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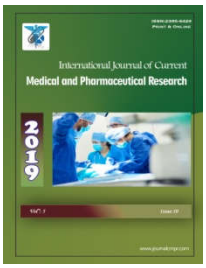

Case Report

EPIDURAL ABSCESS AFTER RHINOSINUSITIS IN CHILD: CASE REPORT

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ABSTRACT

Intracranial complications (CIC) of rhinosinusitis are the extension of the infectious process to adjacent structures, occurring in a small number of patients, but with a high morbidity and mortality rate, requiring rapid recognition. Epidural abscess is a rare but important suppurative infection of the central nervous system (CNS). Abscesses that are enclosed within the bony confines of the skull or spinal column can expand to compress the brain or spinal cord and cause severe symptoms and permanent complications. The key to diagnosis is to consider this rare condition then to perform a physical examination followed by appropriate imaging. Magnetic resonance imaging (MRI) usually provides more information than computed tomography and Successful treatment of an IEA usually requires a combination of a drainage procedure and antibiotic therapy.

INTRODUCTION

There are three forms of focal intracranial suppuration: brain abscess, subdural empyema, and intracranial epidural abscess. Abscesses that are enclosed within the bony confines of the skull or spinal column can expand to compress the brain or spinal cord and cause severe symptoms, permanent complications, or even death. Prompt diagnosis and proper treatment can avert complications and achieve cure in many cases. Both the diagnosis and management of epidural abscess, which often includes a surgical procedure for aspiration or drainage of the abscess, have been greatly aided by the advent of modern imaging techniques, such as computed tomography and especially magnetic resonance imaging.[1]

Two distinct varieties of epidural abscess occur: spinal epidural abscess (SEA) and intracranial epidural abscess (IEA). SEA is more common by a factor of nine to one. The distinction between these two entities is based upon the different anatomy of the two locations within the central nervous system and some differences in symptoms and natural history. IEAs are less common than SEAs and less acute in their evolution. However, like SEAs, IEAs are significant infections requiring optimal therapy to prevent complications. [1]

Acute rhinosinusitis is an illness that results from infection of one or more of the paranasal sinuses. A viral infection associated with the common cold is the most frequent etiology of acute rhinosinusitis, more properly called viral rhinosinusitis.[1,2]

Children with untreated bacterial rhinosinusitis are at risk for serious complications, which may be the presenting manifestation. Complications may result from orbital or intracranial extension. The exact rate of complications of ABRS is unknown, but they are estimated to occur in approximately 5 percent of patients hospitalized for rhinosinusitis. [3,4]

CASE REPORT

A previously healthy 11-year-old child with a one-month history of right frontoparietal headache and vomiting.She looked for a hospital in her homeland, being diagnosed with rhinosinusitis (Figure 1).She underwent antibiotic therapy (cephalexin), but afterthree days had left hemiparesis, and then was transferred to a reference center in Manaus, Amazonas. On initial clinical examination, the patient was in poor general condition, with neck stiffness and generalized tonic-clonic seizures. It was decided to treat with broad spectrum antibiotic therapy, corticotherapy and anticonvulsant therapy. In a

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cerebrospinal fluid study: it was colorless, clear appearance, cytometry of 55cel / mm3, glucose 64mg / dl, proteins 21mg / dl, 100% mononuclear cells and absence of bacteria, BAAR and cryptococcus. Magnetic resonance imaging (MRI) was requested, and an epidural abscess was observed in the parietal and interhemispheric region with compression under the lateral ventricle and herniation of the cingulate gyrus contralaterally. Emergency surgical drainage was performed and material was collected for culture, with no growth of microorganisms after the recommended period. There were no postoperative complications and the patient progressed with improvement in the general condition. Antibiotic therapy was maintained for six weeks, with complete resolution of the condition.

