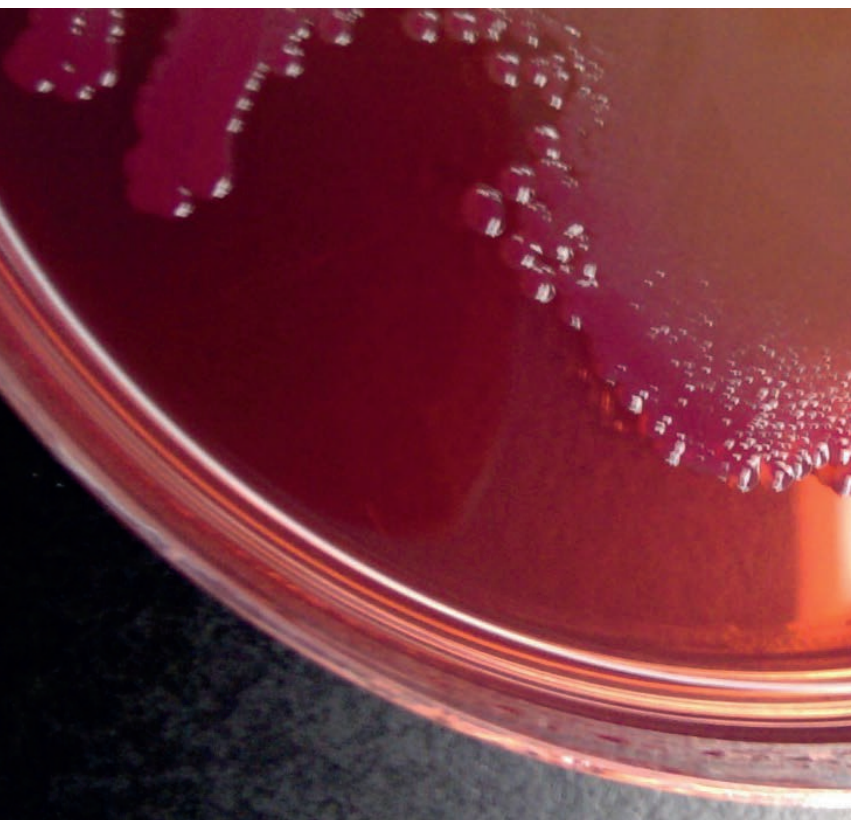


SWISS SOCIETY OF NEONATOLOGY

Brain abscesses in neonatal
Citrobacter diversus
meningitis

November 2000



This 1320 g female twin A was delivered by cesarean section at 33 weeks of gestation after unstoppable labor. The initial nursery course was unremarkable and included a negative sepsis work-up. On day of life 10, apnea spells of increasing severity lead to intubation and mechanical ventilation. A sepsis evaluation showed a white blood cell count of 6.9 g/l with a marked left shift. CSF analysis revealed a white blood cell count of 2280/mm³ with a predominance of polymorphonuclear cells, and protein and glucose concentrations of 2.06 g/l and 4.6 mmol/l, respectively. Antibiotic therapy with ampicillin and cefotaxime was started. Twenty-four hours later, when left-sided focal seizures were noted, the possibility of a viral process was considered, and acyclovir was added to the antimicrobial regimen. Initial CSF and blood cultures remained negative. Seven days after the onset of the illness, following an antibiotic window of 36 hours, the CSF culture from a third lumbar puncture was reported to grow *Citrobacter diversus*, sensitive to cefotaxime and gentamycin, but resistant to ampicillin. On the 11th treatment day, the infant developed recurrent, refractory seizures and mild left-sided hemiparesis. Serial imaging studies with computerized tomography documented the development of multiple large brain abscesses. One month later, after evaluation with MRI (Fig. 1, 2), a fenestration operation was performed to improve CSF circulation and relieve increased intracranial pressure. Eventually, the patient required a permanent ventriculo-peritoneal shunt. On day of life 65, she was discharged home.

