Archives of Clinical Trials

Case Report

Posttraumatic Intradiploic Leptomeningeal Cyst

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- Received Date: 19 Jan 2025
- Accepted Date: 23 Jan 2025
- Publication Date: 25 Jan 2025

Keywords: Intradiploic leptomeningeal cyst, skull fracture, head,CT, MRI

Introduction

Posttraumatic leptomeningeal cysts are rarely seen sequelae lesions after growing skull fractures. It has been reported that leptomeninges protrude to the intradiploic distance after head trauma in cases of growing skull fractures. The expansion of skull fractures is the result of the trapping of the dural tear and arachnoid layer under the tip of fracture lines. They have been reported to be associated with resistant seizures and focal neurological deficits.

Case

An 18-year-old girl presented to the hospital with headache. Physical examination revealed a swelling in the occipital region. Cranial CT revealed cortical defect on the inner table of occipital bone in addition to a cystic lesion located between the occipital bone inner and outer table, on the right side (Figure 1). It was learned that she had had a head trauma in her childhood and had a fracture. Conservative treatment and follow-up had been performed. MRI was recommended for differential diagnosis. MRI showed that the cystic lesion had the same signal intensities as CSF on T1 and T2-weighted images but did not show pathological diffusion restriction on diffusion-weighted imaging (DWI) and Apparent diffusion coefficient (ADC) sequences (Figure 2). In the light of these imaging findings, the diagnosis of posttraumatic leptomeningeal cyst was confirmed.

Discussion

Posttraumatic intradiploic leptomeningeal cysts are a rare cause of headache and occur secondary to calvarial fractures in the pediatric age group. Various pathogenesis has been described for leptomeningocele formation after traumatic brain injury in children [1]. The most widely accepted hypothesis is that the CSF is deposited in a pouch surrounded by an arachnoid membrane in intradiploic dis- tance as a result of fracture of the inner bone and rupture of the dura mater through

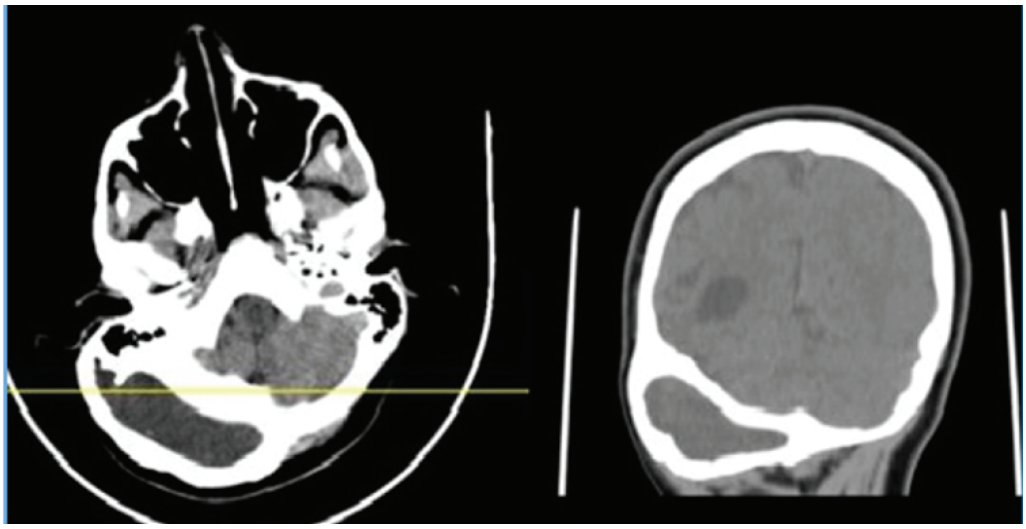

Figure 1. *Cranial CT, cystic lesion located in right occipital bone*

Citation: GOKTURK N, KARA T. TPosttraumatic Intradiploic Leptomeıngeal Cyst . Arch Clin Trials. 2025;5(1):02

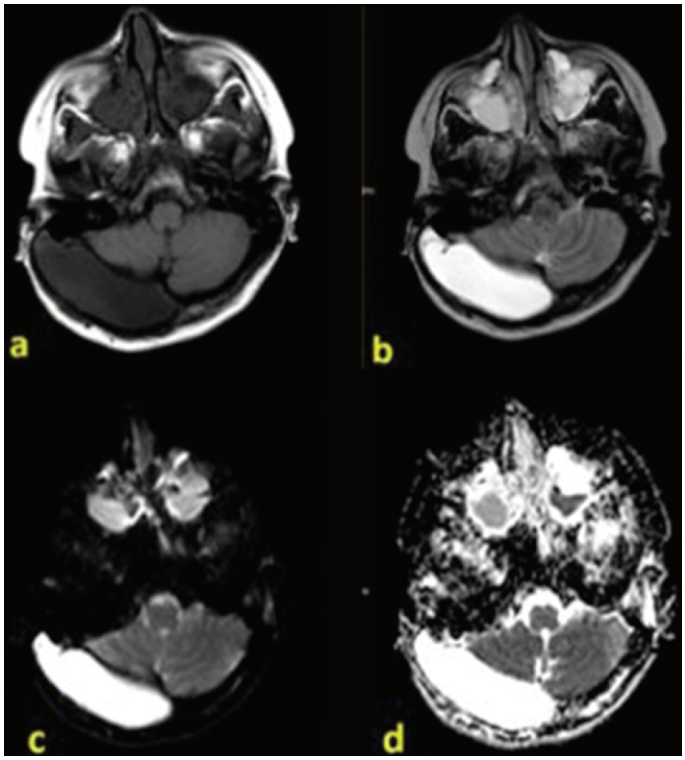

Figure 2. *Cranial MR showes that the cystic lesion on right occipital region, has the same signal intensities as CSF with T1(a) and T2 (b) weighted images but there is not diffusion restriction on DWI (c) and ADC (d) sequences*

it. The thickness of the occipital bone and the presence of a thick muscle cover attached to the outer tabula explain why this entity is mostly occipital region. Clinical findings may include head- ache, ataxia and sometimes seizures and a slow growing swelling on the skull. Communicating hydrocephalus is frequently associated with posttraumatic intradiploic leptomeningial cyst [2]. Leptomeningeal cysts could be confused with dermoid or epidermoid cysts, eosin- ophilic granulomas, plasmacytomas and smooth-bound osteolytic metastatic tumors on CT scans because of their hypodense appear- ance. In MRI, the signal intensity of the leptomeningeal cyst is similar to the cerebrospinal fluid in both T1 and T2-weighted sequences in addition shows no restricted diffusion on DWI sequences, so sepa- ration can be more accurate. In addition, associated parenchymal pathologies can be detected by MRI [3]. Surgical treatment constitutes the basis for the treatment of symptomatic posttraumatic intradiploic leptomeningeal cysts, and the indications for surgery include large size, swelling leading to deformation and persistent headache [4].

Conclusion

It should be kept in mind by physicians that a simple linear skull fracture that does not require treatment can develop com- plications such as intradiploic leptomeningeal cysts after years. In this article, we hope to contribute to the literature and increase the knowl- edge and awareness of physicians by presenting the radiological and pathophysiological features of this rare complication.

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