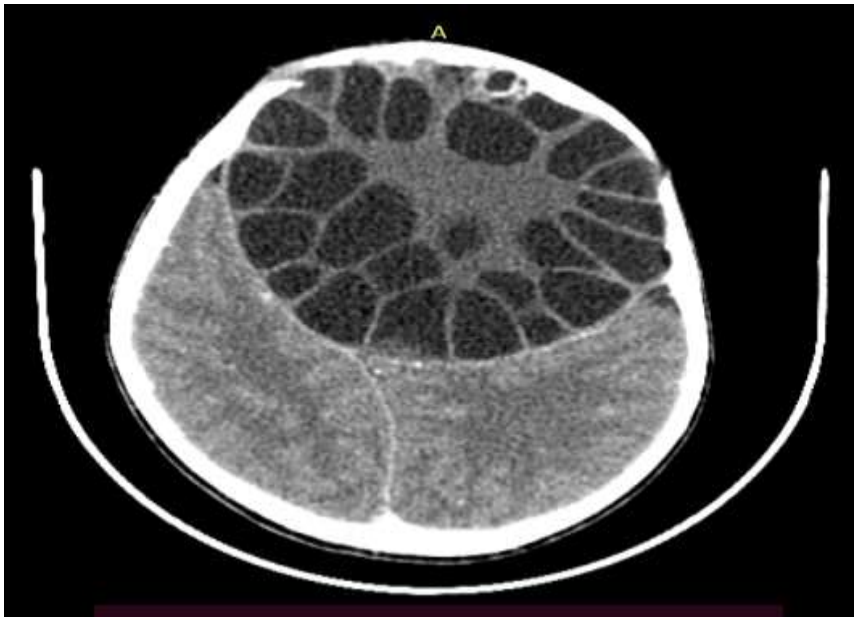

Figure 2: An axial contrast enhanced computed tomography of the brain demonstrating a huge mass with a central non-enhancing nodule and multiple non-communicating thin-walled cysts having a spoke-wheel appearance. Erosion and defects of the adjacent skull vault is also demonstrated.

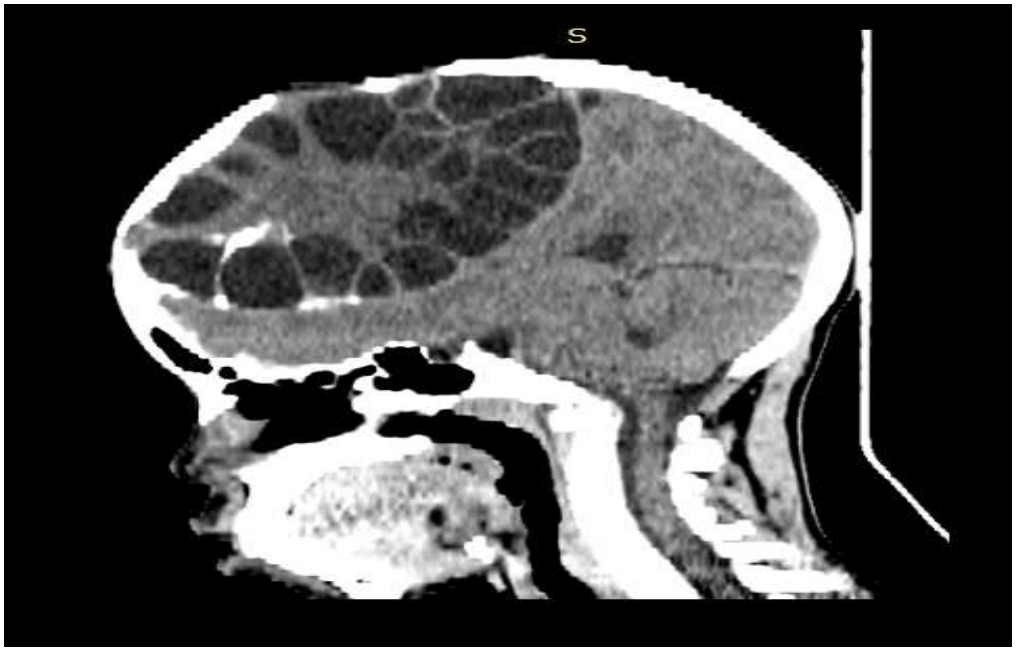

Figure 3: A sagittal contrast enhanced computed tomography of the brain demonstrating a huge mass with a central non-enhancing nodule and multiple non-communicating thin-walled cysts having a spoke-wheel appearance. Erosion and defects of the adjacent skull vault with compressive effect on the posterior horn of the lateral ventricle are also demonstrated.

