Egyptian Journal of Anaesthesia (2015) **31**, 331–334

HOSTED BY

ELSEVIER

Egyptian Society of Anesthesiologists

Egyptian Journal of Anaesthesia

www.elsevier.com/locate/egja
www.sciencedirect.com

Case report

Anaesthetic management of neonate with giant occipital meningoencephalocele: Case report

H.D. Pahuja [a,*], S.R. Deshmukh [a], S.A. Lande [a], S.R. Palsodkar [a], A.R. Bhure [b]

[a] *NKPSIMS and LMH, Digdoh Hills, Hingana, Nagpur, Maharashtra, India*
[b] *Department of Anaesthesiology, NKPSIMS and LMH, Digdoh Hills, Hingana, Nagpur, Maharashtra, India*

Received 4 June 2014; accepted 23 March 2015
Available online 13 July 2015

KEYWORDS

Meningoencephalocele;
Occipital;
Anaesthesia;
Prone position;
Difficult intubation

Abstract Meningoencephalocele is herniation of cerebrospinal fluid, brain tissue and meninges through the skull defect. The anaesthetic management of occipital meningoencephalocele is challenging because of the difficulty in securing airway, prone position, blood loss and, perioperative care. The two major aims of the anaesthesiologists while caring for children with occipital encephalocoele intraoperatively are to avoid premature rupture of the encephalocoele and to manage a possible difficult airway due to restricted neck movement and inability to achieve optimal position for intubation of the trachea. We report a case of giant occipital meningoencephalocele presented for surgical excision. Perioperative management of patients with giant meningoencephalocele may be challenging for both anaesthesiologist and neurosurgeon. These patients must be managed closely with an interdisciplinary approach.

1. Introduction

The term cephalocele refers to a defect in the skull and dura with extracranial extension of intracranial structures. Cephaloceles are divided into four types: meningoencephalocele, meningocele, atretic encephalocele and gliocele. Meningoencephalocele is a hernial protrusion of part of meninges and neural elements in a sac through the skull defect [1]. In Southeast Asia, the incidence is approximately 1 in 5000 live births [2]. The occipital bone is the most common location for cephalocele. Neurological outcome of such malformations depends on the size of the sac, neural tissue content, hydrocephalus, associated infection, and other pathologies that accompany this condition.

2. Case report

A 1 month old male neonate presented with a giant occipital meningoencephalocele and was scheduled for surgical excision. The neonate had been surprisingly delivered by a normal vaginal delivery in government hospital at term and had birth weight of 3 kg. The baby cried immediately after birth. The mother had irregular prenatal care. The baby had been accepting breast feeds well since birth and had been passing stools and urine regularly. There were no signs of meningeal irritations or convulsions and there was no neurological deficit. Cardiovascular and respiratory system examination was normal. Present baby weight was 3.5 kg. The swelling was present

* Corresponding author at: Plot number: 60 Hiwari Nagar, Nagpur, Maharashtra, India. Tel.: +91 9823188160.
E-mail address: heenapahuja15@yahoo.com (H.D. Pahuja).
Peer review under responsibility of Egyptian Society of Anaesthesiologists.

http://dx.doi.org/10.1016/j.egja.2015.03.004

since birth and had gradually increased to the size of $14 \times 12 \times 11$ cm with a head circumference of 39 cm. The meningomyelocele was more or less oblong with one side bulging more than the other and size more than head circumference (Fig. 1). The MRI brain showed a defect of size 3.2 cm in the occipital region through which parenchymal tissue was seen herniating. The herniating mass measured about $4.7 \times 3.5 \times 3.2$ cm. The mass was surrounded by hypodense collection with multiple thickened septae within suggestive of CSF collection with thickened meninges. There were suggestive of genu and part of body of corpus callosum partial agenesis. Only body of right ventricle was visualized, and rest ventricular system was not visualized. These imaging features were suggestive of Occipital meningoencephalocele with partial agenesis of corpus callosum (Fig. 2). The CT Abdomen showed agenesis of left kidney with compensatory hypertrophy of right kidney. 2D ECHO was normal. Laboratory investigations were within normal limits.

