

# Spontaneous Enterococcal Meningitis: A Case Report

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## ABSTRACT

Enterococcal meningitis is an uncommon disease. Usually Enterococcal meningitis cases will have a remote infection focus or have underlying diseases like malignancy, diabetes mellitus, and renal failure. We are reporting a case of Enterococcal meningitis in patient without any predisposing illness. A 70-year-old male patient was brought with a history of altered sensorium, loose stools and vomiting of 1 day duration. On examination, signs of meningitis were present. Vitals and other systemic examination were within normal limits. Blood investigation revealed increase in total WBC count with predominant neutrophils. Other investigations were within normal limits. CSF analysis showed findings of pyogenic meningitis. In the Gram stain, occasional pus cells and Gram positive cocci in pairs were seen. CSF culture yielded *Enterococcus faecalis* which was sensitive to Ampicillin, Gentamicin and vancomycin. An awareness regarding spontaneous Enterococcal meningitis is needed while investigating a case of pyogenic meningitis.

**KEY WORDS:** Ampicillin, enterococci, gentamicin, meningitis

## Introduction

Enterococci are becoming increasingly recognized as important causes of both communities acquired and nosocomial infection in children and adults.<sup>[1]</sup> However, enterococcal meningitis is an uncommon disease.<sup>[2]</sup>

Enterococcal meningitis may develop spontaneously or as a complication of post-operative infection. Usually in cases of spontaneous enterococcal meningitis, there will be enterococcal infection focus at other sites, and the cases will have underlying diseases like malignancy, diabetes mellitus, renal failure or they will be on treatment with immunosuppressive drugs.<sup>[3]</sup>

We report a rare case of the spontaneous enterococcal meningitis in a male patient, who did not present with any predisposing factors.

## Case Report

A 70-year-old previously healthy male patient was brought with a history of altered sensorium, loose stools and vomiting of 1 day duration. Patient was not diabetic or hypertensive. On examination, patient was afebrile and was poorly responding to oral commands. Neck rigidity and Kernig's sign were positive. Vitals were stable except for mild tachypnea. Systemic examination was within normal limits, except for mild bilateral crepitations. With these details, a provisional diagnosis of acute gastroenteritis with metabolic encephalopathy and meningitis were made.

## Investigations

Hemoglobin was 12.5 g/dL, total white blood cell count - 22,300 cells/mm<sup>3</sup>, differential count revealed neutrophils 86% and lymphocytes 14%, erythrocyte sedimentation rate was 26 mm/h, platelets count was 2.55 lakhs/mm<sup>3</sup>, random blood sugar - 100 mg/dL, blood urea - 31 mg/dL, serum creatinine - 1.1 mg/dL, serum electrolytes; Na - 135 mEq/L, K - 3 mEq/L and Cl - 100 mEq/L.

Cerebrospinal fluid (CSF) analysis showed cell count of 10 cells/mm<sup>3</sup> (neutrophils - 84%, lymphocytes - 10%, and monocytes - 6%), glucose - 70 mg/dL, protein - 80 mg/dL and chloride - 107 mmol/L.

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Gram stain of the CSF revealed occasional pus cells and occasional Gram-positive cocci in pairs.

CSF culture yielded *Enterococcus fecalis*, which was identified by standard methods.<sup>[3]</sup> The isolate was sensitive to ampicillin, vancomycin, gentamicin (120 µg), ciprofloxacin and linezolid (Kirby-Bauer disc diffusion method). Blood culture and urine cultures were negative.

## Discussion

Central nervous system (CNS) infections are one of the most serious infections, needing urgent medical attention. With rapid and effective treatment, the mortality rates vary between 5 and 25%. Delay in diagnosis and treatment leads to long-term sequelae or even death.<sup>[4]</sup>

The most common causes of pyogenic meningitis in adults are *Neisseria meningitidis* and *Streptococcus pneumoniae* and in elderly patients, *S. pneumoniae*, *Staphylococcus aureus* and Gram-negative enteric bacilli.<sup>[5]</sup>

Meningitis due to *Enterococcus* species is an uncommon disease, accounting for only 0.3-4% of bacterial meningitis cases, which is nevertheless associated with high a mortality rate.<sup>[6]</sup>

Most of the cases reported to date have been in patients with some underlying disease, such as head trauma, neurosurgical procedures, or remote enterococcal infections.<sup>[3]</sup>

The present case is being reported in view of the uncommon incidence because, the patient did not had any associated enterococcal infections, any severe underlying diseases such as malignancy, diabetes mellitus, renal failure, congenital heart disease nor any remote infection like endocarditis or pyelonephritis. There was no history of recent antibiotic intake.

It was community acquired infection as there was no history of recent hospitalization. The source of infection was not investigated, probably it was of gastrointestinal origin.

The diagnosis of the enterococcal meningitis is of importance for three reasons;

1. CNS infections are usually associated with increased morbidity and mortality

2. Rarity of the condition (enterococcal meningitis), hence possibilities of missed diagnosis
3. Emerging antibiotic resistance among enterococcal isolates.

The usual antibiotics used for enterococcal infections are ampicillin, vancomycin, aminoglycosides, ciprofloxacin, erythromycin, doxycycline and nitrofurantoin.

Beta-lactam resistance, vancomycin resistance and high level aminoglycoside resistance have emerged among enterococcal isolates. The treatments for drug resistant enterococcal infections include quinupristin-dalfopristine, linezolid, daptomycin, tigecycline and combination therapy. Unfortunately enterococci are becoming resistant to a these drugs also.<sup>[7]</sup>

However in the present case, the isolate was susceptible to ampicillin, vancomycin, ciprofloxacin, linezolid and gentamicin (tested for high level aminoglycoside resistance using 120 µg disc).<sup>[8]</sup> The patient was treated with intravenous gentamicin and ampicillin for 5 days. Patient recovered with resolution of signs and symptoms. At the time of discharge, patient was not having any sequelae such as sensorineuronal deafness, vestibular dysfunction or cognitive slowness.<sup>[9,10]</sup> As the patient did not turn up for follow-up, repeat lumbar puncture could not be done.

## Conclusion

An awareness regarding the spontaneous enterococcal meningitis is needed while investigating a case of pyogenic meningitis.

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