Egyptian Journal of Anaesthesia (2017) 33, 209–212

HOSTED BY

ELSEVIER

Egyptian Society of Anesthesiologists

Egyptian Journal of Anaesthesia

www.elsevier.com/locate/egja
www.sciencedirect.com

Case report

Anaesthetic management in a case of large plunging ranula with difficult airway: A case report

Surendra Kumar Sethi *, **Neena Jain, Arvind Khare, Veena Patodi**

Department of Anaesthesiology, JLN Medical College and Hospital, Ajmer, Rajasthan, India

Received 24 April 2016; accepted 13 September 2016
Available online 4 October 2016

KEYWORDS

Plunging ranula;
Awake fibre optic intubation;
Blind nasal intubation

Abstract Plunging ranula is a mucous retention cyst found on the floor of mouth which arises from the submandibular and sublingual salivary glands extending to lateral aspect of neck, which may often cause potential airway obstruction leading to difficulty in airway management. A forty year old female patient was admitted to our hospital with large, painless swelling in the floor of mouth extending to the lateral part of body of mandible and neck. This intraoral swelling distorted the normal airway anatomy thus making airway management difficult as the patient was planned for excision of swelling under general anaesthesia. So we present a case of successful management of a difficult airway by using awake fibre optic intubation in a patient posted for excision of a large plunging ranula under general anaesthesia.

1. Introduction

A plunging ranula is a salivary gland cyst which develops when the mucous extravasation extends through or around the mylohyoid muscle deep into the neck and presents with neck lump along with or without swelling over floor of mouth. The intraoral swelling may lead to difficult airway due to potential airway obstruction and thus challenging for an anaesthesiologist [1,2,4,8]. Various strategies have been described for difficult airway management in such a case but proper plan and selection of an appropriate technique are mandatory to avoid catastrophic situations during anaesthesia [4]. So we report a case of difficult airway management in a patient having large plunging ranula posted for excision under general anaesthesia.

2. Case history

A forty year old female patient weighing 56 kg was admitted to our hospital with a painless, large swelling of approx. 10 cm × 8 cm size in the floor of mouth. The swelling was progressively increased in size since last five years and extended from floor of mouth to the submental and submandibular region occupying the upper lateral part of body of mandible and neck [Fig. 1]. She had complained of difficulty in deglutition, discomfort while eating and sleeping since one year. The intraoral part of swelling was extending towards the right side pushing the tongue upwards and left side thus obliterated the view of uvula and soft palate (Mallampati grade 4) [Fig. 2].

The lateral X-ray neck showed the soft tissue shadow in upper part of neck with no tracheal compression and deviation

* Corresponding author. Address: H.No. 49, Mitra Nagar, Ratidang Road, Vaishali Nagar, Ajmer, Rajasthan 305001, India. Tel.: +91 9587150598.
E-mail address: drsurendrasethi80@gmail.com (S.K. Sethi).

Peer review under responsibility of Egyptian Society of Anesthesiologists.

http://dx.doi.org/10.1016/j.egja.2016.09.002

Figure 1 External (lateral) view of ranula.

Figure 2 Internal view of ranula showing tongue pushed upwards and left side.

[Fig. 3]. The ultrasonography of right submandibular region of neck reported predominantly hyperechoic lesion with few hypoechoic area within it showing multiple punctuate calcified foci suggestive of benign retention cyst. The CECT neck is also suggestive of retention cyst of submandibular gland [Fig. 4]. The preanaesthetic evaluation was done thoroughly. On airway examination, mouth opening was adequate with normal thyromental distance but Mallampati grade was 4 due to intraoral swelling. Indirect laryngoscopy showed partially visible glottis. All routine investigations were within normal limits.

The excision of ranula was planned under general anaesthesia. Awake fibre optic intubation was chosen as initial plan of airway management with tracheostomy plan standby along with difficult airway cart kept ready. The patency of both nos-

