Original Research Paper

VOLUME-6 | ISSUE-4 | APRIL - 2017 • ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 78.46

Difficult intubation in occipital encephalocele : Ambu aura i to our rescue !

Anaesthesiology

KEYWORDS: occipital encephalocele, Ambu Aura i, fiberoptic.

Shivangi Khanna	junior resident, department of anaesthesia, SMS Medical college, Jaipur
Priyanka Jain	Assistant Professor, department of anaesthesia, SMS Medical college, Jaipur
Avinish Bharadwaj	Professor, department of anaesthesia, Mahatma Gandhi Medical College, Jaipur
Neelam Dogra	Professor, department of anaesthesia, SMS Medical college, Jaipur

ABSTRACT

Airway management in patients with occipital encephalocele is a challenging task due to difficulty in positioning and restricted neck movement . Alternative approaches to secure airway such as supraglottic devices prove to be a great help in difficult pediatric airway. Here we report a case of occipital encephalocele where airway was successfully established with Ambu Aura i laryngeal mask airway after failure of attempted conventional endotracheal intubation.

Introduction

Occipital encephalocele poses a challenge to anaesthesiologists as it creates a difficult airway situation due to restricted neck movement and difficulty in positioning for intubation[1]. Here we report one such case of occipital encephalocele where we faced "cannot intubate" situation via conventional methods and then airway was secured with Ambu aura i with fibreoptic guided intubation through it.

Case

A 1 month old male child weighing 3 kg presented with a huge, gradually enlarging swelling measuring 10x15 cm in the occipital region (fig1), which was present since birth .The swelling extended from parietal prominence to the inter scapular region due to which the movement of the neck was extremely restricted. The child also had retrognathia. The child could move all the 4 limbs. No other congenital anomaly was present. . Investigation Hb 12g/dl and adequate platelet count.

In the operating room , difficult airway cart including Ambu aura i with lubrication ,flexible fibreoptic bronchoscope, were kept ready. All emergency drugs were kept ready and adequate temperature of the OT was maintained. The monitors were attached. Pre op vitals HR-149bpm, BP 86/40 mmhg, Spo2 94% on room air. The child was placed in lateral position. Pre oxygenation was done with 100% O2. Inj.glycopyrolate o.o8 mg was given. Induction was done with inj. Thiopentone 10mg. Bag and mask ventilation was achieved without any difficulty. Inj.succinylcholine 4mg was given. Laryngoscopy with miller blade 0 was done by an expert anaesthesiologist which showed Cormack lehane's grade III. The head of the baby was placed beyond the edge of the table with an assistant supporting it. Laryngoscopy was repeated but the view did not improve. Intubation was attempted but failed. Child was ventilated with bag and mask. Laryngoscopy was attempted in lateral position which also did not improve the view. The patient began to desaturate, the airway was immediately secured by inserting a prelubricated Ambu aura i of size 1(fig2) and its cuff inflated with 4ml of air successfull ventilation with bilateral chest rise was achieved . The oxygen saturation of the patient improved. A well lubricated uncuffed ET tube of size 3.5 i.d was railroaded over the fibreoptic bronchoscope.The scope was inserted through the Aurai which showed downfolded epiglottis and its anterior surface seen with >50% visual obstruction of epiglottis to larynx. The scope was manipulated and advanced further until the visualization of the carina and endotracheal intubation was achieved and the scope was removed. The cuff of ambu aura I was deflated and removed while carefully stabilizing and ET tube in trachea with the aid of another ET tube of one size smaller by railroading them. ET tube was fixed and secured. Surgery was started. On opening the sac , CSF of about 350ml was drained. Intra operative vitals were maintained with appropriate fluids and blood transfusion. Intra operative course remained uneventful. The content of the sac included meninges and part of posterior fossa. The surgery was completed. Neuromuscular blockade was reversed with i.v. Inj. Neostigmine and Inj. Glycopyrolate. Child was shifted to intensive care unit.HR= 130bpm, SPo2=100% with endotracheal tube in situ.

Discussion

Major anaesthetic challenge in management of occipital encephalocele is securing the airway Paediatric patients have a low functional reserve volume, and failure to intubate the trachea may result in hypoxaemia, bradycardia and even cardiac arrest[2]

In our case, the giant meningoencephalocele in the occipital region made supine position of head impossible. Mask ventilation and intubation may be attempted in the lateral position or in alternative approaches including to place the child in supine position on a platform of rolled-up blankets while an assistant temporarily supports the head or placing the child' s head beyond the edge of the table with an assistant supporting it[3-5]. However in our case where intubation attempts failed despite all maneuvers, airway was successfully established with Ambu Aura LMA .

