Original Research Paper

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Pediatrics

RARE CRYPTOCOCCAL FUNGAL SEPSIS IN NEWBORN

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ABSTRACT Fungal infection in new born babies can present as mild mucocutaneous infection or as life threatening and disseminated sepsis. The incidence of disseminated fungal infection has not been systematically reported,due to problems in early recognition of the non-specific clinical symptoms and signs,and difficulty in confirming the diagnosis by laboratory tests. Thus the incidence of acquired systemic fungal infections is estimated to be 2% - 5% among the preterm infants, with species of candida being the most frequent invaders. The incidence of neonatal candidiasis has increased over last two decades in NICU. The increase in incidence of neonatal candidemia is largely attributed to extensive use of broad spectrum antibiotics and advances in medical field like use of TPN and central lines. Cryptococcus spp. other than Cryptococcus neoformans were thought to be nonpathogenic previously and were considered saprophytes to humans. However, now a days infections caused by species other than C. neoformans have been increasingly recognized. We report a case of fungemia caused by Cryptococcus humicola in a premature infant in which we started fluconazole and amphotericin B but unfortunately baby could not be survived. The organism was isolated twice from blood cultures drawn on back to back days.

KEYWORDS :

Case Report:

A male newborn with a gestation age of 32 weeks, was referred from peripheral hospital to our neonatal intensive care unit for prematurity and respiratory distress. The neonate was delivered via LSCS in view of fetal distress following premature rupture of the amniotic membrane. The birth weight was 1800 g, and the Apgar score not known. On Physical examination rapidly progressive respiratory distress was there, and the patient was intubated soon after delivery, two doses of surfactant were given and baby mechanically ventilated . Chest radiography confirmed grade I respiratory distress syndrome. Initial cultures of blood revealed no growth of bacteria or fungi. Baby was extubated and kept on CPAP later started on orogastric tube feeding, which he tolerated well. Baby had desaturation episodes so was intubated again, had one episode of convulsions for which he was started on phenobarbitone. Antibiotics were started in view of sepsis and baby shifted to our NICU on day of life 19 PMA (34+5 weeks).

Baby was intubated, lethargic on admission, USG cranium done which was normal. Baby was kept on assist control mode on ventilator, after sending hemogram with sepsis screen, blood cultures and csf cultures injection meropenem and colistin were started. Baby was not maintaining saturations on these settings so was shifted on high frequency mode. Baby had septic shock started on inotropes.

Central lines were inserted for the baby TPN was given. He developed pulmonary hemorrhage and thrombocytopenia for which platelets and Fresh Frozen Plasma was given, antibiotics upgraded to injection elores and injection amikacin.

Baby worsened, functional echo was done which was suggestive of severe PPHN iNO was started for the baby along with injection Milrinone. Later in view of worsening injection norarenaline and injection hydrocortisone was added. Repeat USG cranium suggestive of right sided intra ventricular bleed, baby also had gastrointestinal bleed. In view of anemia packed cell voloume was transfused.

Provisional Blood culture came out to be candida positive sensitive to fluconazole so the same was added for the baby after 3 days when no improvement was seen injection amphotericin B was also added. Repeat culture send before starting amphotericin B which was also showing growth of candida species. Unfortunately baby expired and we got final culture after death which surprised us all as it was cryptococcus humicola positive.

DISCUSSION:

Major risk factors for fungemia include Intravascular catheters, parenteral hyperalimentation, and broadspectrum antibiotics. Premature infants are at particularly increased risk due to their low body weight, poor nutrition, enteral malabsorption, insufficient microbial defenses, and underdeveloped anatomic barriers. These were the risk factors which were present in our case.

Cryptococcosis is an infectious disease of worldwide occurrence caused by anencapsulated, basidiomycetous, yeast-like fungus. Cryptococci are generally found in soil contaminated by pigeon feces, as well as on the surfaces of certain vegetables and in milk from infected dairy cow herds (1). Cryptococci are transmitted to humans primarily through inhaled fomites, although direct entry through the digestive tract or skin can also occur. Species other than C. neoformans have generally been thought to be nonpathogenic to humans. Including the present report, there are no case reports of disease in humans caused by C. humicola infection. Our patient is the first case of an low birth weight infant with C. humicola fungemia reported in the literature.

