CENTRAL DIABETES INSIPIDUS IN NEONATAL BRAIN ABSCESS

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Introduction

Neonatal Central Diabetes Insipidus (CDI) is extremely rare and its causes include infection, trauma, hemorrhage or tumor. A high index of suspicion is necessary as early treatment is required to prevent further complications. We report a case of Neonatal CDI as a complication of a Serratia brain abscess.

Case Report

A 2 kg, 34 weeks premature baby boy was delivered via Caesarean section for maternal pre eclampsia with a good Apgar score. He was admitted to NICU for mild respiratory distress syndrome. At day 3 of life he developed frequent apneas and seizures with a Serratia Marcescens positive blood culture and was covered with Meropenem. He also had severe hyponatremia with serum sodium level g 115 mmol/L. Cerebrospinal fluid study confirmed bacterial meningitis with CSF glucose 0.54 mmol/L, Protein 8.2 g/L, and Polymorph 890cell/ml.

After 14 days of antibiotics, he developed recurrent seizures requiring phenobarbitone and ventilation. An urgent CT scan of the brain showed a left temporoparietal abscess with obstructive hydrocephalus and was referred to our hospital for further management. Subsequently he underwent a burr hole and drainage of abscess (Chart 1). Postoperative day 1 and 2, he had weight gain with normal urine output (2-5 mls/kg/h) but at day 3, he developed polyuria (urine output 8 ml/kg/h) an abrupt increase in serum sodium level from 128 mmol/L to 140 mmol/L, and acute weight loss (5%). A diagnosis of Diabetes Insipidus was made and investigations confirmed it. (Serum osmolality 296 mOsm/kg, Urine Osmolality 42 mOsm/kg).

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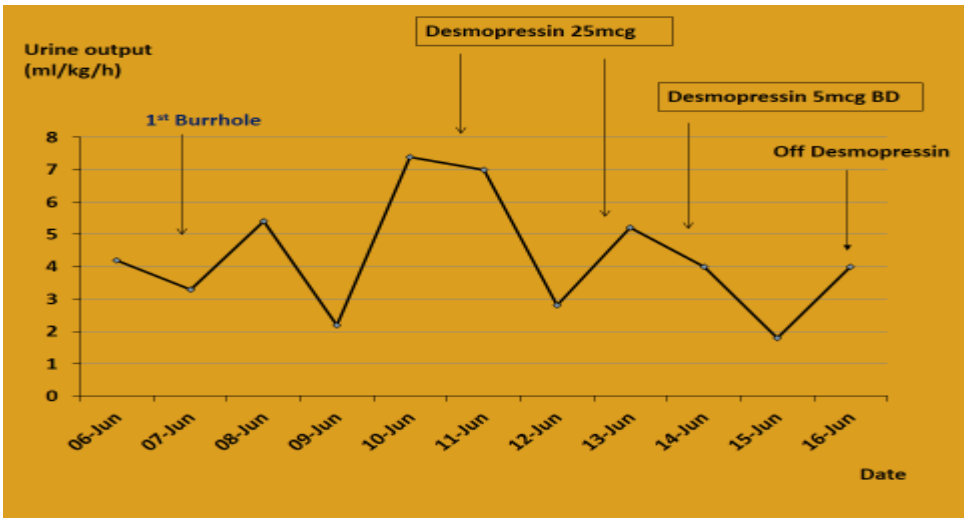
Chart 1. Effect of desmopressin to urine output



A therapeutic low dose of oral Desmopressin was started with appropriate response noted. Evaluation of the pituitary axis revealed normal thyroid and adrenal function. A repeat CT scan showed a persistent large abscess, thus he underwent second burr hole and aspiration (Figure 1-4) and had a ventriculoperitoneal shunt inserted after 6 weeks of antibiotics. He completed meropenem for 8 weeks and was discharged home after a 2 month stay in our hospital.

