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Case Report

A Rare Candida Species in Extreme Low Birth Weight Infant - Candida Famata

Dr Aishwarya K[1], Dr Giridhar Sethuraman[2]

[1]MD Paediatrics, Clinical fellow in neonatology, Department of neonatolgy, Rainbow children's hospital, Anna salai, Guindy, Chennai, Tamil Nadu, India.

[2]DM neonatology, Clinical lead consultant, Department of neonatology, Rainbow Children's Hospital, Annasalai, Guindy, Chennai, Tamil Nadu, India.

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Corresponding Author:

Dr Aishwarya K
MD Paediatrics Clinical fellow in neonatology, Department of neonatolgy, Rainbow children's hospital, Anna salai, Guindy, Chennai, Tamil Nadu, India. 600015.

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ABSTRACT

Infections are a major cause of mortality in newborns and advances in neonatal management have led to considerable improvement in newborn survival. Late onset fungal sepsis is a devasting disease in extreme low birth weight infant, has high morbidity and mortality. It is associated with with pronged hospital stay and increased health care costs.Amphotericin is often started when invasive candidiasis is suspected and it has own side effects. Antifungal susceptibility testing can be useful in deciding correct antifungal therapy. This case report highlights the rising cases of candida nonalbicans in neonatal intensive care units and antifungal susceptibility testing to decide the optimal antifungal therapy.

Keywords*: blood stream infections, candida famata, fluconazole.*

INTRODUCTION

Infections are a major cause of mortality in newborns and advances in neonatal management have led to considerable improvement in newborn survival[1,2]. Late onset fungal sepsis is a devasting disease in extreme low birth weight infant, has high morbidity and mortality. It is associated with with pronged hospital stay and increased health care costs [3]. Candida has emerged to be one of the most common causes of neonatal fungemia and third most common causes of late onset sepsis, accounts for up to 13% with most of the surveillance studies reporting a rise trend [4].

An illustration from the neonatal nosocomial infection surveillance points outs occurrence of this hospital acquired pathogens is greatest in extremely low birth weight infants. With increasing use of fluconazole prophylaxis, non albicans candida species are now emerging as frequent causes of candidemia[5]. Some of the non- albicans candida species exhibit intrinsic resistance to traditional triazole and newer triazoles agents. Use of multiple antibiotics, steroids, parenteral nutrition , Central catheters, ventilation alter the ecology and facilitate the colonization of candida[6] . Early identification of number of candida species is now possible with the development of specific fluorescent peptide nucleotide analog probes thereby, also reducing the need for broad spectrum antifungals[7].

Although phenotypic or commercially available rapid detection systems may be useful for clinicians, they often lack reproducibility. Molecular methods though expensive, but reproducible and reliable, should be adopted by tertiary care hospitals for monitoring and surveillance of important hospital associated infections.

CASE REPORT:

A preterm female infant weighing 880 gram born at 28 weeks of gestation by spontaneous vaginal delivery was admitted to neonatal intensive care unit. She required mechanical ventilatory support and two doses of surfactant at birth for respiratory distress syndrome, followed by extubated to NIV at day three of life and weaned to CPAP by day 9 of life. She was weaned further to free flow oxygen by day 17 and then to room air by 33 weeks of life. At birth, in view of PPROM

and prematurity, she was started on first line antimicrobial therapy. Blood culture were sterile. Hence, first line antibiotics were discontinued on day 3 of life. Baby was started on parenteral nutrition and minimal enteral feeds at day 1 of life. She was noted to have apneic episodes and feeding intolerance on day 9 of life.

Laboratory analysis showed thrombocytopenia. Blood cultures were obtained. Lumbar puncture was deferred because of low platelet count. She was started on Amphotericin B and changed to caspofungin, due to low platelet count.Baby was started on injection meropenem and vancomycin. Umbilical catheter was removed and peripheral line were placed. First bacterial culture of blood by bactec shown Acinetobacter baumannii hence, antibiotics were changed to cefoperazone sulbactam and caspofungin were continued. Second blood culture yielded candida famata by day 17, which was identified by MALDI- TOF method. Antifungal susceptibility testing was done using Broth Micro Dilution method and flucanozale showed Minimal Inhibitory Concenteration of 4 ug/ml [8] .

Hence fluconazole was added in therapeutic dose of 12 mg / kg / dose. Antibiotics were stopped and fluconazole was continued for 3 weeks. Subsequent cultures were negative. Cranial ultrasonogram were done on day 2, 7 14, 28 days were normal. She had hemodynamically significant patent ductus arteriosus, which was closed by oral paracetamol at third week of life.

