

## Case Report

# *Streptococcus pseudoporcinus*: a rare cause of bacteraemia in an immune-compromised patient

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## ABSTRACT

*Streptococcus pseudoporcinus*, a  $\beta$ -haemolytic *Streptococcus* is known to cause genital infections. Author report a rare case of *Streptococcus pseudoporcinus* bacteremia in an immune-compromised male patient diagnosed with acute myeloid leukemia eight months back. The organism was identified as a beta hemolytic bacterium which was catalase negative, oxidase positive and bacitracin resistant. Automated methods (VITEK-2) confirmed the organism to be *Streptococcus pseudoporcinus*.

**Keywords:** Bacteremia,  $\beta$ -haemolytic *Streptococcus*, Immuno-compromise, *Streptococcus pseudoporcinus*, VITEK-2

## INTRODUCTION

*Streptococcus pseudoporcinus*, a Gram-positive coccus is usually characterized by a large zone of beta-hemolysis. It was initially thought to be *Streptococcus porcinus*, an organism in serological groups E, P, U and V and found in the upper respiratory and genital tracts of swine.<sup>1</sup> In 2006, Bekal et al, using 16S rRNA gene sequencing demonstrated that the organism found in humans had biochemical characteristics similar to those of *S. porcinus* but were genetically unique and proposed the name *Streptococcus pseudoporcinus*.<sup>2</sup> *S. pseudoporcinus* has been isolated from human in multiple specimen types like wounds, urine, skin, vaginal, rectal, cervical and placental specimens.<sup>3</sup> But the blood stream infection as in our case is unusual.

## CASE REPORT

A 52 years old male patient was admitted in our hospital with complaints of fever (101oF) for 5 days. He was a

known case of AML (Acute Myeloid Leukemia) receiving treatment from this hospital for the last eight months. After initial symptomatic management, relevant investigations were done to know the cause of febrile illness. Clean catch midstream urine and blood were sent for aerobic culture and sensitivity before commencing empiric treatment with ciprofloxacin and vancomycin. Routine hematologic findings were normal except for a mild leucocytosis (WBC count- 12,550/cmm) with a relative neutrophilia (neutrophil-91%) along with the presence of band cells. The patient was sero-negative for HIV, HBsAg and HCV. Urine examination revealed no growth after 48 hours of incubation. The automated blood culture by Bact/ALERT 3D (Biomérieux) signaled positivity on the second day. Doing subculture on blood agar and Mac-Conkey agar plates, after overnight incubation, tiny opaque colonies were seen on the blood agar plate whereas the latter did not show any growth. Microscopic examination revealed Gram positive cocci arranged mostly in chains which were catalase negative and oxidase positive. They were bacitracin resistant and

showed a positive reaction for the CAMP test on 5% sheep blood agar. Finally, the bacteria were identified by Vitek-2 compact automated system (BioMerieux, France) using GP card as *Streptococcus pseudoporcinus*. The organism was sensitive to piperacillin-tazobactam, imipenem-cilastatin, linezolid, levofloxacin, meropenem, ciprofloxacin, amoxicillin-clavulanic acid, teicoplanin and resistant to amikacin by modified Kirby-Bauer disc diffusion method. As the patient was already on empiric treatment with ciprofloxacin and vancomycin to which responded well so continued with that treatment. Remission of fever with improvement of general conditions occurred. Repeat blood culture one week after the first culture showed no growth. The patient recovered from the present febrile illness and was discharged from the hospital.

## DISCUSSION

*Streptococcus pseudoporcinus* were mostly described in the last decade after their isolation from human cases. Several of these isolates phenotypically identified, were confirmed by recent use of molecular characterization techniques and all of these were recovered from female genitourinary tract specimens.<sup>2-5</sup> It gives a positive CAMP reaction like the group B beta-hemolytic Streptococci and is frequently found in the genitourinary tract of female patients, it creates a lot of confusion between these two.<sup>6</sup> The CAMP test alone is not useful for differentiating GBS from *S. pseudoporcinus*. In 1995, Facklam et al, reported that 8 of their 13 human *S. porcinus* strains were CAMP-positive.<sup>3</sup> But in this case it was isolated from the blood stream, oxidase positive and further identification was done by Vitek-2 system.

In one study, *S. pseudoporcinus* isolates were susceptible to penicillin, erythromycin, clindamycin, vancomycin and trimethoprim-sulfamethoxazole; and mostly to tetracycline.<sup>4</sup> In this case, the organism was sensitive to piperacillin-tazobactam, imipenem-cilastatin, linezolid, levofloxacin, meropenem, ciprofloxacin, amoxicillin-clavulanic acid and vancomycin. It was found resistant to amikacin.

Though studies have shown *Streptococcus pseudoporcinus* to be associated mostly with genital tract infections in immunocompetent female patients, ours was a case of bacteremia in an immuno-compromised male patient.<sup>7</sup> In spite of the rarity of the organism, it responded well to the treatment and the patient was finally discharged after the second blood culture report signaled clearing of the organism.

## CONCLUSION

Thus, one should not always think that a beta hemolytic bacterium is a Group A Streptococcus attributing to bloodstream infection and to emphasize that *S. pseudoporcinus* can also be the causative agent.

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