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Case report

Use of the DCI video laryngoscope system in a pediatric patient with amniotic band syndrome and craniofacial abnormalities affecting the airway☆,☆☆,★

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Abstract A 14 month old, 19 kg female infant with aminotic band syndrome and severe craniofacial malformations presented for placement of an open gastrostomy tube. Spontaneous ventilation was maintained while an "awake look" was performed with the video laryngoscope using intravenous propofol (30 mg total) for sedation. A Grade I Cormack-Lehane score was obtained on the monitor. Succinylcholine was then administered intravenously and orotracheal intubation was performed on the first attempt with a size 4.5 endotracheal tube.

1. Introduction

Children with congenital syndromes associated with difficult airways pose a unique set of challenges. A number of airway devices and techniques are available for management of an infant or child with a difficult airway. Supraglottic airways, fiberoptic stylets, and laryngoscopes are important tools for managing the difficult pediatric airway. Nevertheless, in cases of anticipated difficult intubation, direct laryngoscopy continues to be frequently used. However, in patients with severe mandibular hypoplasia, intubation may be extremely difficult and direct laryngoscopy unsuccessful.

Application of the Storz Direct Coupled Interface video laryngoscope system (DCI; Karl Storz Endoscopy, Tuttlingen, Germany) in a pediatric patient with amniotic band syndrome and craniofacial abnormalities affecting the airway is presented.

2. Case report

A 14 month old, 19 kg female infant with aminotic band syndrome and severe craniofacial malformations presented to the operating room (OR) for open gastrostomy tube

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Fig. 1 Craniofacial abnormalities in a patient with amniotic band syndrome.

placement with general anesthesia. Craniofacial malformations included bilateral Tessier (two), three facial clefts, anencephaly, hydrocephalus, absence of skull and nasal structures, and rhomboencephalosynapsis of both cerebellar hemispheres (Fig. 1). No associated cardiac or pulmonary defects were noted.

The patient was brought to the OR, where standard monitors were applied. A 22-gauge peripheral intravenous (IV) catheter was placed in her right hand and IV 0.1 mg atropine was administered. The patient was preoxygenated with 100% oxygen (O_2) for 5 minutes; spontaneous ventilation was maintained while an "awake look" was performed with the Macintosh 2 video laryngoscope blade, with IV propofol (30 mg total) given for sedation. A Grade I Cormack-Lehane score [1] was obtained on the monitor view. Thus, the decision was made to proceed with muscle relaxation. Intravenous succinylcholine was then administered and orotracheal intubation was easily performed on the first attempt with a size 4.5 endotracheal tube (ETT; Fig. 2).

Fig. 2 Lateral view of the same patient following endotracheal intubation with a size 4.5 endotracheal tube.

Proper ETT placement and positioning was verified by capnography and auscultation of bilateral breath sounds. Surgery proceeded uneventfully. The patient was extubated in the OR and she recovered in the Postanesthesia Care Unit with no complications.

3. Discussion

The ideal device in a difficult airway scenario, especially in a patient with an unanticipated difficult airway in which a standard laryngoscope fails to provide the necessary laryngeal view, is often what works best in the practitioner's hands. The device must be available and user-friendly. The authors showed that the DCI video laryngoscope is a device that may bridge that gap between direct laryngoscopy and flexible fiberoptic laryngoscopy.

This is the first case report using the Storz DCI video laryngoscope system as an "awake look" in order to assess the airway structures of a pediatric patient with congenital anomalies affecting the airway prior to intubation. There are several reports of use of the video laryngoscope (VL) in situations of potentially difficult laryngoscopy and/or intubation. Kaplan et al [2] reported a series of 235 patients in whom the VL was used for orotracheal intubation, of which 217 were predicted to be easy intubations. All patients were successfully intubated, with only 10% requiring external laryngeal manipulation for intubation. On the other hand, 18 patients had anatomic predictors of difficult laryngoscopy, all requiring external laryngeal manipulation. All were successfully intubated using the VL. The authors at this institution have previously used the VL for intubation in bariatric patients[1,2] with good results.

Hackell et al [3] recently reported the use of the Miller 1 Storz video laryngoscope in 7 infants with previous difficult direct laryngoscopy. Wald et al [4] also reported the successful use of the same blade in a three week old, 2.1 kg neonate after failed direct laryngoscopy. In pediatric patients, most of the published literature regarding VL focuses on its use in older children [5-11].

Traditional approaches to the difficult pediatric airway, including those with cleft lip and palate, have been described using Laryngeal Mask Airway (LMA) and/or fiberoptic intubation techniques [12-14]. Difficult laryngoscopy and difficult intubation both have been described in cases of cleft

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