

# A Case Of Enterococcal Meningitis In A Healthy Infant

S Hebbar, S Upadyaya

## Citation

S Hebbar, S Upadyaya. *A Case Of Enterococcal Meningitis In A Healthy Infant*. The Internet Journal of Infectious Diseases. 2004 Volume 4 Number 2.

## Abstract

Enterococci are becoming increasingly recognized as important causes of both community acquired and nosocomial infections in children and adults. Compared to adults, enterococcal infections occur less frequently in children beyond neonatal period. Enterococci are unusual etiological agents for meningitis. In children when it occurs, predisposing factors are usually present. We report our experience with a case of enterococcal meningitis in a healthy 7 month old infant who did not present with any predisposing factors.

A seven month old boy at presentation had high grade fever, mild cough, and two episodes of loose stools. Urine microscopy showed 10-12 white blood cells/high power field. He was started on intravenous antibiotics provisionally for an underlying urosepsis. However, over the next three days his condition worsened and he developed seizures. C.T. scan of the head showed bilateral subdural effusions. C.S.F. culture grew enterococci sensitive to vancomycin. He was treated with vancomycin and the child recovered completely without any sequel.

## INTRODUCTION

Enterococci are gram-positive, ovoid bacteria belonging to the genus *Enterococcus*. These organisms are found in the normal bowel flora of humans and many animals and are isolated commonly from environmental sources. These ubiquitous bacteria have become recognized increasingly as important causes of both nosocomial and community acquired infections in adults and in children [1].

In children beyond the neonatal period, Enterococcal infections occur less frequently than in adults. Relatively few series of pediatric enterococcal infections have been published [1]. Though less frequent than in adults, enterococci are known to cause urinary tract infections [2] and endocarditis [3] in children. Enterococcal bacteremia without a source occurs relatively more commonly in children [4]. Meningitis and septic arthritis are rare manifestations of enterococcal infection. Respiratory infections caused by enterococci are extremely uncommon [1].

Enterococci are clearly unusual etiological agents of bacterial meningitis. Stevenson and colleagues found only four cases of enterococcal meningitis among 493 episodes of bacterial meningitis in adults [5]. In another study by Koorevaar et al, of 450 episodes of bacterial meningitis in

children over a nine year period (1981-1989), either enterococci or streptococcus viridans together accounted for only nine cases. In children with enterococcal meningitis, predisposing factors including neurosurgical procedures, head trauma and severe gastroenteritis were usually present [6]. In that study all the nine children had underlying predisposing diseases. Stevenson and colleagues reviewed 16 published cases of enterococcal meningitis in children. Eleven of those 16 cases were complications of central nervous system trauma or surgery. Only four of them had primary meningitis. Of those, only one case was an infant beyond neonatal period. Clinical manifestations were typical features commonly associated with bacterial meningitis [5]. We report our experience of enterococcal meningitis in a healthy infant who did not have any underlying predisposing condition.

## CASE REPORT

A 7 month old boy came with history of high grade fever and mild cough of 5 days duration followed by two episodes of loose stools and vomiting. The child also exhibited lethargy and refusal of feeds since the day prior to admission. On examination, the child was febrile, lethargic but was recognizing parents and interacting with them. Vitals signs were stable with mild tachypnoea. Systemic

examination was within normal limits.

Investigations: Hb 1.33 mmol/L, total WBC 12.6 X 10<sup>9</sup>/L, N- 30 %, bands 18 %, L – 52 %, platelet – 133 X 10<sup>9</sup> /L, blood sugar 5.77 mmol/L, blood urea 3.57 mmol /L, creatinine 17.68 mmol/L, serum AST 14 U/L, ALT 12 U/L, serum sodium 144 mmol/L, potassium 4.1 mmol/L. Urine albumin was absent, urine microscopy showed 25-30 WBC/HPF.

