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CASE REPORT

ANAESTHETIC MANAGEMENT OF A TWO YEAR OLD CHILD WITH RETROPHARYNGEAL ABSCESS

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ABSTRACT: A two year old boy weighing 10kg presented with history of fever, neck swelling, difficulty in swallowing and breathing. On examination of the child and neck X-ray (lateral view) confirmed it as retropharyngeal abscess. Child was posted for incision and drainage on an emergency basis. We present this case as it poses great challenge to the anesthesiologist due to difficult intubation and in techniques managing difficult airway particularly in the pediatric patients.
KEYWORDS: difficult airway, retropharyngeal abscess.

INTRODUCTION: There is an old saying that goes - "Good judgment comes from experience. Experience comes from bad judgment". The anesthesiologist should have a detailed understanding of the fundamental differences not only in the airway anatomy and function in children of different ages, but also the signs and symptoms of significant airway compromise and the radiological features of various lesions. In this report we present a case of retropharyngeal abscess in a child, which was drained under general anaesthesia successfully without any complications.

CASE REPORT: HISTORY OF EVENTS: A two year old boy weighing 10 kg was admitted with the history of fever, neck swelling since four days, difficulty in swallowing and breathing since one day. On examination of the child in the emergency ward his general condition was poor, dehydrated, was lying in lateral decubitus position with stiff neck because of pain and spasm of the neck muscles. Child was afebrile. There was a neck swelling on the left side. Pulse rate was 90/min, and room air saturation was 97%. His mouth opening was restricted one-and-half finger breadth due to pain; uvula was swollen and the swelling was bulging from the posterior pharyngeal wall.

Fig. 1: Neck X-ray (lateral view) showing widened prevertebral space (arrow)

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On auscultation air entry was equal bilaterally, no ronchi or crepitation. The child was in early stages of respiratory distress with intercostal recession and inspiratory stridor. The sternocleidomastoids were prominent bilaterally and there was a fixed flexion of the head on the neck. Child's fasting status was confirmed, Rest of the examination was unremarkable. Child was already started on IV antibiotics (Cefotaxime 250mg BD) Investigations were within normal limits except for raised erythrocyte sedimentation rate (ESR) and leucocytosis. X-ray neck (lateral view) showed widened pre vertebral space confirming the diagnosis of retropharyngeal abscess (Fig. 1). Later patient was taken up for intraoral drainage on emergency basis.

Since child had a patent IV cannula (24G) in RUL, was pre medicated with Inj Atropine 20µg/kg, Inj Midazolam 0.5mg and connected with Isolyte P solution. Child was made supine; face mask connected to Jackson Rees circuit was placed gently over the mouth, airway was patent and stridor intensity remains the same without any maneuvers. Standard monitors ECG leads, pulse oximeter, pediatric sphygmomanometer were applied. Child was pre-oxygenated for more than five minutes.

In view of the anticipated difficult intubation, all equipment's for difficult airway management were kept ready, including that for emergency tracheostomy. Induction was done with Inj Thiopentone 4mg/kg immediately followed by Succinylcholine 1mg/kg, laryngoscopy was done using No. 2 Miller blade, with gentle cricoid pressure to visualize the vocal cords. It was Cormach-Lehane grade III, i.e. only tip of the epiglottis and posterior commissure was visualised, 3.5 mm (Rusch) uncuffed endotracheal tube was difficult to insert due to cord edema, later 3.0mm ET tube was inserted. The tube was fixed after confirming bilateral air entry. Throat pack was done with gentle manipulation. Anaestheia was maintained with halothane in oxygen and nitrous oxide.

Inj Atracurium 0.5mg/kg was administered. Patient was ventilated with Jackson Rees circuit throughout the procedure. Intraoral drainage of the abscess was done. Soon after the procedure child was reversed using 0.05mg/kg Neostigmine, 0.01mg/kg glycopyrrolate after confirming respiratory efforts. Once child was conscious, he was extubated. The child received a Paracetamol suppository (20 $mg.kg^{-1}$), Dexamethasone (150 $\mu g.kg^{-1}$). In the recovery room child was alert, breathing adequately, hemodynamically stable and maintaining saturation in room air.

