Candidiasis in a very Low birth weight neonate.

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Abstract:-

In newborn the prevalence of systemic fungal infections has increased significantly during the past decade, especially if their defense against infection altered by disease or therapy. Candidiasis may cause severe and even fatal disseminated infection with involvement of almost all tissues of the body. Disseminated Candidiasis in significant source of mortality and morbidity in neonatal intensive care nurseries.

We are presenting a very low birth weight infant with disseminated invasive candidiasis including meningitis.

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CASE REPORT

Male preterm 30 weeks gestational age born to gravida two Para one mother by spontaneous vaginal delivery. Apgar scores were 5 and 8 at 1 & 5 minutes. Birth weight 1.2 kilogram (kg.), length 38 centimeters (cm.), head circumference 28 cm. Soon after birth, developed respiratory distress and needed mechanical ventilation. Both umbilical arterial and venous catheters were inserted and antibiotics (Gentamicin & Ampicillin) were started. Hyaline membrane disease was diagnosed, and in view of the clinical picture, initial arterial blood gas and chest x ray, single dose of surfactant therapy was given, showed clinical improvement. Haemodynamic was maintained with inotrope infusion (dopamine). Ultrasonography of the brain revealed intraventricular hemorrhage without dilatation of the ventricles (Grade II Papile classification). On 5th day of life’ in view of better clinical condition, both umbilical catheters were removed, dopamine infusion was stopped and nasogastric feeding was initiated. Same day patient got accidentally extubated and was put under oxyhood with 40% oxygen. On 6th day of life, patent ductus arteriosis was diagnosed and confirmed by echocardiography. Patient was put on restricted fluids and diuretic (frusamide), and within a week time the duct closed. Final blood culture yielded no growth and antibiotics were stopped. On 10th day of life, patient became pale, cyanosed, tachypneic and developed multifocal myoclonic seizures, nosocomial infection was suspected. Patient was resuscitated and reventilated for recurrent apnea. Broad-spectrum antibiotics (vancomycin and ceftazidium) were started after full septic screening. Seizures were controlled with intravenous phenobarbital. Hemotogical profile revealed low hematocrit with high white blood cell and low platelet counts. Cerebrospinal fluid (CSF) analysis revealed increased white cell count (120 cells/cm3 with 80% polymorphs), high protein (350 mg/dl) & low sugar (1.0 mmol/l). Blood, CSF and urine cultures growth yielded candid albicans, which was sensitive to amphotricine B. Ophthalmic examination revealed normal eyes. Screening of cardiovascular system by echocardiography showed vegetation in the right atrium. Patient developed acute renal failure with (urine out put = 0.3 ml/kg/hour), serum urea (18 mmol/l) and creatinine (160 mmol/l). Ultrasonography of genitourinary system showed sediments (fungus balls) in the urinary bladder. Patient developed metabolic acidosis which was corrected with alkali therapy. So, patient diagnosed as a case of invasive systemic candidiasis. Antibiotics were stopped and amphotricine B was started initially with 0.5mg/kg/day and gradually increased to 1 mg/kg/day:within a period of one week of treatment, patient improved clinically and biochemically. Repeat blood culture yielded no growth. Patient was extubated and was kept under oxyhood with 40% oxygen. The treatment was continued for a period of 6 weeks duration. N.G.T. feeding was restarted with preterm milk formula. on day 33rd of life, patient again deteriorated,
became cyanosed with skin mottling, bulging of the anterior fontanel, and seizures. Septic screening done and blood culture revealed growth of methacillin resistant staphylococcus aureus (MRSA)’ Patient was supported with blood and blood products and treated with appropriate antibiotic for a period of 2 weeks’ Neuroimaging including ultrasonography and C.T. scan of the brain revealed dilatation of the lateral ventricles, third ventricle, and widening of intrahemispheric fissure’ clinically there was no apparent major neurological deficit detected. Finally, at three months of & Ee, he was discharged home on full oral feed with 2 Kg body weight length 43 cm’ head circumference 33.5 cm. He was seen once in the follow up.

**Discussion:**

Neonatal candida sepsis occurs mostly in extreme prematures who have poor immune function. Multiple invasive interventions, inadequate skin barrier to infection, poor nutrition and prolonged use of broad spectrum antibiotics that suppress protective flora in candida infection, that is associated with adverse outcome. Positive culture for candida species recovered from a neonate should never be disregarded. Ampotericin B is active against most species of fungi that cause human infection. The true incidence of Ampotericin B resistance is unknown. In addition candidiasis should be considered in the differential diagnosis sepsis in the neonates. The incidence of candida infection in very low birth weight infants (<1500 gm) is reported to be 3-5%, but in extreme low birth weight (ELBW) infants (<800 gm) is as high as 18-20%. However, the mortality rate of infected ELBW infants range from 20-55%. Candida Albicans (Parapsiosis) and (Torvalopsis glabrata) are the organisms most frequently isolated in intensive care nurseries. Candidal meningitis is one of the most common manifestation of invasive candidiasis. Up to 64% of neonates dying with invasive candidiasis have central nervous system involvement and more than two third of these babies have positive cerebrospinal fluid cultures at some point in their disease. candidal meningitis usually presents as part of the syndrome invasive or disseminated candidiasis. Survivors of candidal meningitis have high incidence sequelae (hydrocephalus, psychomotor retardation, and aqueductus stenosis. Candidial endocarditis has been found to be the second most common form of endocarditis in this age group. Fungal mass can manifest with heart failure or even with pulmonary fungal embolism’ Echocardiogram should be done in neonates with candidiasis. Fungal endocarditis can be cured with antifungal drugs. candidal urinary tract infection (UTI) is the most frequent cause of UTI in NICU. About half of these are found to have concomitant candidemia. In addition this population is particularly predisposed to suffer renal candidiasis which refer to renal fungus balls or renal fungal abscesses. Between 35-42 % of neonates hospitalized in NICU with candiduria will have renal candidiasis, unilateral or bilateral renal obstruction may occur. In conclusion use of invasive therapies should be minimized for premature neonates at risk for invasive candida infection, that is associated with adverse outcome.

Further Reading:

8. Kohari SS, Sharma M, Saxena A, Sharma R. Right atrial mass due to fungal endocarditis in an infant. India pediatrics 1996;33; 593-95