Radiological Imaging

Figure 1. At diagnosis-ring enhancement lesion at Left temporoparietooccipital

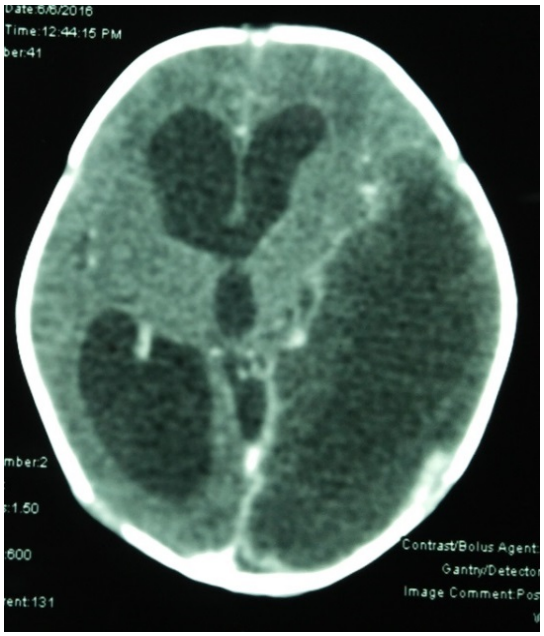


Figure 2. CT Brain after 1st burr hole and aspiration

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Figure 3. CT Brain after 2nd burr hole and aspiration

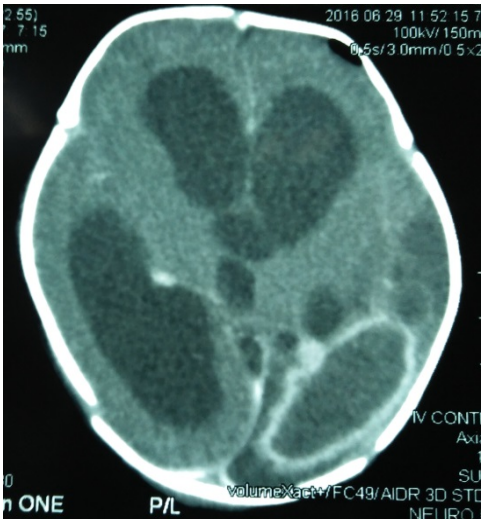
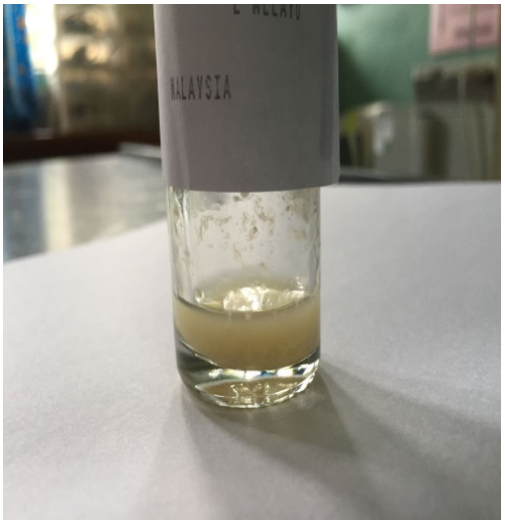


Figure 4. Pus collection from aspiration



Discussion

Brain abscess is rare in neonates and usually occurs in babies with risk factors such as prematurity. Although rare, central Diabetes Insipidus (CDI) should be an anticipated complication in a neonatal brain abscess. Desmopressin has been the option of treatment since its introduction in 1972 [1]. Desmopressin may be administer orally, intranasally or parenterally. There are wide individual variations in the dose required to control diuresis [2]. A low dose should be used initially and titrated as necessary in accordance to clinical and laboratory parameters [3].

Conclusion

Managing brain abscess and its complications in neonates is challenging. The treatment is prolonged and requires a multidisciplinary team. Early diagnosis of CDI and treatment with desmopressin are important to prevent further morbidity. The neonatologist must be aware that these kind of complications can occur to prevent further neurological damage to the patient.

References

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