Emergency airway management of a pancytopenia patient with carcinoma of the tongue with multiple radiation therapy presenting with acute respiratory failure.

Stanlies D'Souza

Baystate Health, dsouzastan@yahoo.com

Follow this and additional works at: https://scholarlycommons.libraryinfo.bhs.org/all_works

Recommended Citation
Emergency airway management of a pancytopenia patient with carcinoma of the tongue with multiple radiation therapy presenting with acute respiratory failure

Stanlies D’Souza, MD
Department of Anesthesiology at Baystate Medical Center / University of Massachusetts Medical School

Introduction

We present a case of extremely difficult airway management where we performed an awake fiberoptic intubation in a pancytopenia patient with an increased risk of bleeding. The difficulty was due to extremely limited mouth opening and severely restricted neck mobility due to multiple radiation therapies to the mouth and neck for management of carcinoma of the tongue with cervical lymph node involvement. The goal is to have patient cooperation, rapid topicalization of airway (“topical administration of lidocaine 4% to oropharyngeal and tracheal mucosa”) and quickly securing the airway with fiberoptic intubation as this patient with acute respiratory failure. The other aim is to perform fiberoptic intubation with minimal trauma to reduce the risk of bleeding in this severe pancytopenia patient.

Case Description

A 60-year-old male with carcinoma of the tongue with history of multiple radiation therapies and very limited mouth opening and neck extension presented for emergency airway management with acute respiratory failure. He was given 1 mcg/kg of pancytopenia patient with an increased risk of bleeding. The difficulty was due to extremely limited mouth opening and severely restricted neck mobility due to multiple radiation therapies to the mouth and neck for management of carcinoma of the tongue with cervical lymph node involvement. The goal is to have patient cooperation, rapid topicalization of airway (“topical administration of lidocaine 4% to oropharyngeal and tracheal mucosa”) and quickly securing the airway with fiberoptic intubation as this patient with acute respiratory failure. The other aim is to perform fiberoptic intubation with minimal trauma to reduce the risk of bleeding in this severe pancytopenia patient.

Airway management goals in our patient

- Patient cooperation
- Rapid topicalization
- Prevention of gag and cough reflexes while securing the airway
- Minimize trauma to reduce the risk of bleeding
- Maintain spontaneous ventilation
- Strategy to maintain adequate oxygenation while securing the airway
- Rapidly securing the airway to prevent impending hypoxia and respiratory arrest

Reasons for difficult airway management in our patient

- Anxious patient
- Minimal mouth opening
- Restricted neck movement
- Pancytopenia & thrombocytopenia
- Frail tissues in the airway
- Acute respiratory failure

Technique of rapid fiberoptic intubation in a difficult airway with impending respiratory failure

1. Dexmedetomidine for sedation
2. Avoid respiratory depressants such as propofol, fentanyl and midazolam
3. Nasopharyngeal and oral topicalization with 4% lidocaine with atomizer
4. Nebulization with 4% lidocaine is time-consuming, not effective and topicalizes distal airways and not indicated
5. Gagging and then swallowing of viscous lidocaine
6. Lidocaine gel on a tongue blade and asking patient to chew it
7. Insertion of an epidural catheter through fiberoptic bronchoscope for topicalization
8. Topicalization “as you go” with epidural catheter
9. Topicalization of recurrent laryngeal nerve with 4% lidocaine by spraying as one passes below the vocal cords
10. Providing high flow oxygen through suction port of the bronchoscope
11. Additional continuous oxygen supply through nasal cannula
12. Confirm the presence of end tidal CO2
13. Anesthetize the patient with propofol or sevoflurane.

References


CONCLUSION

We successfully and rapidly intubated this patient with above-described topicalization and oxygenation technique with dexmedetomidine sedation for satisfactory patient cooperation.

Sensory supply of airway:

- Nasopharynx, soft and hard palate
- Mandibular division of the trigeminal nerve
- Anterior 2/3 of the tongue
- Mandibular division of the trigeminal nerve
- Posterior 1/3 of the tongue, pharynx and superior surface of the epiglottis
- Glossopharyngeal nerve
- Inferior surface of the epiglottis, and the larynx up to the vocal cords
- Superior laryngeal nerve
- Larynx superior to the vocal cords
- Recurrent laryngeal nerve

Airway reflexes:

- Cough and gag reflex

Gag reflex
- Glossopharyngeal nerve (afferent)

Cough reflex
- Vagus (efferent)

Nerve Blocks

- Superior laryngeal nerve
- Greater cornu of the hyoid bone, Pyriform fossa
- Recurrent laryngeal nerve
- Transcochlear injection
- Superior and recurrent laryngeal nerve
- Pharynx

Sedatives for awake fiberoptic intubation

1) Dexmedetomidine
2) Low dose remifentanil infusion
3) Ketamine

Comparison between sedatives for awake fiberoptic intubation

- Dexmedetomidine is superior in terms of maintaining spontaneous ventilation and patient cooperation compared to propofol
- Low dose remifentanil and dexmedetomidine are equally efficacious.