

# Difficult Airway in a patient with cleft palate – A Case Report

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## Abstract

Airway management of a child with cleft palate can be challenging to the anaesthesiologist due to the associated congenital anomalies. We report a case of difficult intubation in a child with grade II cleft palate. The child presented with symptoms of frequent respiratory tract infections, nasal regurgitation and heavy snoring. On examination he had tongue tie with macroglossia and a narrow tubular mouth. Contrary to the routinely published articles in scientific literature, a near impossible visualization of the epiglottis and vocal cords due to unsuspecting factor of tongue tie is described.

## INTRODUCTION

Cleft lip and palate are the most common craniofacial anomalies seen in developing countries. The approximate incidence is 1 in 700 live births, among them 25% are bilateral and 85% are associated with cleft palate.

As there is a chance of associated congenital anomalies along with cleft lip and palate, careful clinical cardiac, respiratory and neuromuscular evaluation of children is necessary before anaesthesia and surgery. More than 100 syndromes have been described but fortunately all are very rare. Some syndromes which may have anaesthetic implications are Pierre Robin, Treacher Collins and Goldenhar syndromes<sup>1</sup>.

Anaesthesia during cleft lip and palate surgery carries a high risk and difficult airway management in children. Because of other associated congenital anomalies, the anaesthetic management becomes more complicated. Most of the anaesthetic morbidity related to these procedures relates to the airway management, either difficult intubations or postoperative airway obstruction, as assessment of degree of difficulty of intubations before surgery is not always possible in small children<sup>2</sup>.

## CASE REPORT

A 9 year old boy, weighing 7 kg diagnosed as a case of grade II cleft palate had presented for cleft palate repair. A history of frequent respiratory tract infections, nasal regurgitation and heavy snoring was present. All routine investigations were unremarkable.

On the first occasion, after premedication with antisialogogue intramuscularly, the child was wheeled into the operating room and intravenous access was secured. Induction was done with Injection Thiopentone sodium 35mg and intubation attempted after giving Injection Suxamethonium 10mg. Several intubation attempts failed as there was no visualization of vocal cords. The child was mask ventilated until spontaneous efforts resumed. The procedure was abandoned and surgery postponed to another date. Tongue tie could not be diagnosed at the time of preanesthetic check up as the child was uncooperative and even the parents were unaware of the problem. It was diagnosed only after recovery from anesthesia and failed intubation drill when efforts were made to pull the tongue out of the mouth to facilitate the airway.

As it was a case of difficult airway and due to the unavailability of fiberoptic cable of the desired size of 1.5mm, blind nasal intubation was planned under general anesthesia coupled with regional block in a spontaneously breathing child. On the morning of surgery, the child was wheeled into the operating room. Injection Ketamine 25mg with Glycopyrrolate 0.1 mg was given intramuscularly. 2 drops of Xylometazoline was instilled into each of the nostrils. Intraoperative monitors included pulse oximeter, indirect blood pressure, electrocardiogram and capnography. After obtaining venous access bilateral superior laryngeal nerve block was given on either side with 2 cc each of 0.5% lignocaine hydrochloride. Nasotracheal intubation was attempted with 3.5 and 4 mm red rubber endotracheal tubes

multiple times but without success in a spontaneously breathing patient. The endotracheal tube was repeatedly slipping into the oesophagus after encountering resistance at the point of maximally audible breath sounds.

Nasotracheal intubation was again attempted under direct laryngoscopy with a McIntosh number 2 and Mc Coy blades. The cords were not visualized even with changes in laryngoscope blades and operators. Mask ventilation was easily accomplished between intubation attempts. As respiration and maintenance of airway was easier with nasal insufflation, the uncuffed endotracheal tube was kept in the nasopharynx at the point of maximally audible breath sounds and anesthesia was deepened with oxygen, nitrous oxide and sevoflurane by spontaneous respiration. The child was taken to almost stage III plane 3 of anesthesia and a decision to release tongue tie was taken so as to mobilize the glossoepiglottic fold which would facilitate the movement of tongue up and down, forwards and backwards. The tongue tie was released and Z plasty done in an anesthetized, still, spontaneously breathing patient by insufflation technique along with a local infiltration of the lingual fold with lignocaine and 1: 200000 adrenaline mixture (4cc of 0.5% lignocaine).

Anesthesia was continued meanwhile with oxygen, nitrous oxide and sevoflurane by insufflation with the uncuffed 4.0 I.D ET tube kept in the nasopharynx. When the child was completely relaxed and in deeper planes, a laryngoscopy was attempted which revealed a clearly visible epiglottis and with external manipulation of larynx, the vocal cords also came into full view. Endotracheal intubation was done smoothly with an uncuffed 3.5mm I.D ETT. Intraoperative and postoperative period was uneventful.

## **DISCUSSION**

Various aetiological factors have been mentioned in the paediatric age group as the causes of difficult intubation and improper visualization of larynx but not much light is thrown on the relevance of tongue tie as a factor in influencing the ease/ difficulty during intubation<sup>3</sup>. Tongue tie theoretically may be a blessing in disguise in maintaining the upper airway as the tongue is prevented from falling back. But, this is not always the case as seen from our experience with this child. Analysing the various sequence of events, we presume that the large size of the tongue, immobility of it coupled with a somewhat narrow pharyngeal cavity had immobilized even the epiglottis and the epiglottic fold thereby making the visualization of epiglottis near impossible as it was hidden behind the large tongue which was reaching as far as the posterior pharyngeal wall. This could be explained by the fact that the child was a heavy snorer in spite of a tongue tie. The mere release of tongue tie had totally changed the picture of laryngoscopy and had made endotracheal intubation a relatively easy affair.

To conclude, we wish to highlight that the presence of tongue tie in a patient with cleft palate can also be a cause of extremely difficult endotracheal intubation as proved by our experience with the above case.

## **References**

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