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A RARE CASE OF INTERHEMISPHERIC SUBDURAL EMPYEMA AS A COMPLICATION OF CSOM: A CASE REPORT

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INTRODUCTION

Subdural empyema is an intracranial focal collection of purulent material between the inner layer of dura mater and outer layer of arachnoid membrane.[1,6] Subdural empyema accounts for 15–25% of all intracranial infections.[8,9] It usually develops secondary to infections of the middle ear and paranasal sinuses, however it may also occur as a complication of brain abscesses and cranial operations that involve paranasal sinuses.[3,4,12]

Timely diagnosis and treatment of subdural empyema is highly essential as it can rapidly progress and can cause severe neurological impairment, however full recovery can be achieved when it is diagnosed and treated in time.[4,5,13] Any delay in the diagnosis or management may result in considerable morbidity and mortality.[5] Here, we report the case of a 17-year-old girl admitted to the emergency department with no focal neurological deficit who was diagnosed with interhemispheric subdural empyema.

CASE REPORT

A 17-year-old girl was admitted to the emergency department with the complaints of fever, purulent discharge from middle ear and history of seizures. . Her medical history was unremarkable other than a history of intermittent sessions of antibiotic treatment for CSOM. Her physical examination revealed a temperature of 37.8°C, pulse rate of of 100/min , respiratory rate of 16 breaths per minute, blood pressure of 118/74 mmHg, and an oxygen saturation of 100% on room air. Her head and neck examination demonstrated no sign of meningeal irritation, she had a Glasgow coma score of 15 and normal pupillary examination.

Laboratory examination revealed elevated erythrocyte sedimentation rate (76mm/h), a high level of C-reactive protein (8 mg/L), with 16×10^9/L white blood cells and 88% neutrophils. Cranial computed tomography (CT) of the patient revealed interhemispheric subdural empyema [[Figure1].

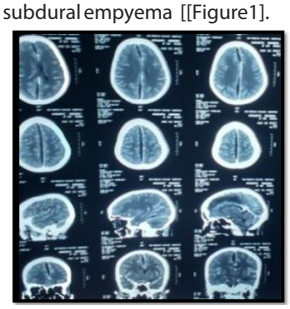

Figure 1: Computed tomography (CT) scan immediately taken on admission reveals interhemispheric subdural empyema.

Figure 2: Intra –op photograph showing the presence of pus in the interhemispheric subdural space.

The patient was immediately taken to the operating theatre and subdural empyema was evacuated via parasagittal interhemispheric approach. Ceftriaxone (at a dose of 100 mg/kg/day), metronidazole (at a dose of 7.5 mg/kg every 6 hours), and vancomycin (at a dose of 15 mg/kg every 6 hours) were given empirically for 3 weeks. No microbial yield was detected in the culture of the material evacuated from interhemispheric subdural space. After 3 weeks of antibiotic treatment and close observation, clinical and laboratory examinations of the patient confirmed successful treatment of empyema, and the patient was discharged from the hospital with advise to attend ENT OPD for treatment of CSOM.

DISCUSSION

While meningitis is the most common cause of subdural empyema in children, in adults oto-laryngeal infections are more common. [2,7,9] . Other predisposing factors for the development of subdural empyema include trauma, and cranial operations involving the sinuses.[5,12,13]. In case of prolonged fever, convulsion, focal neurological deficit, or altered consciousness in such patients, the likelihood of subdural empyema should always be kept in mind. The history of untreated CSOM was the most probable risk factor in the etiology of subdural empyema in our case.

CT and MRI are the diagnostic tools of choice in subdural empyema.[1,7] Even though subdural empyema can usually be diagnosed with CT, the diagnosis may be overlooked in mild cases. They may mimic subdural hematoma in the early periods when capsulation has not been completed yet.[5,8] MRI has high sensitivity in the detection of small subdural empyemas and high specificity in differentiating subdural empyema from subdural effusion.[1] In our case, the diagnosis was made with CT scan .

The goal of the treatment is the complete evacuation of the empyema and successful treatment of infection.[4,5,7] Medical therapy alone may be effective in selected cases. However, an additional antibiotic treatment regime is usually required following the surgical evacuation of empyema. A broad-spectrum antibiotic regime was administered to our patient following surgery.[2,6,7,10] Because there was no microbial yield in cultures of our case, ceftriaxone, vancomycin, and metronidazole were administered empirically to cover both aerobic and anaerobic pathogens.

Controversy still exists regarding the ideal surgical technique. Though successful results with burr-hole drainage have been reported, surgical evacuation via craniotomy is still the most commonly preferred technique.[1,4,13] Craniotomy has the advantages of wide exposure, complete evacuation of purulent material, and chance of reaching intracranial spaces that are nonviable with burr-hole.[7,8] Gordon et al.[3] reported better results in cases operated via craniotomy than the cases operated via burr-hole drainage.. For this reason, we evacuated subdural empyema via a parasagittal craniotomy and achieved successful evacuation of empyema.

Because of improved diagnostic tools such as CT and MRI, early diagnosis and treatment has reduced the morbidity and mortality rates. [1,5,7] However, confirming the diagnosis may still be very difficult since the symptoms might be very mild at the beginning. Rapid diagnosis and management are very crucial in subdural

empyema because timely diagnosis and management give the patient a chance of full recovery with little or no neurological impairment.[2,6] On the other hand, delay in diagnosis may result in poor neurological outcome. In our case, the diagnosis was made early in time and rapid progression was detected on CT. Emergency evacuation of subdural empyema and additional antibiotic treatment resulted in the complete recovery of the patient.

CONCLUSION

It should be noted that subdural empyema may have a rapidly progressive course, reaching a relatively large size in a very short span of time. Nonetheless, subdural empyema can be treated with excellent results in case of early diagnosis and timely management.

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