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Kodameae Ohmeri Fungemia in a Premature Neonate – A Case Report

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Abstract
Kodameae ohmeri is a yeast-like fungus and is considered as an emerging pathogen. This yeast-like fungus has been isolated previously from pleural fluid and blood samples in people with a compromised immune status such as premature infants, patients on cancer chemotherapy and diabetic patients. There is a single report of Kodameae ohmeri being isolated from an immunocompetent patient as well. This is a case report of Kodameae ohmeri isolated from a neonate who was treated for bacterial sepsis and septic ileus. Identification was made using VITEK 2 system. Gene sequencing of ITS1 region was done for confirmation. The neonate was started on Amphotericin B. The baby responded to the treatment and the subsequent blood cultures were sterile.

Introduction

Kodameae ohmeri, also known as *Pichia ohmeri* or *Yamadazyma ohmeri* is condidered as the teleomorphic state of *Candida guilliermondii var. membraneaefaciens.* This yeast-like fungi is considered as a plant pathogen and is utilized for fermentation in the food industry. *Kodameae* was first isolated from pleural fluid of a patient from Java but was regarded as a contaminant. The first case of fungemia due to *Kodameae* was reported in a diabetic female with multiple underlying complications. She succumbed to the infection in spite of treatment with high dose amphotericin B. Following this, there were several case reports of *Kodameae* being isolated from blood, urine, wound swab from patients with suppressed immune system such as premature infants, patients on cancer chemotherapy, long term steroid treatment, diabetics. Here is a case report of fungemia due to *Kodameae ohmeri* in a neonate.

Case Report

Preterm female baby was delivered by Emergency Lower Section Caesarean Section (LSCS) at 33 weeks period of gestation in view of pre-eclampsia in mother and breech presentation. Considering preterm birth and Intra Uterine

Growth Retardation (IUGR), baby was shifted to Neonatal Intensive Care Unit (NICU) for preterm care. Baby had bilious vomiting on day 3 of life. Sepsis screening showed rising High sensitivity C-Reactive Protein (HS CRP). Samples were collected for blood culture and baby was started on Amikacin, Imipenem and Fluconazole empirically. The first blood culture grew *Acinetobacter baumanii* and subsequent blood culture showed budding yeasts. Subculture made on Sabouraud's Dextrose Agar (SDA) which showed white rugged colonies. VITEK 2 system identified it as *Kodameae ohmeri* with 99% accuracy. DNA was extracted by an in-house column based method and was subjected to amplification and sequencing of partial ITS rDNA region using panfungal primers ITS1 and ITS4. Following BLAST analysis at the NCBI-Gen Bank database, the isolate was confirmed to be *Kodameae ohmeri*. The ITS sequence of the isolate has been deposited at the NCBI GenBank database and provided with accession number KY776699. Baby was given Amikacin, Piperacillin tazobactum and Amphotericin B based on the sensitivity report. Baby responded to the treatment. Subsequent cultures were negative. Other investigations were within normal limits. Baby started gaining weight and hence was discharged.

Fig 1.White rugged colony of Kodameae ohmeri on SDA

Discussion

Infection due to yeasts other than *Candida* is on the rise. *Trichosporon, Malassezia* and *Kodameae ohmeri* are being increasingly reported in patients with compromised immune system such as premature infants, patients on cancer chemotherapy, transplant recipient patients, patients using medical and prosthetic devices, broad spectrum antibiotics, total parenteral nutrition and neutropenic patients. With the immune compromised population being on the rise, these emerging pathogens could contribute to significant morbidity and mortality.

Kodameae ohmeri is anascosporogenous yeast belonging to the family Saccharomycetaceae. Of the five species recognized in *Kodameae*, only *Kodameae ohmeri* which grows at 37ºC is a human pathogen. The first isolate was from pleural fluid where it was regarded as a contaminant. Subsequently this yeast has been isolated from blood samples in patients with altered immune status, majority of them being premature infants. Largest series with isolation from the same site has been seen in a tertiary care centre in North India.

Identification can be based on ability to assimilate raffinose and not D- xylose in API20C test for carbohydrate fermentation. VITEK 2 ID-Yst system also gives accurate diagnosis. In Chrom agar Candida, identification can be based on change of colour from pink to blue after 48 hours. Molecular diagnosis is available through the amplification and sequencing of the ITS2 region localized on the rRNA gen of the 5.8S and 28S subunit.

Most of the isolates in the previous studies were susceptible to the azoles and Amphotericin B. In some isolates, high MIC has been obtained for the azoles. Hence a combination therapy with Azole and Amphotericin B has been used in previous studies. 50 % mortality has been observed inspite of treatment.

In our case report, prematurity, prolonged hospital stay, use of Total Parenteral Nutrition (TPN), bacterial sepsis and treatment with broad spectrum

antibiotics can be seen as independent risk factors for this emerging pathogenic yeast. The isolate was susceptible to the azoles and Amphotericin B. The neonate responded to the treatment. Hence it is important to look for this emerging pathogen in patients with risk factors as it could cause significant morbidity and mortality.

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