Asymmetric ocular manifestations in a premature infant with Candidemia

Chorioretinitis and lens abscess due to Candidemia

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Abstract
Candidemia can cause candida chorioretinitis, candida endophthalmitis, and, rarely, candida lens abscess in premature infants. Here, we describe a case of a premature infant with leukocoria and chorioretinitis, presumed to be caused by candidemia. The patient was diagnosed with systemic candidiasis after the growth of C albicans in the blood culture done for septic work up because of a deterioration of his general condition. Ophthalmological evaluation revealed minimal ciliary injection, lens abscess and shallow anterior chamber in the left eye, and chorioretinitis in the right eye at 3rd week of life. The infant developed multiorgan failure and died on the 28th day of life. A dilated ophthalmological examination should be performed in all patients with candidemia within the first week of treatment. Although rarely seen, candida lens abscess should be kept in mind in the differential diagnosis of lens opacities in premature infants.

Keywords
Abscess; Candida; Chorioretinitis; Endophthalmitis; Lens
Introduction
Candida species are important nosocomial pathogens in neonatal intensive care units (NICU). Preterm infants with gestational age ≤ 32 weeks and birth weights ≤1000g are especially at risk of systemic candidiasis. Common practices in NICU’s, indwelling catheters and endotracheal tubes put the preterm infant at risk of invasive candidiasis [1]. Other risk factors are sepsis, abdominal surgeries, malnutrition, treatment with broad spectrum and multiple antibiotics and total parenteral nutrition [2]. Colonization of the skin and gastrointestinal tract is the first step in the pathogenesis with the adherence of candida to mucosal and dermal epithelial cells, and hematogenous spread is the second step [3]. Infection of the eye results from hematogenous seeding during candidemia and may result in chorioretinitis, endophthalmitis, and, rarely, lens abscess. Here, we report a premature infant with late onset candidemia and asymmetric ocular involvement at 3rd week of life.

Case Report
The 975-g male infant was consulted at the NICU of Etlik Zübeyde Hanım Woman Health Training and Research Hospital at 28 weeks postmenstrual age to be evaluated for a fungal eye infection. The infant was born at 25+7 weeks of gestation to a 34-year-old mother by cesarean section due to preterm labor and previous cesarean delivery. Apgar scores were four and eight in the first and fifth minutes, respectively. The patient was intubated in the delivery room and admitted to the NICU. He received two doses of surfactant for respiratory distress syndrome. On the first day, a central venous catheter (CVC) was inserted through which penicillin and gentamicin were administered for three days. Parenteral nutrition was started. Gradually, respiratory distress improved and the baby was weaned from continuous positive airway pressure (CPAP) on the fifth postnatal day. On the eighth day of life, the baby had recurrent episodes of prolonged apnea with desaturation and was evaluated for suspected sepsis. Empiric antibiotic therapy with cefotaxime and amikacin was given. However, he deteriorated gradually, and was started on invasive ventilation because of poor respiratory efforts prompting another septic work up including a new blood culture. At the 48th hour, the blood culture yielded growth of Candida albicans, and fluconazole was started. The CVC was removed as the source of infection. The cerebrospinal fluid (CSF) analysis was normal and the culture of CSF was sterile. Cranial ultrasound examination reported hyperechogenic lesions, and fluconazole was changed to amphotericin B. Echocardiogram, abdominal and renal ultrasound examination revealed no vegetation.

On hand-held biomicroscopic examination of the right eye, the cornea was clear, the conjunctiva was white and quiet, the anterior chamber depth was normal without hypopyon, and the lens was clear. There was not any definite sign of inflammation. On indirect ophthalmoscopic evaluation after pupillary dilation, a persistent tunica vasculosa lentis (TVL) and minimal vitreous haze with two yellow-white creamy chorioretinal lesions, half of the optic disc diameter with ill-defined margins were detected in the temporal mid-periphery (Figure 1). Retina was immature and avascular in Zone 2 and Zone 3. On the hand-
Conclusion
Candida species are a frequent cause of sepsis in premature infants. Dilated eye examinations should be performed within the first week of antifungal treatment. In the presence of candidemia, all cases of neonatal endophthalmitis should be accepted as candidal in etiology. In addition, candidal lens abscess should be kept in mind in the differential diagnosis of lens opacities in premature infants.

Scientific Responsibility Statement
The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement
All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

Conflict of interest
None of the authors received any type of financial support that could be considered potential conflict of interest regarding the manuscript or its submission.

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