A provisional diagnosis of urosepsis was made. Urine and blood samples were sent for culture. The child was started on injectable ceftazedime and amikacin. The child continued to be febrile, and on day three of admission had an episode of left partial seizure with loss of consciousness. Immediate C.T. of the head was performed and it revealed right subdural effusion. Lumbar puncture was conducted and the cerebrospinal fluid analysis showed 140wbc/ml with neutrophils 29%, lymphocytes 71%, no RBC, protein 0.75 gm/L, and sugar 2.77mmol/L.

Gram staining revealed gram-positive cocci and pus cells. Culture grew enterococci sensitive to vancomycin and amikacin . Subdural effusion was tapped. Fluid obtained showed pus cells but no bacteria and culture also remained sterile. The child was started on injectable vancomycin (60mg/Kg/D) with continuation of amikacin (15mg/Kg/D). The child became afebrile after 48 hours. The sensorium and physical activities of the child gradually improved. Urine and blood samples sent earlier did not grow any organism. Vancomycin was given for three weeks and the child was discharged. Hearing evaluation done was normal. Repeat neuroimaging did not show any abnormalities.

### DISCUSSION

Data on the most effective regimen for the treatment of enterococcal meningitis are limited, although combination therapy of vancomycin and amino glycoside has been recommended [7]. Enterococci have become more resistant

to multiple antibiotics. In 1997, the Surveillance Network database reported that 52% of *E. faecium* isolates were resistant to vancomycin [8].

Generally favorable outcome was seen by Stevenson et al. [5] among patients with enterococcal meningitis. The present case recovered without sequelae. He has been under follow-up for the last 6 months and is still normal.

The present case being an infant beyond the age of neonatal period and also not having any risk factor for enterococcal meningitis makes this a rare occurrence, as enterococcal meningitis is very rarely seen in children after neonatal period and even more rarely in children without predisposing risk factors. Occurrence of subdural effusion in enterococcal meningitis is also not reported in the literature.

### References

1. Keith English B., Jerry L Shenep Bacterial Infections. In Feigin R.D., Cherry J.D., Demmler G.J. and Kaplan S.L. (eds.): Textbook of Pediatric Infectious Diseases. 5th ed. Philadelphia, W.B.Saunders, 2004,pp. 1175-1192
2. Ashkenazi S., Even-Tov S., and Samra Z., Dinari G.: Uropathogens of various childhood populations and their antibiotic susceptibility. *Pediatr.Infect.Dis.J.* 1991 Oct; 10: 742-746s
3. Starke J. R Infective endocarditis. In Feigin R. D., and Cherry J. D., (eds.): Textbook of Pediatric Infectious Diseases. 3rd ed. Philadelphia, W.B. Saunders, 1993, pp. 326-343.
4. Boulanger J.M., Ford-Jones E. L., and Matlow A. G.: Enterococcal bacteremia in a pediatric institution: A four year review. *Rev.Infect. Dis.*1991 13(5): 847-56
5. Kurt B Stevenson, Evan W.Murray, and Felix A Sarubbi, Enterococcal Meningitis: Report Of Four Cases and review- *Clin. Infect. Dis.*18 (2): 233-239,1994 Feb
6. Koorevaar CT, Scherpenzeel PG, Neijens HJ, Derksen-Lubsen G, Dzoljic-Danilovic G, de Groot R. Childhood meningitis caused by enterococci and viridans streptococci. *Infection* 1992 May-Jun; 20(3): 118-21.
7. Murray BE. The life and times of the enterococcus. *Clin Microbiol Rev* 1990 Jan; 3(1): 46-65.
8. Huycke MM, Sahm DF, Gilmore MS. Multiple drug resistant enterococci: the nature of the problem and an agenda for the future. *Emerg Infect Dis* 1998 Apr-Jun; 4(2): 239-49.

**Author Information**

**Shrikiran Hebbar, Associate Professor**

Dept. Of Paediatrics, Kasturba Medical College

**Santosh Upadyaya**

Assistant Professor, Dept. Of Paediatrics, Kasturba Medical College