Although endotracheal intubation is the conventional and preferred method for establishing an airway, SGAs may be used when tracheal intubation may be difficult as SGAs are relatively easy to insert blindly, and may provide improved ventilation compared to bag-mask ventilation, which could be a useful intermediate step until a definitive airway can be secured as in our case.

The laryngeal mask airway (LMA) and fiberscope are useful modalities in handling difficult pediatric airway and intubation. LMA not only offers another mode of securing airway , but also provides a conduit for tracheal intubation and a rescue airway in the CICV (cannot intubate, cannot ventilate) situations.

Supraglottic airways are an established part of routine and emergency pediatric airway management, including use in difficult airways and neonatal resuscitation

Since the advent of SGA , many variations of new first- and second-generation devices have been designed to improve ease of insertion, positive pressure ventilation, and facilitate tracheal intubation. The use of established pediatric first- and second-generation SGAs: the laryngeal mask airway Classic, laryngeal mask airway Unique, and laryngeal mask airway ProSeal, and of newer pediatric SGAs: the air-Q, laryngeal mask airway Supreme, i-gel, and Ambu Aura-I have been reviewed and discussed by various studies which have the most evidence to support their use in the pediatric population.The Ambu Aura-i(fig) is a newer model of the Ambu AuraOnce,is specifically designed for tracheal intubation with fiberoptic guidance in children. The mask bowl is without aperture bars and the airway tube has a 90° angle for easy insertion. Compared to the i-gel and air-Q, the Ambu AuraOnce offers similar fiberoptic views of the glottis[6-7]

The perioperative management of 17 occipital encephalocele infants have been reported and airway complications and management reviewed in a retrospective study[8]

Placing the child in right lateral position makes laryngoscopy easier for a right-handed person who uses the left hand to hold the laryngoscope, and vice versa for a left-handed person[9]

A giant occipital encephalocele may prevent proper positioning which is a prerequisite for successful endotracheal intubation hence alternative approaches to secure airway such as LMA and fiberoptic should be kept ready and available in the Operating room.

Reference

1. Goel V, Dogra N, Khandelwal M, Chaudhri RS. Management of neonatal giant occipital encephalocele: Anaesthetic challenge. Indian J Anaesth 2010;54:477-8.
2. Asai T1, Nagata A, Shingu K Awake tracheal intubation through the laryngeal mask in neonates with upper airway obstruction .Paediatr Anaesth. 2008 Jan;18(1):7780
3. Cevik B, Orskiran A, Yilmaz M, Ekti Y. Anesthetic management of a newborn with giant occipital meningoencephalocele: Case report. International Journal of Case Reports and Images 2012;3(8):10–12.
4. Dey N, Gombar KK, Khanna AK, Khandelwal P. Airway management in neonates with occipital encephalocele: adjustment and modifications. Paediatr Anaesth 2007;17(11):1119–20.
5 Manhas Y, Chinnan N.K, SinghA.K...Neonatal airway management in occipital encephalocele. Anesthesia & Analgesia, 103 (6) (2006), p. 1632
6. Jagannathan N, Sohn LE, Sawardekar A et al. A randomized trial comparing the Ambu (R) Aura-i with the air-Q intubating laryngeal airway as conduits for tracheal intubation in children. Pediatr Anesth 2012; 22: 1197–1204.
7. Theiler LG, Kleine-Brueggeney M, Luepold B et al. Performance of the pediatric-sized igel compared with the Ambu AuraOnce laryngeal mask in anesthetized and ventilated children. Anesthesiology 2011; 115: 102–110
8. Zeynep Baysal Yıldırım, Emel Avci, Fuat Torun, Mustafa Cengiz, Ali Çigdem, Hamza Karabağ, Haktan Karaman. Airway management for occipital encephalocele in neonatal patients: A review of 17 cases. Journal of Neurosciences in Rural Practice | July - December 2011 | Vol 2 | Issue 2
9. Mahajan C, Rath GP Intubating children with giant occipital encephalocele in lateral position: Right or left side? Journal of Anaesthesiology Clinical Pharmacology | October-December 2011 | Vol 27 | Issue 4.