Baby was kept NPO for 4 h on the day of surgery and Ringer lactate was started at the rate of 14 ml/h by syringe pump. We planned for intubation in supine position. As the meningoencephalocele was bigger than the patient's head, and was oblong in shape, positioning of the head was anticipated to be difficult, the baby was kept on a rectangular pillow (number 1 in Fig. 3.1) with his head and the meningoencephalocele extending beyond the edge of the pillow. The head support was designed using three separate blocks made of surgical towels. After placing the child on the pillow, the head and neck were supported by an anaesthesiologist's hand under the neck. The two blocks supporting the swelling from the lateral sides (numbers 2 and 3 in the Fig. 3.1) were rectangular and were supporting the longer sides of the oval swelling. Individual block was made of stacks of surgical towels. The distance between them was approximately the size of the breadth of the oval swelling. The block supporting the head above the swelling (number 4 in Fig. 3.1) was rectangular

Figure 1 Huge occipital meningoencephalocele in a neonate.

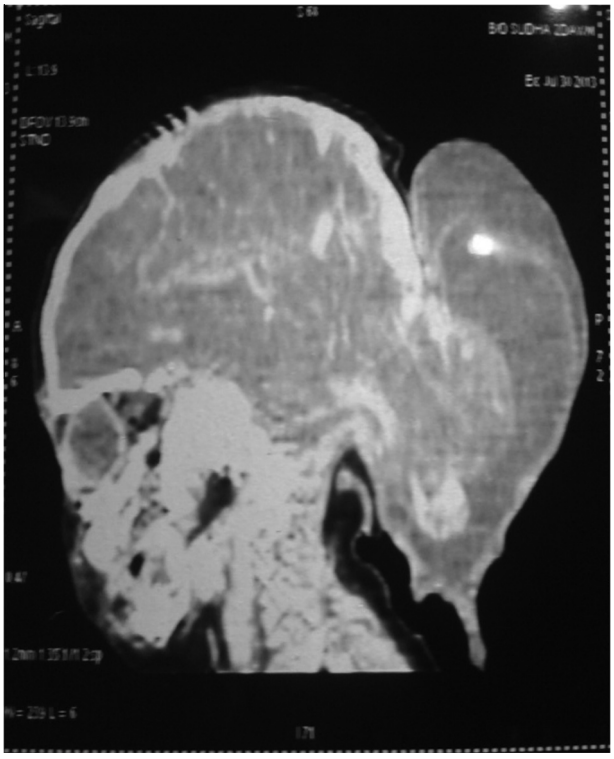

Figure 2 MRI brain showing occipital meningoencephalocele.

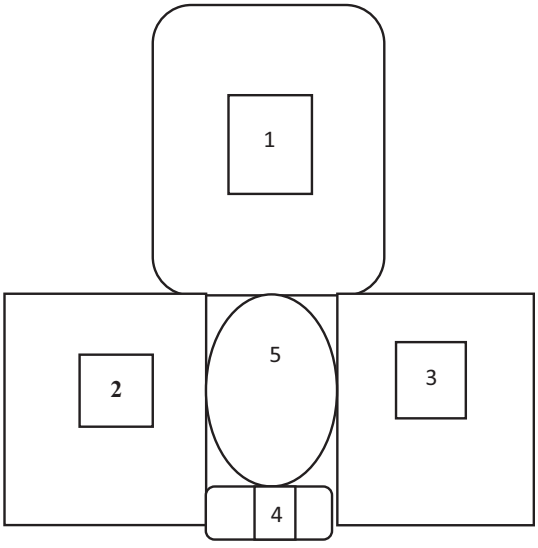

Figure 3.1 Schematic representation of Fig. 3.2 1. Rectangular pillow, 2–4. Movable blocks made by surgical sheets, 5. Adjustable gap for occupying huge meningoencephalocele.

and placed in between the two side supports. All these efforts were taken to intubate in supine position and to prevent rupture of meningoencephalocele. A warming blanket was placed over the baby. ECG, NIBP, SPO2, ETCO2, and Precordial stethoscope were also attached for monitoring. Baseline parameters of the baby were recorded. The baby received Inj. Glycopyrrolate 0.014 mg I.M. as premedication. Baby was induced in supine position (as mentioned earlier) with