In the clinical microbiology laboratory, the finding of a mucoid colony is usually the first clue to the presence of cryptococci and this suspicion is further heightened when encapsulated, budding yeasts are observed on an India ink preparation of the colony. There are 37 members of the genus *Cryptococcus.*

The identification of C. humicola specifically can be confirmed by using various biochemical tests, and most clinical laboratories use a battery of biochemical tests contained in commercially available kits. A negative caffeic acid test, absence of KNO3 utilization, and the utilization of lactose and melibiose may differentiate C. humicola from other species.

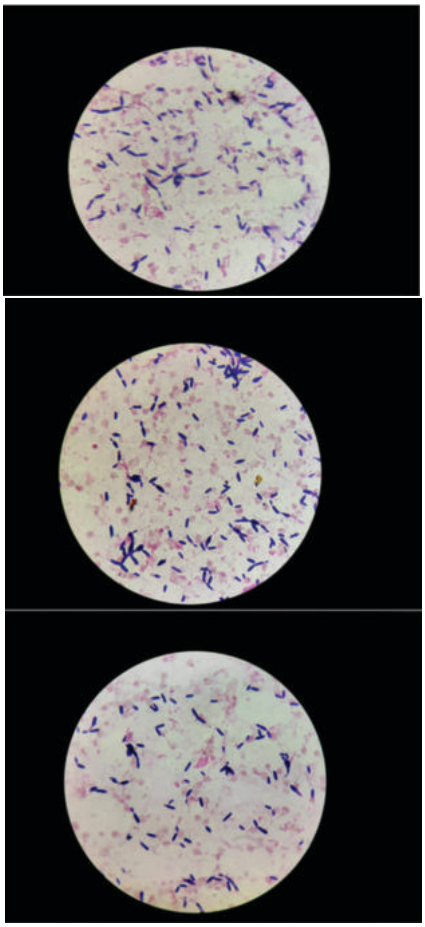
Because of the limited number of reported cases, there is no validated standard treatment for C. humicola infection. Prompt removal of a central venous catheter is well documented as an important measure for clearing fungemia and preventing complications. Correlations between in vitro antifungal susceptibility test results and treatment outcome do not exist for C. humicola. The organism was susceptible to injection fluconazole in this case and those previously reported, with MICs ranging from 0.037 to 1 mg/ml, but its susceptibility to Amphotericin B seemed to be equivocal, with MICs ranging from 4 to greater than 64 mg/ml.

Undoubtedly, there will be an increasing number of unusual fungal infections concomitant with further advances in medicine, especially in areas involving immunosuppressive therapy, use of corticosteroids and antibiotics, and widespread use of central venous catheters. Improvements in the identification of unusual pathogens will, in turn, contribute to the increased recognition of cases. However, a high degree of suspicion, particularly in predisposed patients, teamed with newly developed techniques for culture and identification, will likely allow earlier diagnosis and, it is hoped better treatment of such unusual fungal infections.

Investigations

	6/11/21	9/11/21
Hb	10.7	8.4
Pcv	31.7	23.6
Platelet	80000	40000
Wbc	5760	7920
d/l	51/45	59/32
Crp	8	38
Na	123	149
K	4.8	4.8
Ca/p	6.2/5.0	12.6/3.6
Creat/bun	0.73/37	0.87/58
Ph	7.5	7.464
Hco3	13.1	22.3
pCo2	15.2	31.1
Po2	86	291
Be	-9	-1
Csf r/m	Protein-61 Sugar-277	
rbs	381	
Blood c/s		Cryptoco

		ccus humicola
Csf c/s	Provisional- Candida Final – cryptococcus humicola	
Csf for cytology	Smear paucicell- ular,few Lymphocytes seen	



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