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Clinical Image

Alternative Method for Airway Approach in Anesthesia of a Newborn with Occipital Encephalocele

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Figure 1: Newborn before the encephalocele correction procedure.

Encephalocele is a rare midline defect in cranial bone fusion, leading to the formation of a sac filled by cerebrospinal fluid, usually in the occipital region [1]. In this scenario, positioning and laryngoscopy becomes a challenge. We report a case of a 3.2-Kg male newborn with hypotonia, bilateral hydronephrosis, micrognathia, microcephaly and

marked occipital encephalocele (Figure 1). Prenatal care started in the third trimester and there were reports of Alcoholism up to the 16th week and gestational diabetes.

Surgical correction of the encephalocele was indicated within 24 hours of life. Inhalation induction was performed with 4% sevoflurane in 100% O_2, a 24G catheter was inserted in the right arm and an umbilical had been previously punctioned. The patient was positioned with a subscapular and dorsal cushion to compensate for the large volume of the encephalocele that was resting in the hand of two of the anesthetists. It was administered 3 μg of fentanyl IV; spontaneous ventilation was maintained, and the airway was approached under direct laryngoscopy with a Macintosh 0 blade and success after the third attempt with a 3.0-mm endotracheal tube. The procedure lasted 180 minutes and the NB was returned to the neonatal ICU intubated.

Post-operative MRI of the skull showed a Dandy-Walker complex, type II lissencephaly, absence of myelination, corrected encephalocele and a "fold" in the brain stem. The morphological alteration of the skull and an occipital encephalocele can compromise proper positioning, leading to a difficult laryngoscopy. Isada et al. analyzed pediatric cases and reported the higher risk of difficult intubation among children with congenital malformation [1]. Encephaloceles are a common type of congenital malformation, occipital lesions represent approximately 85% of the cases [2]. It is recommended to prevent compression of the sac, which may raise intracranial pressure or cause rupture. Induction technique that preserves spontaneous ventilation is advantageous to ensure adequate ventilation under mask. In these cases, inhalation agents are preferred as they rapidly wash off in adverse situations [3].

Difficult airway protocols should be used and equipment such as difficult airway cart, supraglottic devices, bronchofiberscope and a videolaryngoscope must be available, if possible [3]. Our option, with no alternative adapted cushion that would secure the head with an encephalocele without pressure, was to use the hands of two anesthetists to support part of the subscapular region and the newborn's head, so as better angulation and laryngoscopy view by the most experienced member of the team.

In literature, there are reports of some options regarding the choice of positioning which include lateral (right or left) [3], placing the head on the edge of the table with an assistant supporting it [4] or even supporting the baby head off the table with the help of a Horseshoe Headrest [5]. Body temperature must be monitorized and due to a lack of central autonomic control and the large size of the encephalocele increases area of exposure and can lead to hypothermia. The rarity of these cases causes a lack of evidence of superiority of a technique for airway management. However, perioperative management of these patients requires care beyond ensuring airway.

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Conflicts of Interest: None.

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