33. NEONATAL BRAIN ABSCESS

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Introduction. Brain abscess is a focal area of necrosis with a surrounding membrane within the brain parenchyma, that begins as a localised area of cerebritis and develops into a collection of pus surrounded by a well-vascularized capsule. It results from an infectious process or, rarely from a traumatic process. It can originate from infections in head and neck sites (such as mastoiditis or sinus infection). Various conditions can cause hematogenous seeding of the brain and the most common ones include pulmonary infections, such as lung abscess, pneumonia and pulmonary arteriovenous malformations. Cyanotic congenital heart diseases in children are associated in most of the cases. Brain abscesses associated with bacteremia commonly cause multiple abscesses, mostly in the distribution of the middle cerebral artery and usually at the grey-white matter junction. The most frequent microbial pathogens isolated from brain abscesses are Staphylococcus aureus and Viridian streptococci. Brain abscess in newborns is a very rare disease. It can lead to elevated intracranial pressure and has significant morbidity and mortality.

Case presentation. We will present the case of a 33-day-old male neonate with a complaint of fever for 9 days and multiple episodes of multifocal seizures for 6 days. He was born full term by caesarean section with a birth weight of 2.7 kg and cried immediately after birth. There was no history of maternal fever, rashes, vaginal discharge, or bleeding during the antenatal period. The infant was diagnosed with hypospadias and sent for examination by a paediatric surgeon. Examination of other systems revealed tachypnea, a-normal vesicular breath sounds in upper respiratory tract, tachyarrhythmia causing racing heart rate with systolic murmur at left sternal border. The rest of the systemic examination was normal. Magnetic resonance imaging (MRI) was subsequently performed and revealed a large well-encapsulated cystic formation with rupture into the left ventricle (brain abscess) and intracranial haemorrhage. Chest CT reveals Pneumonia Totalis Sinistra. Laboratory investigations showed a positive sepsis screen, anaemia and hypoproteinemia. After that, an emergency operation was undertaken. The infant was intubated and an aspiration was undertaken through a left frontal burr hole under local anaesthesia and about 300 ml of thin yellow pus was evacuated slowly. A left temporal craniotomy was undertaken for evacuation of the hematoma. After finishing the operation the baby was admitted to the Neonatal Intensive Care Unit. An improvement in general condition was observed, following which, the neonate started feeding well and was subsequently discharged after 3 weeks of therapy.

Discussion. Brain abscess is a rare condition in neonates and infants. Only a few large cases have been published. Some clinical presentations of brain abscess in the neonatal period require surgical intervention. This case was characterised by rupture into the left ventricle and intracranial haemorrhage as mentioned. The presence and persistence of the hematoma required not only neurosurgical drainage but also a left temporal craniotomy for evacuation. This atypical and exclusive presentation has not been reported in previous studies.

Conclusion. To conclude, the therapeutic management of neonatal brain abscess requires a multidisciplinary approach involving paediatric neurosurgeons, anesthesiologists, and radiologists. Neurosurgical drainage performed early by experienced hands seems to be the most effective approach in these high-risk paediatric patients.