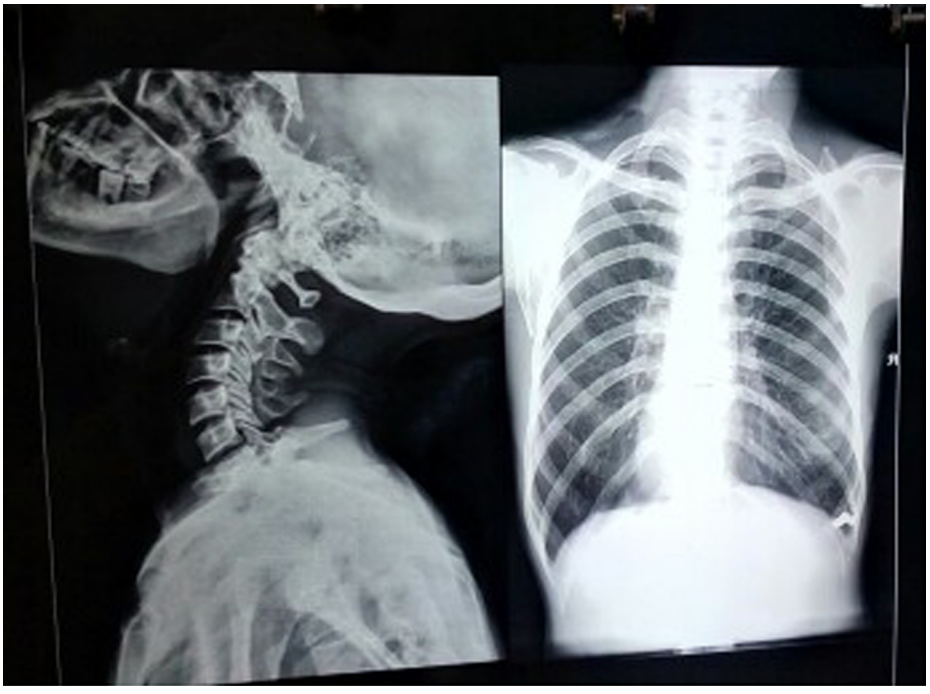

Figure 3 X-ray lateral view of neck and chest PA view.

trils was checked. The patient was explained and reassured about the procedure. All standard monitors (NIBP, SpO_2, ECG) were attached preoperatively in the operation theatre. Inj. Glycopyrrolate 0.2 mg, Inj. Ondansetron 4 mg and Inj. Midazolam 1 mg were given as premedications after securing 18G i.v. cannula. Xylometazoline drops were instilled in both nostrils and the patient was nebulized using 4% lidocaine solution (5 ml) to reduce the airway reactivity. Bilateral superior laryngeal nerve block (1 ml for each side) and transtracheal block (2 ml) were done using 0.5% lidocaine. Oxygen saturation of the patient was monitored simultaneously. A well lubricated 6.5 mm cuffed flexometallic endotracheal tube was inserted gently through her right nostril into the trachea while visualizing and manipulating through a fibre optic bronchoscope, cuff inflated and tube fixed after confirming the correct position by capnography and chest auscultation simultaneously. Inj. Propofol (2 mg/kg) was given for induction followed by Inj. Vecuronium 5 mg i.v. for muscle relaxation. The surgeon was asked to do throat packing. The maintenance of anaesthesia was done with oxygen:nitrous oxide (50:50), isoflurane and vecuronium. The excision of swelling was done by both oral and cervical approaches. Patient remained haemodynamically stable intraoperatively and was extubated uneventfully. Postoperatively patient remained stable in recov-

