

Airway management with Airtraq in a neonate with Epignathus. A case report

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ABSTRACT

Presence of intraoral pathology especially in neonates poses a great challenge during airway management. Epignathus is a rare form of teratoid tumour that arises from the oropharyngeal region. We hereby report a case of a 7-day-old neonate who presented with feeding difficulty secondary to swelling arising from the hard palate. Surgical excision was decided to overcome feeding difficulty and to enable the child to thrive better. In view of anticipated difficult airway, the child was induced with sevoflurane, maintaining spontaneous breathing and intubated with Airtraq optical laryngoscope size 0. The further intraoperative and postoperative period was uneventful.

Key words: Airway management, epignathus, neonate

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INTRODUCTION

Congenital anomalies of the airway are probably the most common cause of difficult intubation in paediatric patients. Epignathus is a rare oropharyngeal tumour with high mortality secondary to airway obstruction in the neonatal period. Its incidence ranges from 1:35000 to 200000 live births and has a female predominance.^[1] Surgical removal of the tumour is the treatment of choice. Airway management in neonates with epignathus poses great challenges for the anaesthesiologist as they are prone to difficult bag and mask ventilation and difficult laryngoscopy. Even in expert hands, direct laryngoscopy may fail to visualise the larynx in neonates with airway anomalies. This has led to a search for alternate devices for securing the airway in difficult scenarios. The airtraq is a disposable optical laryngoscope which has shown promising results during difficult airway management in the paediatric population.^[2,3] Presence of an optical channel and a guiding conduit obviates the need of tongue displacement or sniffing position as direct line of sight is not required. We report a case of a neonate

with epignathus posted for surgical removal of the tumour in whom intubation under Airtraq (size 0, channeled) guidance was successful.

CASE REPORT

A 7 day, 3 kg neonate presented to our hospital with feeding difficulty secondary to intraoral swelling. A soft tumour measuring 3 cm × 2 cm, central in location, arising mostly from the hard palate and covered with mucosa [Figure 1]. It was firm in consistency occupying the oral cavity with difficulty in swallowing. The child was a case of full-term normal delivery at a private setup and later referred to our hospital for the management of intraoral mass.

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Figure 1: Epignathus occupying oral cavity

There were no signs of respiratory distress. Airway examination revealed reduced oral space due to the presence of tumour. Systemic examination and haematological studies were within the normal limits with no other congenital anomaly. He was posted for excision of the mass under general anaesthesia.

After taking parental consent and confirming nil per oral status of the patient, the neonate was taken inside the operation theatre. All precautions including warming blanket, warm fluids and operation theatre temperature of 28°C were taken to prevent hypothermia. Monitors including oxygen saturation, electrocardiogram (ECG), end tidal carbon dioxide concentration (EtCO₂), temperature probe, non-invasive blood pressure and precordial stethoscope were attached. Anticipating a difficult airway in view of limited mouth opening and difficult mask ventilation, a difficult airway cart and preparation for surgical tracheostomy were kept ready. Premedication was done with inj. atropine 0.02 mg/kg iv and inj. fentanyl 2 µg/kg iv. General anaesthesia was induced with titrated increments in sevoflurane upto 6-8% with 50:50 oxygen and nitrous oxide. A well-lubricated uncuffed endotracheal tube (ETT) was inserted in the guide channel of the size 0, channeled Airtraq (Prodol Meditec, Guecho, Spain). After ensuring adequacy of bag and mask ventilation, attempt at intubation was made with Airtraq size 0 by a senior anaesthesiologist (experienced in paediatric Airtraq use). With gentle movement and head in neutral position, Airtraq was inserted inside the oral cavity and slid down to reach the epiglottis. Once full view of the glottic opening was visualised, the tube was gently advanced and atraumatic intubation was achieved. Intraoperative period was uneventful and patient was extubated successfully

at the end of surgery. The resected mass was sent for histopathological examination which confirmed the diagnosis of Epignathus.

DISCUSSION

An epignathus is a rare congenital orofacial teratoma accounting for about 9% of all the teratomas with slight female predilection.^[4] Infrequently, an epignathus may be associated with intracranial extension resulting in poor prognosis. Precise prenatal diagnosis can be achieved by 3D ultrasonography (USG) and magnetic resonance imaging scans which can accurately detect the location, extension as well as the intracranial spread of the tumour.^[5] For antenatally diagnosed teratoma, elective caesarean section and EXIT (Ex utero intrapartum treatment) or OOPS (Operation on placental support) procedure offers best chance of survival of the neonate.^[6] In our case, no antenatal USG was available as patient was born outside and referred to our centre. The mass was detected after delivery. The patients are at high risk of developing respiratory distress and feeding difficulties and hence early intervention is required. Treatment of choice is primarily by surgical removal of the tumour.

Securing the airway is always a big challenge for the anaesthesiologist as both bag and mask ventilation and intubation are difficult in such patients. One of the major challenges in paediatric patients include little tolerance of apnoea time and high oxygen demand. This added to difficult intubation may account for large part of anaesthetic morbidity in paediatric patients. The present case had swelling occupying almost the entire oral cavity and protruding outwards. In view of the anticipated difficult airway, preparation for surgical tracheostomy was kept ready and spontaneous ventilation was preserved using sevoflurane induction till the neonate was intubated. Fiber optic guided intubation is the gold standard approach to manage any difficult airway.^[7] Non availability of neonatal version of the fiber optic scope in our setup compelled us to think of other devices for intubation. Alternative plans including supraglottic airway device and videolaryngoscope were not feasible as the tumour was arising from hard palate and occupying the oral cavity. Direct laryngoscopy using Miller blade with left paraglossal approach has been described in literature.^[8] In our case, the swelling was occupying almost whole of the oral cavity with little space left for manipulation. Moreover, the apprehension that poor visualisation of the larynx

or trauma secondary to difficult laryngoscopy might result in failed airway left us with the option of trying airtraq as the first choice for intubation.

Airtraq optical laryngoscope is an alternative, disposable rigid laryngoscope which enables good visualisation of the larynx without manoeuvre or movement of the cervical spine in cases where conventional laryngoscopy with Macintosh blade may be rigorous and unsuccessful.^[9] It is designed for use in both normal and difficult airway, but particularly indicated for the latter.^[10]

Recent literature highlights the successful use of Airtraq in paediatric difficult airway.^[10-12] Iordinadu *et al.* compared POGO scoring assessed using airtraq with conventional laryngoscopy in nine paediatric patients with difficult airway and confirmed improvement in visualisation of the larynx and 100% success rate of intubation with airtraq in such patients.^[11]

Additionally, the thin shape of airtraq allows easy positioning in the mouth even in patients with small mouth opening (<1.5 cm) and provides a channel for guiding endotracheal tube into glottic opening.^[9] Furthermore for our patient, we chose airtraq as the first line device for intubation due to less oral space available for manipulation with direct laryngoscopy and expertise of the anaesthesiologist with the use of Airtraq in a number of paediatric patients.

CONCLUSION

Neonates with intraoral tumour usually present a challenge for the attending anaesthesiologist. Airtraq owing to its low cost, thin shape and short learning curve can be an important tool in the management of paediatric difficult airway. By successfully intubating the present neonate with Epignathus using Airtraq in the first attempt, we emphasise on the potential of this device for securing the airway in paediatric patients with intraoral tumours.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/

her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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