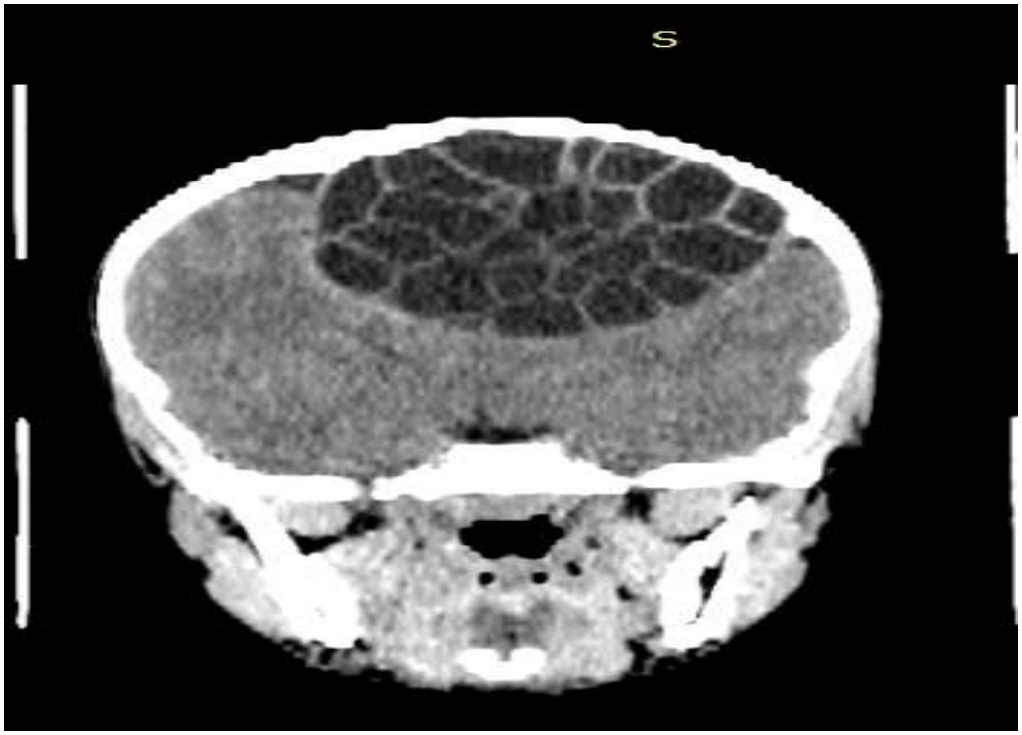

Figure 4: A reconstructed coronal non-enhanced computed tomographic image of the brain at the level of the lateral ventricles anteriorly demonstrating multiple well demarcated and non-communicating cysts having a honey-comb pattern. No surrounding edema is demonstrated.

