STREPTOCOCCUS SALIVARIUS: AN UNUSUAL ETIOLOGY OF NEONATAL SEPSIS

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ABSTRACT Streptococcus salivarius is a rare cause of infection in neonate .It is a commensal organism in the oral cavity. Though commensal it can cause invasive infection in immune compromised patients. We report blood stream infection with streptococcus salivarius in a neonate with pneumonia. The blood stream infection was considered significant and treated.

KEYWORDS : Streptococcus salivarius, opportunistic infection, neonatal sepsis, blood culture.

INTRODUCTION

Streptococcus salivarius infection in newborns is rare. Streptococcus salivarius is a normal oral flora causing opportunistic infection in immunosuppressant individuals. We report a neonate who presented as pneumonia with blood stream infection with streptococcus salivarius infection.

CASE

A 35 weeks gestational age, late preterm, male baby, twin 1 of DCDA twins, was brought to ER on day of life 44 (corrected gestational age-16 days) , with complaints of cold and difficulty in breathing for one week.

Baby was born to a 26 years old primi mother through IVF conception, twin gestation, by elective Cesarean section. Baby cried immediately after birth with Apgar score of 7 & 8 at 1 and 5 minutes. Baby was shifted to mother side .Baby was on breast feeding and top feeds by paladay. Baby was given birth vaccination.

At admission baby was dull, febrile, had tachypnea , severe sub costal retractions and bilateral wheezing on auscultation. Due to the ongoing pandemic of SARS COV2, baby was isolated and screened by nasopharyngeal swab for SARS CoV2 by RT PCR which was negative. Baby was started on HHFNC and nebulisations and IV antibiotics after sending the septic screen including blood culture. Chest X- ray showed bilateral infiltrates- right more than left. Septic screen was normal. Streptococcus salivarius was isolated from blood culture at 48 hours. IV antibiotics were changed as per the culture sensitivity pattern. CSF analysis was not suggestive of meningitis. There is clinical improvement, with improvement in baby's activity and decrease in respiratory distress. Baby was weaned off high flow after 48 hours. IV antibiotics as per the culture sensitivity pattern were given for ten days for Streptococcus salivarius sepsis.

DISCUSSION

Neonatal sepsis can lead to significant morbidity and mortality and is one of the leading causes of neonatal mortality in India. Early recognition of bacterial infection and treating with appropriate antibiotics is of utmost importance. The most common cause of neonatal sepsis in India is gram negative bacteria like Klebsiella, Acinetobacter and Escherichia coli. Yet uncommon bacterial strains, like the commensal organisms can also cause neonatal sepsis. Failure to treat these infections, considering them as contaminants might cause severe infection and sometimes death.

Streptococcus salivarius belongs to Streptococcus viridians group, which are a group of bacteria that colonize humans most notably in the oral cavity¹. Streptococcus salivarius has predilection for the dorsum of the tongue. Streptococcus salivarius is known to cause serious bacterial infections, infective endocarditis, bacteremia, pneumonia in immunocompromised individuals. It is also known to cause bacteremia in patients with significant mucosal membrane disruption. Any immune suppressing condition like pneumonia, malnutrition may predispose neonates to invasive infection by commensal bacteria. Streptococcus salivarius is rarely reported in neonates.

Though streptococcus salivarius is commensal of oropharyngeal

cavity, isolation of streptococcus salivarius in blood culture should not always be considered contaminant. Studies have revealed that 23% isolates were clinically significant, and some cases leading to death². A prospective 16year study by J.C.Corradoira et al, revealed streptococcal infections was associated with mucosal disruption³. Index case had pneumonia which could cause mucosal disruption. Broome et al gave a criteria for defining significant isolates: 1. two or more separate blood cultures positive with Strep bovis or Strep salivarius associated with clinical evidence of endocarditis or septicemia 2. Single blood culture positivity if there are obvious clinical features of sepsis^{4,5}. In the index case though Streptococcus salivarius was isolated in single blood culture, it was considered as severe infection, as the baby was sick and had pneumonia.

Streptococcus salivarius is rarely reported in neonates. Cheung et al, reported late onset streptococcus bovis meningitis in a 4 week old male neonate who presented with lethargy, apnea and seizures and both blood and CSF cultures grew S. bovis⁶. Gavin et al reported strep bovis septicemia in a 3 day old neonate presented with fever and irritability⁷. Molinaro et al reported a case where Strep salivarius was isolated from two blood cultures in a neonate born to GBS positive mother⁸. Most reports in literature have shown it to cause serious infection in the setting of immune compromised hosts. Index case was a ex preterm baby who was on mixed feeding and was thriving well and later developed pneumonia. Our case presented with difficulty in breathing, lethargy and fever and Strep salivarius was isolated from the blood culture sent at admission. Hence it was considered significant and treated with sensitive antibiotics as per culture sensitivity pattern.

CONCLUSION:

Streptococcus salivarius which is a commensal bacteria, is rarely reported in neonates. In neonates blood culture positivity with commensal bacteria , can always be not considered as contaminant and it is to be treated when there is clinical evidence of the disease. Hence we report this unusual case of neonatal sepsis caused by Streptococcus salivarius which recovered with antibiotics treatment.

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