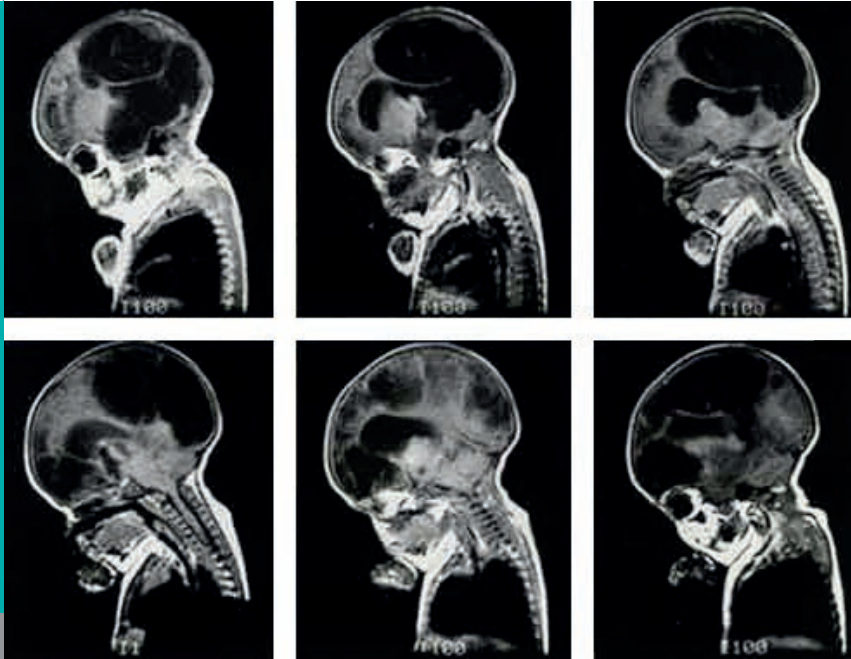


Fig. 1

MRI sagittal views: multiple large brain abscesses.

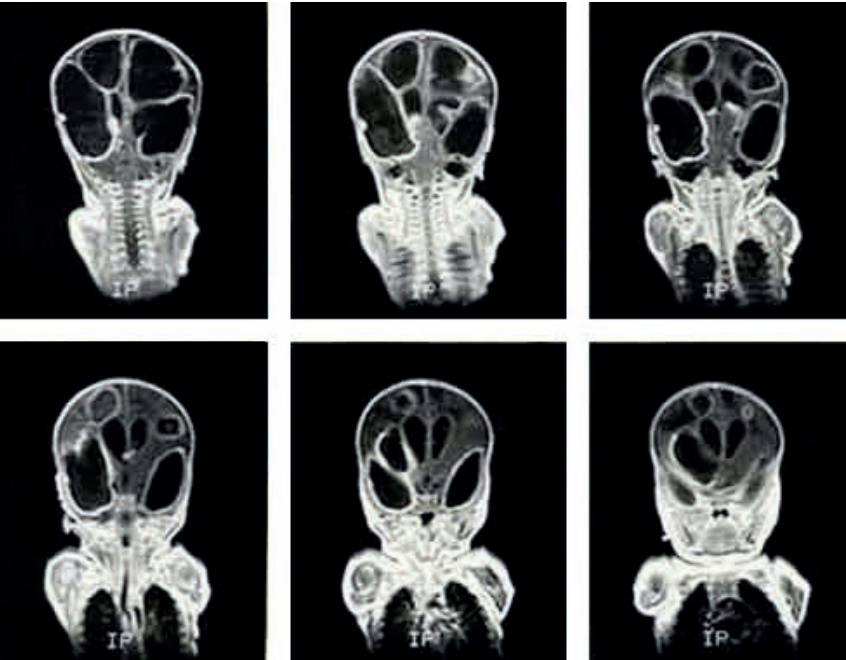


Fig. 2

MRI coronal views: multiple large brain abscesses.

DISCUSSION

Citrobacter diversus, a gram-negative enteric rod, is a rare cause of neonatal meningitis but has an unusually high propensity for brain abscess formation (in more than 75% of cases). Analyses of small epidemics in nurseries have confirmed nosocomial spread of this organism. *Citrobacter diversus* is frequently resistant to ampicillin but usually sensitive to aminoglycosides and third generation cephalosporins. This case demonstrates characteristic features of brain abscesses in neonates, including large size of the lesions, poor capsule formation, and multifocal occurrence.

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