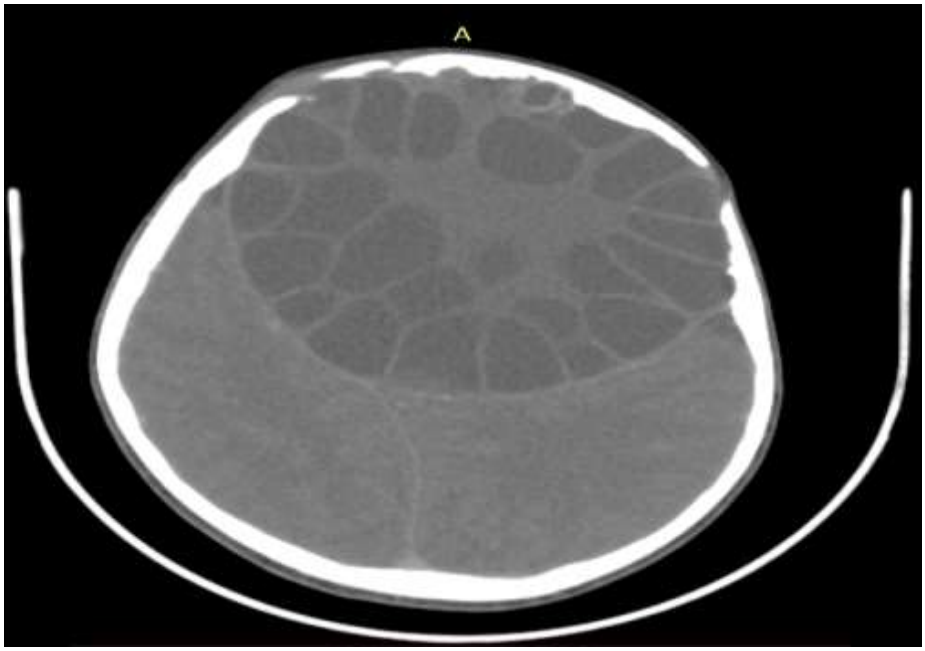

Figure 5: An axial tomographic image of the brain on bone window demonstrating areas of cortical discontinuity in keeping with skull defects and areas of undulation, erosions and irregularities due to pressure effect of the cystic mass.

The CECT findings with the patient's clinical history rose a suspicion of hydatid cyst of the brain, currently the patient is placed on medical treatment and been prepared for surgical excision of the cystic lesion.

The medical treatment given to the patient is oral albendazole 15mg per body weight twice daily and open currently without duration, this will continue after the surgical excision to prevent recurrence and systemic involvement.

Discussions

Hydatid disease is a rare disease and endemic in Middle East, Southern Europe, Australia, New Zealand and South America[1]. The disease is caused by infestation of the larvae of Taenia echinococcus, with brain involvement been rare and about 1-2% [1-3]. The case under review does not live in an endemic area and has involvement of the brain primarily most likely following infestation of the larvae of Taenia echinococcus.

Hydatid disease basically involves mainly the liver and lungs, with involvement of the brain very rare and in about 1-2% of cases. The cerebral disease is most commonly seen in childhood and often solitary causing varying neurologic manifestations, some of which are seizures and paralysis [1-6]. The index case is a child and had a cerebral disease which came out to be solitary on imaging. The patient also presented with history of seizures and weakness involving the upper limbs, thereby conforming to these literatures.

Hydatid disease of the brain may be located in any part of the brain, but most often times seen in both hemispheres along the middle cerebral artery territory with the parietal lobe of the brain the most frequently involved site of affectation [1,6,7]. The index case had involvement of both hemispheres and in the parietal region anteriorly, thereby conforming to these literatures.

Imaging plays a vital role in diagnosing hydatid cyst of the brain; the imaging modalities are mainly computed tomography and magnetic imaging resonance of the brain [1-8]. The case under review was diagnosed mainly following computed tomographic examination of the brain, thereby conforming to these literatures.

The main findings from imaging are that of a solitary mass with multiple non-communicating cysts with non-enhancing solid nodule most often in the parietal lobe with no surrounding edema [1,3,5,7]. The case under review was not an exception, a solitary huge mass with multiple non-communicating cysts and non-enhancing solid nodule with no surrounding edema in the parietal lobes was demonstrated thereby conforming to these literatures.

The treatment for intracranial hydatid cyst is mainly by surgical removal of the cyst following the Dowling's technique with pre and post administration of Albendazole prophylactically to reduce the rate of occurrence of the cyst [1-9]. Similar treatment options were suggested for the index case, currently taking oral albendazole and been prepared for surgical removal of the cystic mass, thereby conforming to these literatures.

Conclusion

Patients with suspicion of cystic lesions of the brain should have be imaged either by computed tomography or magnetic resonance imaging to rule out hydatid disease, this will also give room for early institution of management to prevent associated morbidity and mortality associated with the disease.

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