Case Report

A CASE OF 13th EPISODE OF RECURRENT MENINGITIS

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ABSTRACT

Here we present a case of 13th episode of recurrent meningitis probably caused by Streptococcus pneumoniae in a 23-year old male patient with a dura defect, where pneumococcal vaccine, antimicrobial prophylaxis and duroplasty by frontal craniotomy were not effective to prevent the episodes. The patient had still a small defect that was corrected by trans-sphenoidal operation after the recent episode. His clinical and radiological findings turned to be normal and the patient had no other episodes in the last 18 months. In this case, intra- and extra-cranial operation techniques in combination seemed to have a better result than a single operation.

Key Words: Recurrent meningitis

INTRODUCTION

Cerebrospinal fluid (CSF) rhinorrhea is the result of transdural communication between the subarachnoid space and the skull base. Recurrent meningitis, especially pneumococcal, is commonly associated with a direct source of bacterial contamination (1). Early diagnosis and surgical closure of the CSF leak are the definitive measures to be taken to prevent further episodes of recurrent meningitis.

CASE REPORT

A 23-year old male patient was admitted to our department with a 12 hour history of headache, fever, chills and 2 hour of unconsciousness. He was given one dose of antibiotic a few hours before admission. His prior medical history and his medical records revealed a head trauma during a traffic accident at the age of six, rhinorrhea and 12 episodes of meningitis most of them caused by Streptococcus pneumoniae, since that time. He refused to have any further examinations and an operation between his episodes. Two of his episodes occurred in the last 4 years after he had been immunized by pneumococcal vaccine and begun antimicrobial prophylaxis monthly with benzatine penicillin. Six months ago, during his military service, he was convinced to have a computed brain tomogram which showed a defect in the right frontal bone and frontal sinus, and a protrusion from this defect to ethmoid region. Contrast cisternography was correlated with rhinorrhea and showed a passage to frontal sinus. With these radiological findings, he underwent duraplasty by frontal craniotomy. After the operation a repeated contrast tomogram showed a slight protrution of subarachnoid distance towards ethmoid region, but passage to nasal cavity was not clear. He was discharged on the 22nd day of his operation without any complication.

On his physical examination at the time of current admission, fever was 38.8°C, pulse and blood pressure were 105/min and 120/70 mmHg respectively. He was unconscious with nuchal rigidity and positive meningeal irritation signs.

In laboratory examinations, WBC count was 14900/mm^3. Biochemical findings and chest-X ray were normal. His lumbar puncture revealed a turbid CSF with innumerable leucocytes of which 98% were neutrophils. CSF protein, chloride and glucose levels were found as 660 g/l, 122 g/l, 40 g/l respectively where blood glucose level was 125 g/l. Gram stain of CSF showed Gram positive encapsulated diplococci. but there was no growth on blood agar plates on the following day. On the day of admission, 2 grams of ceftriaxone/day was initiated. Nuchal rigidity and fever began decreasing on the second day and fever was under 37°C on the 6th day of his therapy. On the 5th day of admission CSF revealed a cell count as 200/mm^3, protein and glucose levels were 360 g/l and 65 g/l respectively. The patient was completely

normal on the 8th day and ceftriaxone was continued as 1 g/day till the 15th day when he was discharged without any complication. A few months after this episode, he was reevaluated and reoperated by an extracranial technique. His clinical and radiological findings were normal after that and he had no other episodes of meningitis in the last 18 months. The patient is still on follow-up.

DISCUSSION

This case was a 13th episode of recurrent bacterial meningitis. The responsible bacteria was S.pneumoniae in some of his previous records. It was probably the some in this episode, but was not isolated probably because of antibiotic usage before admission. Interestingly, this was the third episode after immunisation by pneumonoccal vaccine and antibiotic prophylaxis. Probably the vaccine did not cover the strain responsible for the episodes. Steele et al also found pneumococcal vaccine and prophylactic penicillin therapy ineffective in preventing recurrent episodes in two of their three cases (2).

This was also an episode 6 months after the correction of dura defect by craniotomy. Surgical closure of the CSF leak is the definitive measure in preventing meningitis in patients with rhinorrhea, and this is possible through intra- or extracranial approaches. Each technique has its own indications, advantages and disadvantages depending on the site of the leak. Failure rates up to 33% have been reported after initial craniotomy repair. Extracranial repair is a less invasive alternative with an excellent exposure of the sphenoid, frontal and ethmoid sinuses. Extracranial techniques of repair are also advised to be used to supplement an intracranial procedure in a combined format for a better soft-tissue reinforcement from above and below the defect (3). This is probably the situation in our case.

Although pneumococcal meningitis is known to have the worst prognosis among other etiological agents causing purulent meningitis (4,5), this case, interestingly, had not any sequelea after 13 episodes. This is probably due to the early recognition of signs and symptoms of meningitis by the patient himself or his relatives. Close monitorization for the signs and symptoms of early meningitis in such cases is especially recommended instead of using antimicrobial prophylaxis that may lead to infection with resistant bacteria (4). Durand et al also reported that recurrent meningitis cases had a better prognosis than single attacks of bacterial meningitis (6).

To our knowledge, there is not another recurrent pneumococcal meningitis case with so many episodes in the literature. We must bear in mind that:
1. Patients having rhinorrhea and/or recurrent pneumococcal meningitis should be investigated for having a dura defect by radiological means, as soon as possible.
2. Antibiotic prophylaxis does not prevent further episodes and although not experienced in this case, may sometimes be harmful leading to infection by resistant bacteria,
3. Pneumococcal vaccine does not prevent further episodes,
4. Surgical closure of the defect is the definitive measure to be taken in such patients, and this repair is possible through intra- or extracranial, or both approaches.

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