Abstract. – Acute otitis media complications are relative rare since the introduction of antibiotics. Still many controversies exist on the diagnosis and treatment of some of them. In this report we describe a pediatric case of upper cervical abscess (bezold abscess), sigmoid sinus thrombosis and occipital osteomyelitis following mastoiditis, presenting with persistent fever and otorrhea. The patient responded well to intravenous antibiotics and wall-intact mastoidectomy. We discuss methods of early diagnosis and appropriate treatment options.

Key Words: Bezold mastoiditis, Sinus thrombosis, Occipital osteomyelitis.

Introduction

In the preantibiotic era the morbidity and mortality of acute otitis media were high, since both intracranial and extracranial complications were common. In our days these complications are relative rare and their presentations sometimes are subtle requiring a high index of suspicion by the clinician to diagnose. Moreover, many controversies still exist on the etiology and the management of these complications. In this case report, three rare complications of acute mastoiditis have been presented simultaneously in a child: an upper cervical abscess extended from the tip of the mastoid (bezold abscess), sigmoid sinus thrombosis and occipital osteomyelitis. Optimal methods of early diagnosis and treatment options are discussed further.

Case Presentation

A three years old girl was referred to our Department by a secondary hospital, located in a Greek island, because of persistent fever and otorrhea. She had already received a 3 days course of oral antibiotics followed by a four day course of intravenous antibiotics (cefuroxime) in the secondary hospital. Although febrile, she remained in good general condition with relative good appetite. On clinical examination bilateral acute otitis media was present with otorrhea from her left ear. Lip and palate scars were present from previous cleft lip and palate reconstructions. Cervical lymphadenitis mostly on her left side was also present. Laboratory results showed leukocytosis and elevated erythrocyte sedimentation rate.

Cultures were obtained from her left ear and intravenous ceftriaxone was initiated. During the next three days her condition remained stable. Because of persistent otorrhea and spike fevers a computed tomography (CT) scan of the brain and temporal bones with intravenous contrast were obtained. CT revealed an osteolytic process within the left mastoid (Figure 1), edema and a small abscess formation in the left upper neck region (bezold abscess) and thrombosis of the ipsilateral sigmoid sinus. A confirmatory magnetic resonance imaging (MRI) was not obtained because it would not have altered her management at that time, since neurological and ophthalmology consultations were unremarkable for papilledema or other abnormal signs.

A cortical mastoidectomy was performed which revealed granulation tissue in the mastoid cavity obstructing aditus ad andrum and a small amount of pus coming out after drilling the tip of the mastoid. A drain was also inserted in the mastoid cavity which remained for the next 3 days.

During the first postoperative week her condition improved slightly and otorrhea stopped gradually. Abnormal neurological signs were not
Figure 1. A, Small abscess formation at the upper cervical region very close to mastoid cavity. Contrast enhanced scanning (B) shows the thrombus as a filling defect within the vessel, highlighting the internal dimensions of the sigmoid sinus, whereas the dura surrounding the clot are enhanced. This radiological “empty delta” sign is found in 25-75% of cases.

Figure 2. Signs of osteolysis are now evident.

Discussion

There is a lot of discussion the last years whether presentation and epidemiology of acute otitis media complications are changing (1). An increase in the reported complications of acute otitis media can be attributed to the rise of antibiotics resistant rates and the increase of children with immunodeficiency (diabetes mellitus, AIDS, steroid use etc) (2,3). However, in this case, the etiologic factor was a sensitive strain of *Streptococcus pneumoniae* and the child had no history of altered immune status, an indication that none of the above factors are necessary for the presence of complications. Only her palatoplasty can be reported as a predisposing factor, since children with cleft palates have an increased incidence of otologic manifestations, like chronic otitis media with effusion or cholesteatoma (4), although a complication of this kind have never been reported in the English literature.
Another interesting fact, apart from the absence of classically reported predisposing factors, was that typical signs of mastoiditis, like retroauricular erythema, swelling and displacement of auricle, were missing. It has been reported that antibiotic use can mask symptoms that can alert physicians to the early diagnosis. In such a case both a high index of suspicion and the use of a CT-scan with intravenous contrast, which has high sensitivity and specificity, seem to be necessary. In our case, persistent otorrhea and fever were the main symptoms that led us to order the CT-scan. Magnetic resonance imaging or magnetic resonance venography can confirm the diagnosis of sigmoid sinus thrombosis, but it was not used in our patient because it would have not altered our treatment plan. Contrary to hematology and neurology literature, where anticoagulation therapy is recommended in cases of sigmoid sinus thrombosis due to neoplasm, hypercoagulable state, trauma or autoimmune disorder, most otolaryngology reports suggest avoiding anticoagulation especially when there are not any specific neurological findings or cavernous sinus is not involved. In our case, the second CT-scan obtained about two weeks after the initial CT-scan failed to show venous occlusion, a finding suggestive of either recanalization of sigmoid sinus or a false positive result of the first CT-scan.

Appropriate surgical treatment is another controversial issue. Wall intact or wall down mastoidectomy and more extended operations, like sigmoid sinus opening, have been reported. So far, type IV evidence (case reports and case series) is available and in favor of cortical mastoidectomy without opening of sigmoid sinus or other extended procedures in the absence of other serious pathologies, like extended cholesteatoma, malignancy or histiocytoma. In our case, partial occipital craniotomy could have been performed at a second stage, in case she remained unresponsive to antibiotics within the next few days.

In conclusion, the lack of high quality evidence on the treatment of some acute otitis media complications, like sigmoid sinus thrombosis and occipital osteomyelitis, is due to the rarity of these cases. The avoidance of anticoagulation therapy and extended surgical procedures can be a reasonable treatment depending on the patient condition and extend of the disease.

**References**