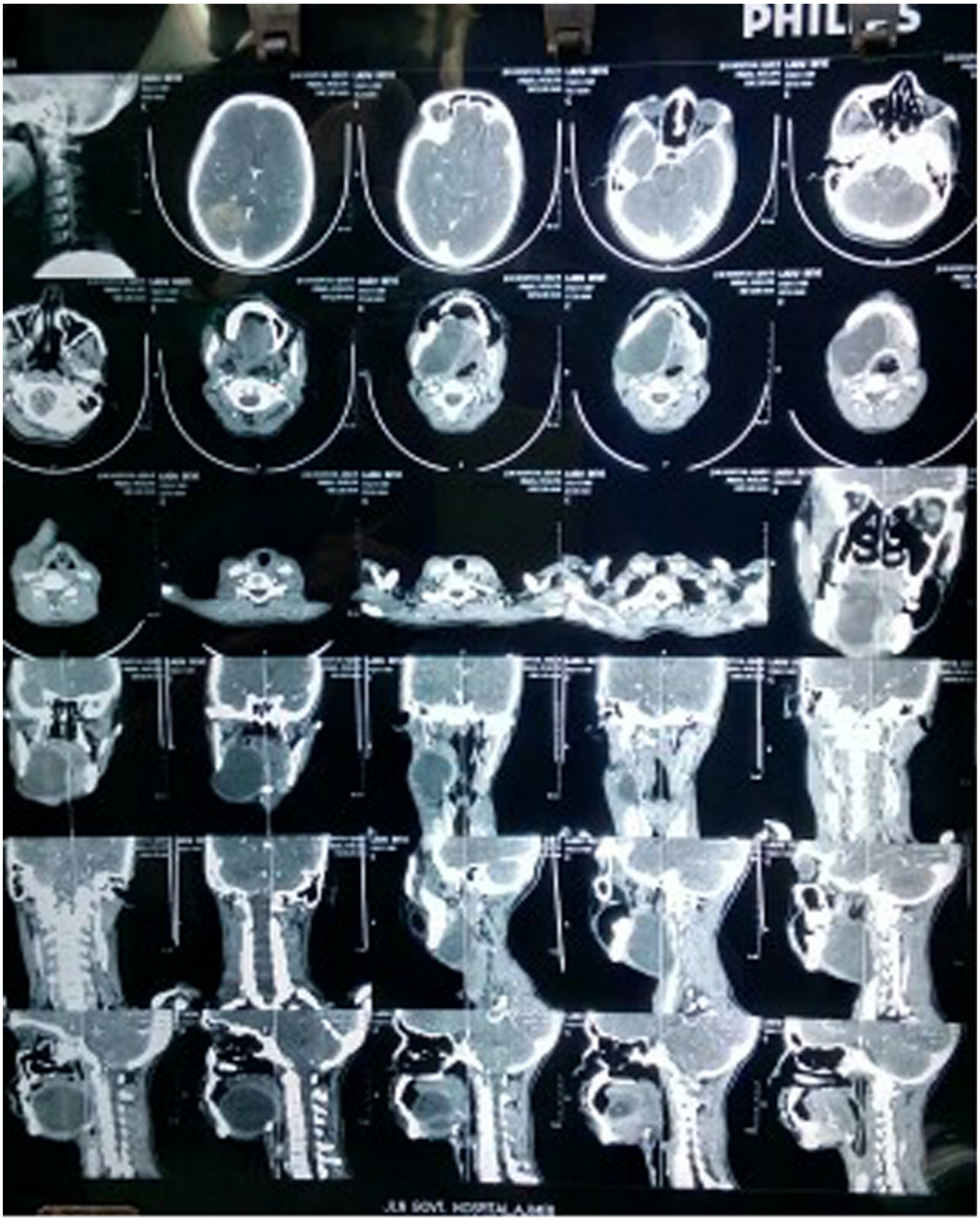

Figure 4 Computed tomography scan of mass.

ery room and then shifted to general ward and then discharged on 7th postoperative day.

3. Discussion

Difficult airway is the most common cause of morbidity and mortality during anaesthesia. It is estimated that about one third of all anaesthesia related deaths are due to failed intubation and ventilation [3]. So the airway management is always crucial for an anaesthesiologist particularly in patients with intraoral swelling where a strategy is always required in order to anticipate and manage the difficult airway successfully.

So we want to highlight the fact that it is necessary to identify the potential problems associated with a patient and consider different plan options and selection of an appropriate plan for successful airway management particularly in our scenario. The problems that may encountered in such a patient include difficult mask ventilation, difficult conventional laryngoscopy and intubation associated with risk of trauma and bleeding which may further provoke catastrophic situations [3,5,6,8]. Now various strategies have been described for difficult airway management particularly blind nasal intubation, fibre optic intubation or planned tracheostomy but blind nasal intubation requires expertise and also has risk of trauma and bleeding [4]. The most difficult airway situations can be easily approachable and managed effectively with the availability of versatile and innovative equipments such as fibre optic bronchoscope and these equipments may not available at all institutions [4]. Under adequate upper airway blocks, the use of awake fibre optic intubation is well established and supported for managing a difficult airway and may be superior to conventional laryngoscopy in securing airway for an anaesthesiologist in some particular situations [7]. Whenever it is available, it is considered as one of the safest choice to secure a difficult airway. However, it may sometimes be difficult to visualize the larynx while using fibre optic bronchoscope due to blood, secretions, etc. which can obscure the view and make intubation difficult [7].

So in our case having soft tissue swelling occupying the oral cavity making conventional laryngoscopy difficult and a straight in line view of glottis could not be established, we planned for awake fibre optic intubation as initial plan of management to avoid trauma and further catastrophic situations and it was also available in our institution. The successful awake fibre optic intubation requires adequate topical airway anaesthesia which has potential advantages of increased patient comfort, reduced airway reactivity for intubation, increased chances of success rate along with minimal risk of trauma and bleeding which can obscure the glottic view [3,7]. In our case, we have done it by adequately anaesthetizing the airway using topical vasoconstrictor drops, nebulization with 4% lidocaine, transtracheal and superior laryngeal block with glycopyrrolate in premedication for its antisialagogue effect prior to the procedure.

4. Conclusion

A strategy is always needs to be planned to anticipate and for successful management of a patient with difficult airway. The use of fibre optic intubation is well established for management of difficult airway and so whenever this facility is available, it is considered to be one of the safest options to secure a difficult airway as we have.

Conflict of interest

We have no conflict of interest to declare.

References

[1] Baurmash HD. Mucoceles and ranulas. J Oral Maxillofac Surg 2003;61(3):369–78.
[2] Macdonald A, Salzman K, Harnsberger H. Giant ranula of the neck: differentiation from cystic hygroma. Am J Neuroradiol 2003;24:757–61.
[3] Chandrakar N, Bhagat CP, Sahare KK, Bhagwat N. Plunging ranula: difficult airway and anaesthetic management. Int J Adv In Case Rep 2015;2(24):1492–5.
[4] Sheet J, Mandal A, Sengupta S, Jana D, Mukherji S, Swaika S. Anaesthetic management in a case of huge plunging ranula. Anesth Essays Res 2014;8(1):114–6.
[5] Gupta A, Karjodkar FR. Plunging ranula: a case report. ISRN Dentistry 2011:806928.
[6] Huda A, Hamid M. Airway management in a patient with huge neck mass. J Pak Med Assoc 2008;58(10):574–5.
[7] Moustafa AM, Nassef MA, Azim KA. Comparison between fibre optic and blind nasotracheal intubation criteria in awake surgical patients. Alexandria J Anaesth Intensive Care 2005;8:17–23.
[8] Krishna R, Wali M, Nataraj MS, Shenoy T. Mallampatti class 4 to class I!! J Anaesthesiol Clin Pharmacol 2012;28:264–5.