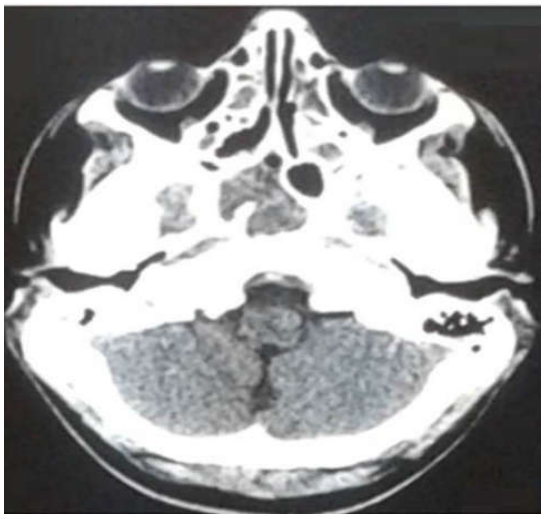

Figure 1 Candle nasal sinus

DISCUSSION

The intracranial dura mater forms the inner lining of the skull and is directly adherent to bone. Thus, under normal circumstances, there is no actual epidural space. The potential epidural space can be opened by pressure from expanding tumors, blood, inflammatory masses, or pus. This requires that the firmly adherent dura be dissected off the bone; as a result, intracranial epidural abscesses tend to be slow growing, rounded, and well localized. In contrast, subdural empyema is a collection of pus between the dura and arachnoid membrane.[1,2]

Organisms usually spread into the potential extradural space by direct extension from a contiguous focus of infection or by inoculation during trauma or neurosurgery. Organisms may also pass through the venous foramina of the frontal bone plate to this space without causing frontal bone osteomyelitis. After reaching this site, the bacteria cause inflammation and the formation of pus or granulation tissue, which gradually dissect the tough and adherent dura away from the inner table of the skull.

Intracranial epidural abscess is the third most common focal pyogenic intracranial infection, after brain abscess and subdural empyema. It is far less common than spinal epidural abscess.[1,2]

Signs and symptoms develop both as a result of infection and the slowly expanding intracranial mass.

- Epidural abscess – Papilledema, focal neurologic signs, headache, lethargy, nausea, vomiting.
- Subdural abscess – Fever, severe headache, meningeal irritation, progressive neurologic deficits, seizures, signs of increased intracranial pressure (papilledema, vomiting) .
- Brain abscess – Headache, neck stiffness, changes in mental status, vomiting, focal neurologic deficits, seizures, third and sixth cranial nerve deficits, papilledema. [6]

The key to diagnosis is to consider this rare condition early, then to perform a physical examination followed by appropriate imaging. Magnetic resonance imaging with contrast (eg, gadolinium) usually provides more information than computed tomography (CT) with contrast [5]. CT-guided needle aspiration or open drainage can provide material for staining and culture for bacteria, mycobacteria, and fungi.

If the inciting infection arises from the paranasal sinuses or ears, like the patient of the case, the organisms are likely to be microaerophilic or anaerobic streptococci and/or other anaerobes such as Cutibacterium (formerly Propionibacterium**)** and Peptostreptococcus species**.**

Successful treatment of an IEA usually requires a combination of a drainage procedure and antibiotic therapy. Neurosurgical drainage is most commonly performed via burr holes or a craniotomy.[5]

CONCLUSION

Epidural abscess is a rare but important suppurative infection of the central nervous system (CNS). It cause severe symptoms, permanent complications, or even death.The MRI is the gold standard for diagnosis. The Treatment is based on broad spectrum antibiotic therapy maintained for six to eight weeks and emergency surgery.

References

1. Pfister H-W, Klein M, Tunkel AR, Scheld WM. Epidural abscess. In: Infections of the Central Nervous System, Fourth Edition, Scheld WM, Whitley RJ, Marra CM (Eds), Wolters Kluwer Health, Philadelphia 2014. p.550.
2. Harris LF, Haws FP, Triplett JN Jr, Maccubbin DA. Subdural empyema and epidural abscess: recent experience in a community hospital. South Med J 1987; 80:1254.
3. Brook I. Microbiology and antimicrobial treatment of orbital and intracranial complications of sinusitis in children and their management. Int J Pediatr Otorhinolaryngol 2009; 73:1183.
4. Clayman GL, Adams GL, Paugh DR, Koopmann CF Jr. Intracranial complications of paranasal sinusitis: a combined institutional review. Laryngoscope 1991; 101:234.
5. Pradilla G, Ardila GP, Hsu W, Rigamonti D. Epidural abscesses of the CNS. Lancet Neurol 2009; 8:292.
6. Sàez-Llorens X, Guevara JN. Parameningeal infections. In: Feigin and Cherry's Textbook of Pediatric Infectious Diseases, 8th ed, Cherry JD, Harrison G, Kaplan SL, et al (Eds), Elsevier, Philadelphia 2018. p.336.