

A Case Report of Traumatic Temporal Cephalocele



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Submission: March 13, 2017; **Published:** May 23, 2017

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Abstract

The authors present a case report of a cephalocele of traumatic etiology involving the mastoid.

Introduction

A traumatic cephalocele is a complication of high morbidity and mortality if not properly diagnosed and treated, and is rarely located in the mastoid segment of the temporal bone. Therefore, the objective of this case report is to review the clinical profile and possible complications, highlighting the importance of imaging tests in surgical planning.

Case Report

A 40-year-old male patient, hit by a car two years ago, evolved with hypoacusis (hearing impairment) and tissue projecting into the left external auditory canal, detected by otoscopic examination.

A computed tomography revealed an oblique fracture of the left temporal bone associated with hypoattenuation of the adjacent cerebral parenchyma compatible with parenchymal contusion. Bone discontinuity of the tympanic tegmen with the presence of hypo attenuating material in the tympanic cavity and in the homolateral mastoid cells was also observed, this being non-specific to the method.

Subsequently submitted to a magnetic resonance of the skull, meningoencephalic content was distinguished within the tympanic cavity from the middle cranial fossa/tympanic tegmen, representing post-traumatic cephalocele.

Discussion

Meningoencephalic herniations of the mastoid and middle ear as described in this study are rare and potentially life-threatening situations, requiring surgical intervention [1,2].

Among the different etiologies of temporal cephalocele, trauma, complications of chronic otitis media with or without a cholesteatomatous component and iatrogenic complications are the most prevalent [1, 2]. Cases of spontaneous cephalocele have also

been described, and although this pathological entity is relatively rare, an increase in the number of spontaneous / idiopathic cases has been reported due to increasing advances in diagnostic imaging [1].

The determination of cerebral herniation requires not only bone lesion, but also associated pachymeningeal laceration [1,2].

The symptoms typically related to temporal cephalocele are hypoacusis (conductive), headache, meningitis, otorrhea, tinnitus, vertigo and neurological deficit [1,2]. The sensorineural component may be evident in cases where there are labyrinthine complications, such as labyrinthine hemorrhage and, in the medium term, fibrosing and ossifying labyrinthitis.

Different surgical treatments have been developed to treat cephaloceles and these are based on the extent and location of the bone defect, the existence or absence of associated pathologies and the preoperative auditory function [1-3]. However, the surgical approach may require changes during surgery depending on intraoperative findings [2]. Included among these treatments is the reconstruction of the floor of the middle cranial fossa with bone substitutes and collagenous membranes [1]. During surgical manipulation there is an attempt to reinsert the herniated brain tissue through the bone defect into the cranial cavity / middle cranial fossa [1], or, if repositioning is not possible, resection of the gliotic tissue with bipolar electrocoagulation [1,2].

A cerebrospinal fluid (CSF) fistula through the temporal bone is also a rare pathological entity [3,4] and its etiologies often overlap with those of cephalocele (traumatic, infectious, neoplastic, iatrogenic), with less common reports of spontaneous fistula (notably in the pediatric age range) [3,4]. Cases of traumatic CSF fistulas related to the temporal bone are more often associated with the fracture of the tympanic tegmen [5].

Spontaneous cerebrospinal fluid otorrhea in children may be related to Mondini labyrinthine dysplasia or to canal patency such as Hyrtl fissure, a widening cochlear aqueduct or facial canal [3,4]. In adults it may be due to the abnormal development of arachnoid granulations [3,4].

Some authors suggest that this type of CSF fistula in adults may be related to the dehiscence of the tympanic tegmen with idiopathic intracranial hypertension and morbid obesity [3]. The characterization of hyaline fluid drainage from the ostium of the auditory tube through nasofibroscope corroborates the diagnosis.

Clinical complaints other than CSF otorrhea include pulsating tinnitus, sensation of auricular fullness, and hearing loss [3,5]. The test for beta -2-transferrin [3-5] is used for its diagnosis, and imaging tests are useful for diagnostic confirmation [3], preferably computerized tomography with 1-mm sections in order to identify bone dehiscence [4,5].

One of the principal complications is meningitis [3,4], usually recurrent due to the persistence of the fistulous pathway in conservative treatment [4]. In cases of cerebrospinal fluid fistula with a traumatic etiology, the patient's chance of developing meningitis increases if the CSF leak persists for more than a week [5].

In the case of traumatic cerebrospinal fluid fistulas, conservative management is a viable possibility in specific cases [5], except in cases overlapping with cephaloceles, in which surgical repair is mandatory [3-5].

Conclusion

Through this case report we emphasize the importance of the clinical-radiological correlation, if there is a clinical history of cephalocele and cerebrospinal fluid fistula. Imaging examinations, principally CT and magnetic resonance imaging, are of fundamental importance in the management of these cases, allowing a detailed evaluation of the dehiscent bone repairs and of the herniated contents, as well as possible intra and extracranial complications, allowing adequate therapeutic planning.

References

1. Sergi B, Passali GC, Picciotti PM, De Corso E, Paludetti G (2013) Transmastoid approach to repair meningoencephalic herniation in the middle ear. *Acta Otorhinolaryngol Ital* 33(2): 97-101.
2. Bliokas S, Magras I, Polyzoidis S, Kouskouras K, Psillas G, et al. (2014) Repair of Temporal Bone Encephalocele following Canal Wall Down Mastoidectomy. *Case reports in Otolaryngology* 2014(2014): Article ID 271824.
3. Kim L, Wisely CE, Dodson EE (2014) Transmastoid Approach to Spontaneous Temporal Bone Cerebrospinal Fluid Leaks: Hearing Improvement and Success of Repair. *Otolaryngology Head Neck Surg* 150(3): 472-478.
4. Jégoux F, Malard O, Gayet-Delacroix M, Bordure P, Legent F, et al. (2005) Hyrtl's Fissure: A Case of Spontaneous Cerebrospinal Fluid Otorrhea. *AJNR Am j Neuroradiol* 26(4): 963-966.
5. Juliano AF, Ginat DT, Moonis G (2015) Imaging Review of the Temporal Bone: Part II. Traumatic, Postoperative, and Noninflammatory Nonneoplastic Conditions. *Radiology* 276(3): 655-672.



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DOI:10.19080/TBSND.2017.01.555556

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