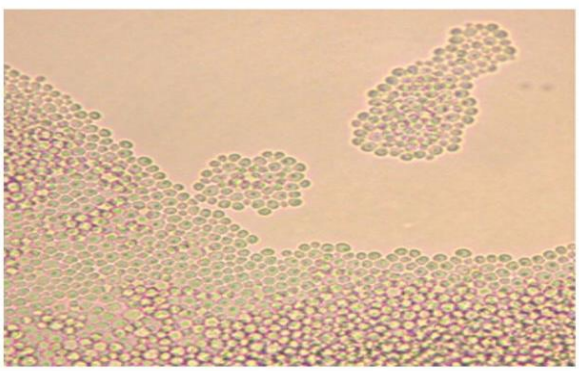
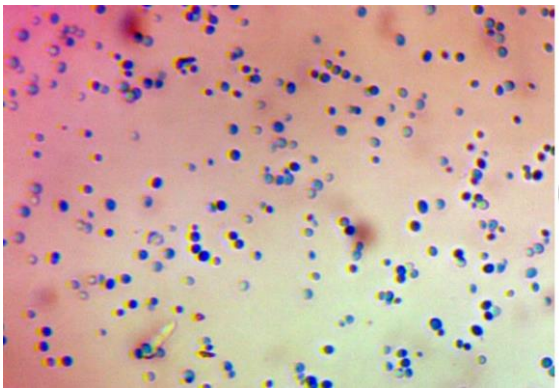
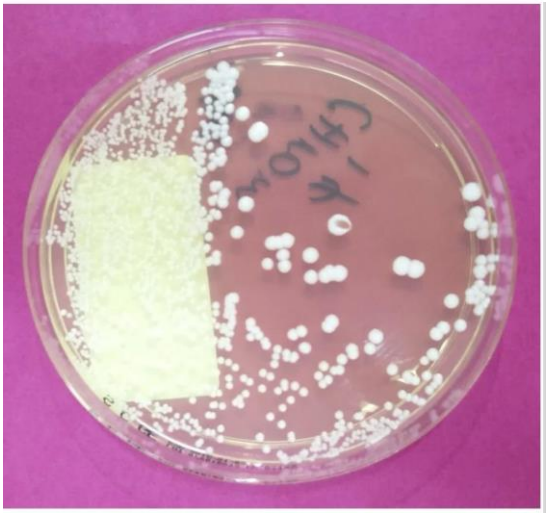



FIGURE 1& 2: OVAL BUDDING YEAST ON AGAR MEDIUM& OBSERVED UNDER LIGHT MICROSCOPY VIA KOH STAINIG



BLOOD CULTURE & SENSITIVITY - SEPSIS (Specimen :)

BLOOD CULTURE AND SENSITIVITY
AEROBIC CULTURE:

PRELIMINARY REPORT:

Gram stained smear from the blood culture bottle flagged positive shows gram positive budding yeasts.
Identification and antimicrobial susceptibility will follow within 72 hours.

FINAL REPORT:

ORGANISMS ISOLATED: Candida famata.

ANTIFUNGALS	MIC (µg /mL)
FLUCONAZOLE	4
VORICONAZOLE	0.5
CASPOFUNGIN	8
MICAFUNGIN	8
AMPHOTERICIN - B	1
ITRACONAZOLE	0.25

NOTE: Antifungal susceptibility reported as MIC (Minimum Inhibitory Concentration) without interpretation due to lack of established clinical breakpoints.

***** End of report *****

FIGURE 3& 4: GROWTH ON YPD MEDIUM& CULTURE REPORT

DISCUSSION:

Neonatal candida infection can be acquired vertically from maternal infection or by nosocomial. Rarely, intrauterine infection in the premature infants can present as congenital candidiasis on day 1 of life as life threatening infections with pneumonitis and a pustular erythematous skin rash. The presentation of systemic candidiasis can be indistinguishable from bacterial sepsis. In our patient, it was presented with feeding intolerance and thrombocytopenia and use of lipids in parenteral nutrition and umbilical line catheter could have contributed to nosocomial acquired fungal sepsis.

Disseminated fungal infection should be ruled by evaluating cultures from other sites, echocardiogram, ophthalmological examination and renal ultrasonogram. Amphotericin B is considered as the gold standard for treating invasive neonatal candidiasis. However, it's use is limited by efficacy and toxicity [9]. Candida famata, a commensal yeast found in dairy products and in soil, accounts for 0.2 – 2% of invasive candidiasis [10].

A number of clinical cases from which this yeast was isolated have been reported from ocular endophthalmitis, peritonitis, catheter related blood stream infections and central nervous system infection [11]. Empirical antifungal therapy [Amphotericin] is usually started for candida non albicans. Antifungal susceptibility testing helps in choosing the appropriate antifungal therapy. Removal of risk factors and prompt initiation of appropriate antifungal therapy is recommended for successful clearance of candida famata fungemia and its mortality and morbidity.

CONCLUSION:

Nosocomial fungal infection can be avoided by selective use of broad-spectrum antibiotics, aseptic preparatory use of parenteral nutrition, removal of centrally placed catheters at appropriate timings and early identification of candida species, using optimal antifungal therapy which can substantially lower the mortality and morbidity of systemic fungal infection.

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CONFLICTS OF INTEREST: NIL

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