

Vancomycin-resistant *Enterococcus faecium* causing perinephric abscess

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ABSTRACT

An 8-month-old infant presented with history of recurrent urinary tract infection and was found to have a perinephric abscess on investigation. *Enterococcus faecium* resistant to Vancomycin and sensitive to Linezolid was obtained from the baby's urine and perinephric collection. The patient was treated successfully with Linezolid. This case report describes the emergence of Vancomycin-resistant enterococci in this hospital.

Key words: Linezolid, perinephric abscess, Vancomycin-resistant enterococci

INTRODUCTION

Vancomycin-resistant enterococci (VRE) is an emerging concern, difficult to treat and eradicate.^[1] The prevalence of VRE in North India and South India is 2–3% and 4%, respectively. VRE is more prevalent in *Enterococcus faecium* (>90%).^[2]

CASE REPORT

An 8-month-old infant presented with fever and increased frequency of micturition to the paediatric surgery casualty at Medical College, Trivandrum, Kerala, India. The patient was a known case of persistent posterior urethral valve with left hydronephrosis. He has history of recurrent urinary tract infections (UTIs) with three hospitalisations since birth for treatment. Now, the child gave a history of dribbling of urine of two weeks duration.

On examination, the patient was febrile. Abdomen was distended and bladder was palpable per abdomen. Investigation revealed a total count of 21,000 cells/mm³. Differential count was P - 64%, L - 34% and E - 2%. Liver and renal function tests were normal. Ultrasonogram revealed a perinephric abscess in the left upper pole. Residual urine volume was 15 ml. Micturating cystourethrogram showed a bladder with multiple diverticuli and dilated posterior urethral valve.

The patient's urine and pus from perinephric abscess were sent to the laboratory for culture. Urine was turbid and perinephric aspirate was purulent. Gram staining revealed 5–6 pus cells per oil immersion field and Gram-positive cocci in pairs, in both. Blood agar showed growth of grey-white opaque colonies. MacConkey agar showed magenta-coloured pinpoint colonies. Gram staining of colonies showed Gram-positive cocci in pairs and short chains.

Biochemical reactions: The organism was catalase and oxidase negative and non-motile. It hydrolysed bile Aesculin, fermented Arabinose and Mannitol without gas production. It grew on 6.5% sodium chloride broth and was heat resistant. Organism was identified as *E. faecium* which was later confirmed by Vitek 2.

Antibiotic susceptibility testing showed sensitivity only to Linezolid 30 µg. Vitek 2 revealed a minimum inhibitory concentration (MIC) ≥32 µg/ml for both Vancomycin

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How to cite this article: Nair PR, Rajan R, Rajan P. Vancomycin-resistant *Enterococcus faecium* causing perinephric abscess. J Acad Clin Microbiol 2016;18:50-1.

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DOI:
10.4103/0972-1282.184759

and Teicoplanin, showing glycopeptide resistance as per the CLSI guidelines 2015.

For confirmation and genetic study, the strain was sent to Christian Medical College, Vellore, Tamil Nadu, India. There, the strain was confirmed by polymerase chain reaction for *VanA* gene using primers *VanA* forward - ATG AAT AGA ATA AAA GTT GC (1032 bp), *VanA* reverse - TCA CCC CTT TAA CGC TAA TA. The positive control for *VanA* gene used was *Enterococcus faecalis* 51299 and negative control was *E. faecalis* ATCC 29212 [Figure 1].^[3]

The patient was treated with syrup Linezolid (100 mg/5 ml), 4 ml thrice daily for a week. Posterior urethral valve was ablated. On review, the patient was better and asymptomatic. Repeat urine culture showed no bacteriuria.

DISCUSSION

Perinephric abscess is an uncommon complication of UTI associated with structural anomalies. It is usually caused by Enterobacteriaceae and Gram-positive cocci such as enterococci.^[4] Enterococcal UTI is commonly seen in patients with abnormalities of the genitourinary tract and is generally followed by complications such as perinephric abscess and pyelonephritis as seen in the present case. In drug-resistant enterococcal infections, glycopeptides are used as the drug of choice. However, now, glycopeptide-resistant enterococci is being increasingly reported with *VanA* gene being the most common cause. *VanA* enterococci show a Vancomycin MIC of 64–1000 µg/ml and Teicoplanin MIC of 16–512 µg/ml.^[5] Linezolid, high-dose Penicillin with aminoglycosides, Daptomycin with aminoglycosides, Tigecycline, Nitrofurantoin and Fosfomycin are effective against VRE infections.^[4]

This case report describes the emergence of VRE in our geographical area. Strict aseptic measures need to be taken to prevent spread in the Intensive Care units and wards. Prompt treatment based on accurate laboratory diagnosis is needed to eradicate the infection.

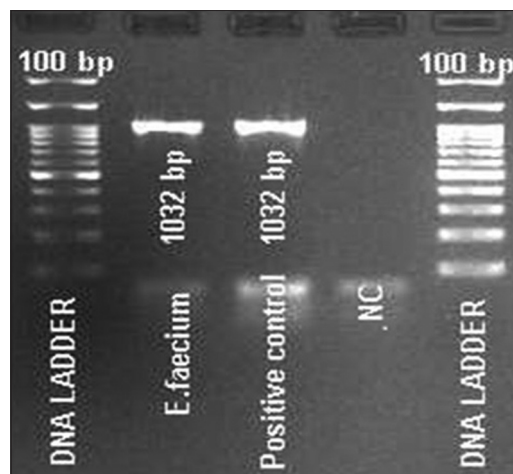


Figure 1: Gel documentation of *VanA* gene

Acknowledgement

We thank Dr. V. Balaji, Professor and Head, Department of Clinical Microbiology, Christian Medical College, Vellore, for confirming *VanA* gene in the strain.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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