

Case Report

Airway management in a child with oral ranula

Ravi Prakash^{*}, Brij B. Kushwaha and Shefali Gautam

Department of Anaesthesiology, King George's Medical University, Lucknow, India

*Correspondence Info:

Dr. Ravi Prakash
Senior resident
Department of Anaesthesiology,
King George's Medical University, Lucknow, India
E-mail: draviprakash94@gmail.com

Abstract

We are presenting a case report of 2 yrs. old male child with large sublingual ranula causing difficulty in airway management during general anaesthesia. We intubated the child after induction with sevoflurane, preserving spontaneous respiration. Muscle relaxant was not used for laryngoscopy and intubation.

Key words: Ranula, difficult airway, sevoflurane, intubation

1. Introduction

A ranula is a mucus filled cavity, a mucocele, in the floor of the mouth in relation to the sublingual gland^{1,2}. The name "ranula" has been derived from the Latin word "rana" which means "frog." The swelling resembles a frog's translucent underbelly or air sacs. Ranulas are characteristically large (>2 cm) and appear as a tense fluctuant dome-shaped vesicle, sometimes with a blue hue. The most common site is the lateral floor of the oral cavity. Ranulas usually presents in children and young adults. We present a case report of a ranula in 2 yrs. old child causing difficulty in airway management during anaesthesia.

2. Case history

A 2 yrs old male child of 10 kg admitted to our hospital with complaints of large swelling in the floor of mouth. The swelling was cystic and arising from floor of mouth. The swelling was pushing the tongue towards hard palate causing obliteration of oral cavity. Child has difficulty in feeding also. It was diagnosed to be a ranula of sublingual gland and marsupialisation was planned. We decided to give general anaesthesia (GA) to the patient for surgery.

Airway management during general anaesthesia was a challenge in this patient as the ranula was pushing the tongue towards hard palate thereby making laryngoscopy and intubation difficult. Mask ventilation cannot be relied upon as after induction of GA tongue fall can lead to complete upper airway obstruction. We did not give any sedative premedication to the child and took him in the operation theatre (OT). In the OT, we ask the surgeon to be prepared to aspirate the fluid quickly from the ranula if airway is compromised. The surgeon was reluctant to aspirate the fluid, as it can make their surgery difficult due to flaccidity of cyst. So, we kept ranula aspiration as our last resort. Inj. Atropine 0.2 mg and inj. Ketamine 20 mg was given IM to sedate the child. Standard monitors were applied and child was preoxygenated with 100% O₂. After preoxygenation, child was induced with sevoflurane, preserving spontaneous respiration. Laryngoscopy was performed with Miller's 1.0 no. blade and trachea was intubated with uncuffed endotracheal tube. After confirming the position of tube, inj atracurium was given for muscle relaxation. Anaesthesia was maintained with N₂O, O₂ and sevoflurane with atracurium. Surgery was uneventful and lasted for 1 hr. Child was extubated after complete reversal of neuromuscular blockade with atropine and neostigmine. The postoperative period was uneventful and child was discharged after 2 days.



3. Discussion

Sublingual glands (SLGs) are the smallest of the paired major salivary glands, weighing about 2 g, and shaped like a flattened almond measuring about 2.5 cm anteroposteriorly, each gland has a row of about 12–20 short ducts that open independently along the summit of the sublingual fold in the floor of the mouth, obstruction of one of these ducts results in formation of a mucous retention cyst in the sublingual space, termed simple ranula, further accumulation of secretions with time results in extension along sublingual space anteriorly and posteriorly, if posterior extension extends or extravasates beyond the free edge of, or through the mylohyoid muscle.³ Ranulas have a prevalence of about 0.2 cases per 1000 persons and accounts for 6% of all oral sialocysts. The number of ranulas that represents a true retention cyst ranges from less than 1% to 10%. Ranulas usually occur in children and young adults, with the peak frequency in the second decade⁴.

The ranula in our case was causing obliteration of oral cavity and thus making ventilation and intubation difficult. Due approximation of tongue and soft palate, mask ventilation could be difficult as soon as patient's pharyngeal muscle tone was decreased after anaesthetic induction. If intubation could not be performed, then we may lose the airway leading to catastrophic results. Surgical airways such as tracheostomy or cricothyroidectomy are not good options in children due severe complication associated with them in younger patient. Also, they require great expertise in children. Tongue was causing difficulty in insertion of laryngoscope, so we used straight miller's blade as it requires less space for insertion. The cystic nature of swelling also helped us as it got compressed during laryngoscopy. If we were not able to secure airway, then aspiration of ranula was an option as it can relieve obstruction to ventilation and laryngoscopy but it can make surgery difficult.

Oral tumours cause difficulty in airway management and require special techniques and skill⁵. Difficult airway situations should always be managed systemically with alternative plan of management ready if primary plan fails. Inability to manage airway could cost life of patient and should be delt properly.

References

1. Baurmash HD. Mucocoeles and ranulas. *Journal of Oral and Maxillofacial Surgery*. 2003; 61(3):369–378.
2. Neville BD, Damm DD, Allen CM, Bouquot JE. *Oral and Maxillofacial Pathology*. 2nd edition. Philadelphia, Pa, USA: Saunders; 2002.
3. El Beltagi AH, El Sayed Ahmed, Al Far, Al Sahmmmary N. Horseshoe shaped, anterior crossing ranula, a case report. *Eur J Radiol Extra*. 2007; 64:95–8.
4. Zhao Y-F, Jia Y, Chen X-M, Zhang W-F. Clinical review of 580 ranulas. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontology*. 2004; 98(3):281–287.
5. Prakash R, Bhatia VK. Anaesthetic Management of a Large Atypical Antrochoanal Polyp for FESS. *International Journal of Science and Research* 2013; 12(2):90-91.