DISCUSSION: Retropharyngeal abscess commonly develops when, after acute pharyngitis, the retropharyngeal lymph nodes (Gillette's or Henle's lymph node) within the retropharyngeal space become inflamed or tumorigneic. This commonly occurs in childhood, partly because the retropharyngeal space is fairly open during childhood and becomes involuted with age, shrinking back after the age of 3.[1]

The retropharyngeal space lies behind the pharynx between the buccopharyngeal fascia, which covers the constrictor muscle, and the prevertebral fascia. It extends from the base of the skull to the tracheal bifurcation.[2] The space is divided into two lateral compartments (the space of Gillette) by a fibrous raphe. Each lateral space contains retropharyngeal nodes. As the retropharyngeal space communicates with the parapharyngeal space and the posterior mediastinum, any infection within the retropharyngeal space can spread to these areas. Early detection and treatment of retropharyngeal infections is therefore vital.[2,3]

When a child with an at-risk airway is identified, the degree of obstruction and functional impairment must be assessed immediately.[4] The general appearance of the child is an important sign,

since agitation, retractions, cyanosis, and anxiety, weak or absent cry, and stridor can all be indications of significant obstruction. Laboratory evaluation with PA and lateral radiographs of the head and neck can be especially useful, with other examinations like CT scans occasionally offering useful information.[4]

The degree and site of obstruction, along with anticipated difficulties in airway management, influence the perioperative approach. Preoxygenation and insufflation of oxygen during the procedure can significantly decrease any desaturation. However, it has long been a tradition in pediatric anesthesia that intubation is accomplished after the induction of general anesthesia in most children in order to avoid unnecessary trauma and ensure a quiet field. The advantages of general anesthesia should be balanced against the potential loss of airway protective reflexes and spontaneous ventilation.[4]

A wide variety of adjuncts and techniques are available for managing the difficult airway.[5] Al though blind techniques have some usefulness, the cornerstone of managing the difficult pediatric airway has focused on direct visualization. The fiberoptic laryngoscope has in recent years become immensely useful and popular for all ages of children. However, for this case where regular manipulation with fiberoptic laryngoscope would have disturbed the abscess.[6] Moreover the practitioner must make a point of becoming proficient in pediatric patients under controlled conditions. Since our hospital didn't had the facility of using fiberoptic laryngoscope we restricted ourselves to the basic technique of managing difficult airway.

Whenever a difficult intubation is anticipated, the presence of another skilled practitioner can be invaluable in providing intelligent and specific assistance.[7] Although emergency cricothyrotomy or tracheostomy is rarely indicated, its possibility should be anticipated and equipment readily available. Normally the traditional approach in pediatric anesthesia is an inhalation induction with Halothane/Sevoflurane and Oxygen, possibly with Nitrous oxide, for patients with a compromised airway.[8]

But with the inadequate monitoring facilities like (BIS monitor) it would be very difficult to assess the depth and timing of manipulation of the airway.[9] So we adopted the rapid sequence technique, pre oxygenated the child for more than five minutes and IV induction was done. Later airway was secured gently without disturbing the swelling. This technique provided us the anaesthetic state to manipulate the compromised airway and avoided the anticipated complications.

We report this case as a reminder that old problems like retropharyngeal abscess can appear unexpectedly. Limited availability of medical facilities in the peripheral areas and late diagnosis, retropharyngeal abscess is still a fairly common cause of upper airway obstruction in children. In spite of utmost vigilance does not guarantee an uneventful course during anaesthesia. In our case, pre oxygenating the child more than five minutes followed by IV induction provided suitable anaesthetic state to secure the air way. We feel that lateral thinking is useful when traditional methods are challenged.

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