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CASE REPORT

Disseminated Lateral Sinus Thrombosis

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Lateral sinus thrombosis is a rare condition that can be caused by an otogenic disease with cholesteatoma or can be itself a primary condition. It can be associated with acute and chronic otitis media, hyperhomocysteinemia, pregnancy, malignancy or vasculitic syndromes.

We present a case with a primary complaint of headache. A 24-years old male suffering of chronic headache for 4 months was admitted to our clinic. He had also 2-weeks history of insensitivity of legs. Physical examination revealed hyperemia of right tympanic membrane and sensitivity on right mastoid apex. The MRI and MR-Angiography of the brain indicated cerebral sinus thrombosis (right sigmoid, transverse and superior sagittal sinuses) and right acute mastoiditis. Laboratory test values were almost normal, except high blood homocysteine value. Intravenous Meroperem was initiated as the medical therapy. We operated the patient on 8th days of his admission. Right simple mastoidectomy was performed. The mastoid air cells were infected. Anticoagulant therapy was initiated postoperatively. Following mastoidectomy and broad spectrum intravenous antibiotics the patient had a full recovery.

The exact etiology of the patient remained controversial whether the infected mastoid cells were the cause or the effect. The most probable etiology was assumed as the complication of acute otitis media, hyperhomocysteinemia or aseptic cerebral sinus thrombosis.

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Introduction

Lateral sinus thrombosis is a rare condition that can be caused by an otogenic disease with cholesteatoma or can be itself a primary condition. It can be associated with acute and chronic otitis media, hyperhomocysteinemia, pregnancy, malignancy, vasculitic syndromes or some endocrine disorders such as hypothyroidism or hyperthyroidism[1-5].

Following mastoiditis, lateral sinus thrombosis is a rare, but potentially life-threatening condition. Its treatment usually consists of systemic antibiotics and mastoidectomy[1,6]. A case of disseminated cerebral sinus thrombosis associated with acute otitis media is presented in this paper and discussed in regard to the medical literature.

Case Report

A 24-year old male referred to the Otolaryngology department with complaint of chronic headache for 4 months. He had also 2-weeks history of insensitivity of the leg. He had applied to Neurology department with these complaints initially. Magnetic resonance imaging (MRI) (Figure 1) and magnetic resonance venography (MRV) (Figure 2) had revealed right disseminated sinus thrombosis. Figure 3 shows the right mastoid inflammation on MRI section. No medical therapy had been recommended and he was accepted to our department.

He had body temperature of 37 centigrades Celsius with blood pressure 110/70 mm-hg and pulse rate 80bpm. Right tympanic membrane was hyperemic and pain was present at the mastoid apex with palpation. The only remarkable finding in lab tests was the high levels of homocysteine and the sedimentation rate was 41 mm/h. The neurological examination revealed bilateral pupil stasis and insensitivity of the left lower extremity. There were no signs of Kerning

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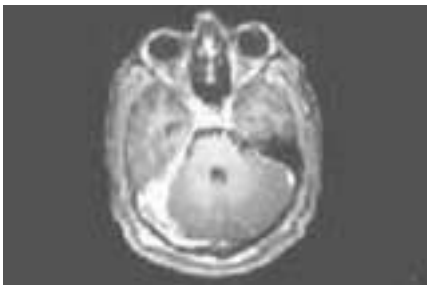

Figure 1. Magnetic resonance imaging of the patient showing right disseminated sinus thrombosis, axial section.

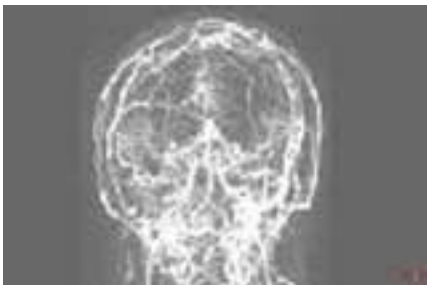

Figure 2. Magnetic resonance venography of the patient demonstrates absence of flow in the cerebral sinuses on the right side.

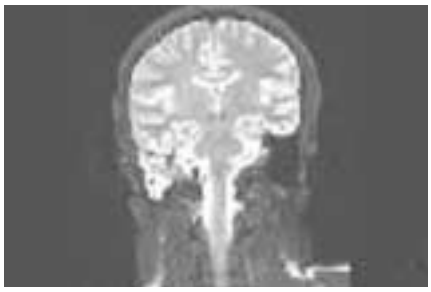

Figure 3. Magnetic resonance imaging section demonstrating mastoid inflammation, coronal section.

and Brudzenski. Intravenous Meroperem 2 gr bid was administered.

The patient was operated on 8th days of his admission. Right simple mastoidectomy was performed. All mastoid air cells were infected. Anticoagulant therapy was initiated postoperatively. The patient responded well to mastoidectomy and antibiotherapy and developed significant improvement. He was symptom free on his 3rd month control.

Discussion

Lateral sinus thrombosis (LST) is a life threatening complication of middle ear disease. The presentation, diagnosis and treatment policies were subjected to change recently. During the preantibiotic and presurgery era, this disease was universally fatal. Despite later advances in surgical techniques, mortality remained at approximately 50% until the introduction of antibiotics. Today, even with the most efficacious antibiotics and improved surgical techniques, the mortality rate is still 5-35%.

Radiological advances, in particular magnetic resonance imaging and magnetic resonance venography, have improved our ability to diagnose this complication pre-operatively, and now are the diagnostic investigations of choice.

The most common presenting symptoms are headache, fever and otalgia[3]. Chronic headache should be the warning symptom. In fact fever is an inconsistent finding. Papilledema is another less common clinical presentation. Edema over the posterior mastoid (Greisinger's sign) may be present due to thrombosis of the mastoid emissary veins.

Diagnosis is based on clinical presentation confirmed by radiological work-up. Radiological evaluation is a key point in the diagnosis.

Contrast-enhanced computed tomography and MRI, with computed tomography angiography or magnetic resonance angiography, establish the diagnosis. MRV is an MRI technique with injection of contrast, demonstrating the venous phase. It demonstrates the absence of flow in the sinus. Its sensitivity is nearly 100%. Angiography is successful but involves exposure to radiation. So that MRV is the favored imagination method [7].

The etiologic factors can be divided into groups. Such as medical, drug induced, infectious and traumatic. Medical conditions include most of the pathologies that increase the state of coagulation: hematological pathologies, collagenoses, and inflammatory diseases. Several medications are reported to increase the risk of LST. Oral contraceptive pills and corticosteroids are the two most responsible medications of this disease. Also there are some herbal drugs that cause thrombosis. Head trauma causing fracture of the temporal bone may be considered to be one of the causes [8]. Familial hyperhomocysteinemia, active protein C resistance, FV Leiden mutation, antiphospholipid syndromes are the other etiologic factors of sinus thrombosis[9]. Also, long distance air travel seems to be a potential risk factor for cerebral sinus thrombosis [10]. The last and most common etiology is the infectious process; acute or chronic otitis media [11-13]. Frequently, cholesteatoma is a coexistent factor found with chronic ear infection; the

organisms are predominantly gram-negative, mixed anaerobes and Bacteroides species.

Cerebral venous sinus thrombosis may be difficult to diagnose clinically because of its various and nonspecific manifestations. The most frequent but least specific symptom of sinus thrombosis is severe headache, which is present in more than 90% of adult patients,similar to this case.

Conclusion

Lateral sinus thrombosis remains an uncommon but life-threatening condition which is a complication of both acute and chronic otitis media. In case of severe headache, this fatal complication should be kept in mind.

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