Case Report

Atypical presentation of *streptococcus salivarius* meningitis

Shahnila Ali, Taarif Hussain*

Department of Hospital Medicine, Harrison Medical Center, Bremerton, WA, USA

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*Correspondence:*
Dr. Taarif Hussain,  
E-mail: taarifwarraich@hotmail.com

**ABSTRACT**

Patient with past medical history significant for multiple co morbidities including hypertension, diabetes mellitus, paroxysmal atrial fibrillation (on Coumadin but sub-therapeutic INR on presentation), chronic systolic congestive cardiac failure/ cardiomyopathy, aortic valve stenosis, mitral valve regurgitation presented with slurred speech. Due to concern for stroke, patient received initial CT scan head which was negative and admitted for further work up including MRI. Patient was also observed to be having shortness of breath and mild hypoxia in ED. Patient also had leukocytosis on complete blood count. Initial arterial blood gases results were within normal limits. CXR showed right lower lobe infiltrates suggestive of pneumonia. Infectious work up including blood cultures were also ordered. On clinical examination, no neck rigidity or any focal weakness. No facial droop either. No neurological abnormality other than slurred speech. In addition, patient was initiated on empirical coverage for possible pneumonia with consideration of aspiration event considering a sequela of stroke. Next morning, patient was able to speak clearly and stated that he did have headache few days before presentation. LP was ordered and patient found to have meningitis. Blood cultures grew *Streptococcus salivarius*. Patient received ceftriaxone and discharged without any complications in stable condition.

**Keywords:** Antimicrobial therapy, CSF (cerebrospinal fluid), LP (lumbar puncture), Meningitis, *Streptococcus salivarius*

**INTRODUCTION**

Bacterial meningitis is a very serious condition. Death can occur in as little as a few hours. Although, most people recover from meningitis but permanent disabilities like brain damage, hearing loss, and others can happen. Hence, early diagnosis and prompt treatment is pivotal.  

Common symptomatology include fever as with any infection and other symptoms include altered mental status, nuchal rigidity, headache, neurological deficits or seizures.

However, in this case, patient presented with atypical symptomatology of slurred speech mimicking stroke. By reviewing this case, clinicians will be able to suspect cases of bacterial meningitis even if they present in atypical fashion like case below.

**CASE REPORT**

90-year-old male with past medical history significant for multiple co morbidities including hypertension, diabetes mellitus, paroxysmal atrial fibrillation (on Coumadin but sub-therapeutic INR on presentation), chronic systolic congestive cardiac failure/ cardiomyopathy, aortic valve stenosis, mitral valve regurgitation went to urgent care and drove himself to get there. Patient's presenting complaints at that time was slurred speech. Patient has received recent TAVR for aortic stenosis.

By reviewing this case, clinicians will be able to suspect cases of bacterial meningitis even if they present in atypical fashion like case below.
Due to concern for stroke, patient was referred to be seen in ED via EMS for further evaluation and management. At time of initial evaluation, patient was awake alert and appeared to be trying to give history and answer questions however his words were not understandable. No reported vomiting or photophobia.

Patient did not have neck rigidity on exam. Patient was also observed to be having shortness of breath and mild hypoxia in ED. Patient also had leukocytosis on complete blood count. Initial arterial blood gases results were within normal limits. CXR showed right lower lobe infiltrates suggestive of pneumonia. Infectious work up including blood cultures were also ordered. On clinical examination, no neck rigidity or any focal weakness. No facial droop either. No neurological abnormality other than slurred speech.

Work up initiated and CT scan of the head was negative. He was kept NPO and stroke work up including swallow evaluation, MRI with plan that if patient confirmed to have stroke on MRI, further evaluation with carotid duplex and ECHO will be undertaken.

In addition, patient was initiated on empirical coverage for possible pneumonia with consideration of aspiration event considering a sequela of stroke. Next morning, patient was able to speak clearly and stated that he did have headache few days before presentation. LP was ordered with results listed below.

<table>
<thead>
<tr>
<th>Table 1: Results for lumbar puncture.</th>
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<tbody>
<tr>
<td>Glucose, CSF</td>
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<tr>
<td>Protein, CSF</td>
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<tr>
<td>Volume, fluid</td>
</tr>
<tr>
<td>Appearance, fluid</td>
</tr>
<tr>
<td>Color, fluid</td>
</tr>
<tr>
<td>RBC, fluid</td>
</tr>
<tr>
<td>Polys, fluid</td>
</tr>
<tr>
<td>Other cells, fluid</td>
</tr>
<tr>
<td>Xanthochromia</td>
</tr>
<tr>
<td>Tube number, CSF</td>
</tr>
<tr>
<td>Total nucleated Cells</td>
</tr>
</tbody>
</table>

**MRI**

MRI obtained same day showed abnormal fluid within the left ventricle concerning for proteinaceous fluid and infectious etiology. Patient was initiated on empirical regimen for bacterial meningitis after reviewing lumbar puncture results. Patient continued to do well and discharged in stable condition without any deficit.

Other work up listed below

Blood Cultures grew *Streptococcus salivarius* pansensitive. In addition, patient also received TEE and no vegetations were seen.

Written informed consent was obtained from the patient for publication of this case report. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

**DISCUSSION**

Meningitis is an infectious and inflammatory disease of leptomeninges and affects arachnoid mater and CSF in both sub arachnoid space and the cerebral ventricles.

Per CDC, bacterial meningitis caused about 4,100 cases and 500 deaths in the United States each year between 2003 and 2007.3

Bacterial meningitis is very serious condition. Death can occur in as little as a few hours. Although, most people recover from meningitis but permanent disabilities like brain damage, hearing loss, and others can happen.

It can be community acquired or health care associated. There are several types of bacteria that can cause meningitis with leading causes for community acquired in the United States include *Streptococcus pneumoniae*, Group B streptococcus, *Neisseria meningitides*, *Haemophilus influenzae* and *Listeria monocytogenes*. For health care associated bacterial meningitis, staphylococci and aerobic gram-negative bacilli are most common.4

Common symptomatology include fever as with any infection and other symptoms include altered mental status, nuchal rigidity, headache, neurological deficits or seizures.

Blood work may show abnormal white cell count, platelet count. Leukopenia and thrombocytopenia correlate with
Most order incidence aseptic contamination salivarius meningitis Streptococcus salivarius

CONCLUSION

The dexamethasone regimen should be initiated immediately after LP. Adjunctive dexamethasone should be given shortly before or at the same time as the first dose of antibiotics, when indicated. The antibiotic regimen should be modified further when indicated based on CSF culture and susceptibility results.

Optimal antimicrobial treatment of bacterial meningitis requires bactericidal agents able to penetrate the blood-brain barrier with efficacy in CSF. Antimicrobial therapy should be initiated immediately after LP. Adjunctive dexamethasone should be given shortly before or at the same time as the first dose of antibiotics, when indicated. The antibiotic regimen should be modified further when indicated based on CSF culture and susceptibility results.

REFERENCES


