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Case Report

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Difficult airway due to acute necrotizing mediastinitis: a case report

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ABSTRACT

Descending necrotizing mediastinitis due to odontogenic or oropharyngeal infections can change the airway anatomy and cause difficult intubation. A 56-year-old female patient, who was followed up for dental abscess, was taken to emergency surgery due to descending necrotizing mediastinitis. The patient with widespread edema on the face could only be intubated with a gamma elastic bougie. it should be kept in mind that patients with oropharyngeal infection and mediastinitis may have intubation difficulties and tendency to airway trauma, and it is important to use airway instruments carefully in these patients.

Keywords: Mediastinitis, oropharyngeal infection, difficult intubation

INTRODUCTION

The spread of odontogenic or oropharyngeal infections to the mediastinum is identified as descending cervical mediastinitis (DCM) or descending necrotising mediastinitis (DNM).[1] In DNM cases, providing a safe airway is important to perform a surgery with general anesthesia. However, extensive abscess in the region from mouth to mediastinum; narrows airway, changes anatomy of the airway and causes tissues to be intervened for intubation to become vulnerable to trauma due to infection. This situation makes the endotracheal intubation very difficult. In this case report, we present difficulties in intubation and anesthesia management as a result of DNM.

CASE

Our case, a 56-year-old woman; during followed up for a dental abscess, admitted with complaints of pain in the throat, swelling of the face and shortness of breath for the last week. In the neck and thorax computed tomography (CT) of the patient; a lesion was detected starting from the right maxilla and mandibular neighborhood to the oropharynx, right side of the neck, retropharyngeal area, suggesting abscess formation extending to mediastinum and diaphragm, narrowing the air passage and pushing the trachea to the left.

The patient admitted for emergency surgery with a diagnosis of acute mediastinitis. The patient's preoperative evaluation determined that the patient had diabetes mellitus, hypertension, hypothyroidism, and coronary artery disease. Widespread edema was observed during physical examination on the face. The mouth opening was 2 cm, and the mallampati score was 3. The patient was planned to be processed with ASAIVE risk assessment.

After preoxygenation was reached with 100% oxygen; 1 mg/kg 2% lidocaine and 2 mg/kg propofol were administered intravenously. 40 mcg remifentanil and 1.2 mg/kg rocuronium were given as intravenous (IV) to the patient who had no problem with mask ventilation. After mask ventilation, intubation was initiated.

After performed direct laryngoscopy; the patient's Cormeck-Lehane score was identified as 4 and intubation could not be achieved. With fiberoptic bronchoscopy (FOB) and video laryngoscopy adequate image clarity could not be attained due to intense secretion, and intubation could not be performed, also mask ventilation could not be done effectively anymore. Considering the intense inflammation in the tissues of the patient, who underwent direct laryngoscopy urgently,

a gum_elastic bougie was directed towards the trachea. The patient was intubated by sliding the 8 mm internal diameter tube over the bougie. After capnographically confirmed intubation, FOB was performed rapidly, and trachea and bronchi were evaluated for possible complications.

Right thoracotomy and mediastinal abscess drainage were performed. After the operation, the patient was transferred to the intensive care unit while intubated. The patient was intubated for 24 hours and then she was extubated in a planned manner. The patient was discharged after 17 days.

DISCUSSION

In DNM cases the non-specific symptoms delays the diagnosis, and this is the most important reason for high mortality.[1] The diagnosis of dental abscess in our case, which is made during first evaluations, did not suggest the diagnosis of mediastinitis. Increased swelling in the face and neck region, dysphagia and shortness of breath suggest pre-diagnosis of mediastinitis.

CT is the golden standard of the diagnosis in DNM.[1] Antibiotic therapy and surgical intervention are cornerstones of the treatment with DNM.[2] The current literature do not present cases where has narrowed airway, and restricted mouth opening due to oropharyngeal infection, and has changed airway anatomy due to displacement of the mediastinum, and therefore has difficulty in intubation.

Measurements such as mallampati classification, mouth opening distance, thyromental and sternomental distance should be evaluated preoperatively in terms of possible difficult airway and difficult intubation.[3] In our case, the presence of hypothyroidism and diabetes mellitus, the Mallampati score of 3, the swelling of the oral tissues and the abscess narrowing the airway, and the restricted mouth opening of the patient up to 2 cm suggested a difficult airway. In direct laryngoscopy, the Cormeck-Lehane score was also determined as.[4]

The presence of abscess formation has also caused these tissues to become susceptible to trauma. Therefore, the pressure applied to the tissues during direct laryngoscopy and the insertion of the intubation tube can cause injury such as puncture of the hypopharynx or trachea can easily occur. In our case intubation could not be performed with direct laryngoscopy then we used FOB and video laryngoscopy. But we could not obtain images due to intense purulent discharge. After two consecutive laryngoscopies, mask ventilation became ineffective due to increase in edema in the pharynx. Immediately, a second anesthesiologist performed intubation by a direct laryngoscopy with guidance of gamma elastic bougie. Due to the intubation tube or gamma-elastic bougie, the presence of injury and perforation in the tissues was quickly evaluated with FOB.

In the difficult intubation algorithm, supraglottic airway devices and interventions such as tracheostomy or chicothyroidotomy are also included.[4] However, we did not consider applying supraglottic devices and tracheostomy or cricothyroidotomy in our case because of the presence of intraoral infection and the possibility of infection around the trachea.

When there is a possibility of difficult airway, the use of muscle relaxants is very important, such as rocuronium. They can act quickly; and in case of failure of the algorithms, their effect can be reversed with sugammadex within a few minutes.[5]

The patient's surgery was successfully completed, however the patient was not extubated immediately because of possible a decrease in the postoperative airway edema. After 24 hours, the patient' edema decreased and she was extubated.

CONCLUSION

We think that in patients with oropharyngeal infection and risk factors for mediastinitis; the diagnosis of mediastinitis should not be delayed and urgent interventions should be performed as soon as possible. It is important that patients who require intubation may have difficulty in intubation due to oropharyngeal infection.

DM and hypothyroidism diagnosis, and patients with severe airway infection may be susceptible to airway trauma. It is important to use airway instruments carefully in these patients and intubation should be done very carefully without damaging the tissues. Finally, it is important to perform FOB after intubation to evaluate possible injuries.

ETHICAL DECLARATIONS

Informed Consent Form

The patient signed and free and informed consent form.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

The authors declared that this study has received no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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