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RESEARCH ARTICLE

ANESTHETIC MANAGEMENT FOR RETROPHARYNGEAL FOREIGN BODY REMOVAL IN AN ADULT WITH ANTICIPATED DIFFICULT AIRWAY VIA NASOTRACHEAL INTUBATION

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Abstract

Foreign body aspiration is relatively rare in adults compared to children. Cases involving foreign bodies fully embedded in the retropharyngeal space are exceptionally uncommon in clinical practice, posing significant challenges for both surgeons and anesthesiologists. A shared airway between these specialists, coupled with the difficulty of visualizing and extracting the foreign object, presents notable concerns. Here, we present a case detailing the successful removal of a sharp foreign body, a chicken bone, lodged in the retropharyngeal space of an adult male patient with restricted mouth opening and an anticipated difficult airway, achieved under general anesthesia with nasotracheal intubation.

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Introduction:-

Airway foreign bodies are frequently encountered, typically within the lumen, yet certain sharp objects such as pins, chicken, or fish bones may become lodged submucosally or intramurally, often as a result of attempted removal or ingestion by the patient. This case highlights an uncommon scenario involving the presence of a sharp foreign body, a chicken bone, in the retropharyngeal space of a patient with restricted mouth opening and a difficult airway. The case report outlines the successful endoscopic retrieval of the foreign body under general anesthesia via nasotracheal intubation.

Case Report

A 44-year-old male patient presented with severe neck pain with dysphagia and change in voice for 7 days. The patient gave a history of eating chicken a day before the onset of symptoms. The patient was a known case of hypertension and diabetes mellitus type 2, well controlled on regular medications. The patient was a chronic tobacco chewer for 10 years. On examination, the patient was afebrile, had tenderness in the neck region, and his pain was exaggerated with swallowing. His vital parameters were within normal limits. The mouth opening of the patient was restricted to 2 Finger Breadth and his Mallampatti Classification was Class 3. The patient had a short neck with a thyromental distance of less than 6 cm. His airway was anticipated to be a difficult one.

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Figure 1:- Anticipated Difficult Airway.

His blood workup was done and was within normal limits. Anteroposterior and lateral X-ray views of the neck were performed for the patient. The chicken bone was poorly visualized in the lateral X-ray view of the neck. An MDCT scan of the neck suggested the presence of an obliquely placed linear hyperdense structure in the retropharyngeal region likely suggestive of a foreign body and evidence of an ill-defined hypodense lesion with multiple air pockets within the retropharyngeal region extending from oropharynx almost upto the glottic region with mucosal edema involving the posterior hypopharyngeal as well as laryngeal walls and mild luminal narrowing of hypopharynx likely suggestive of a collection or a retropharyngeal abscess.

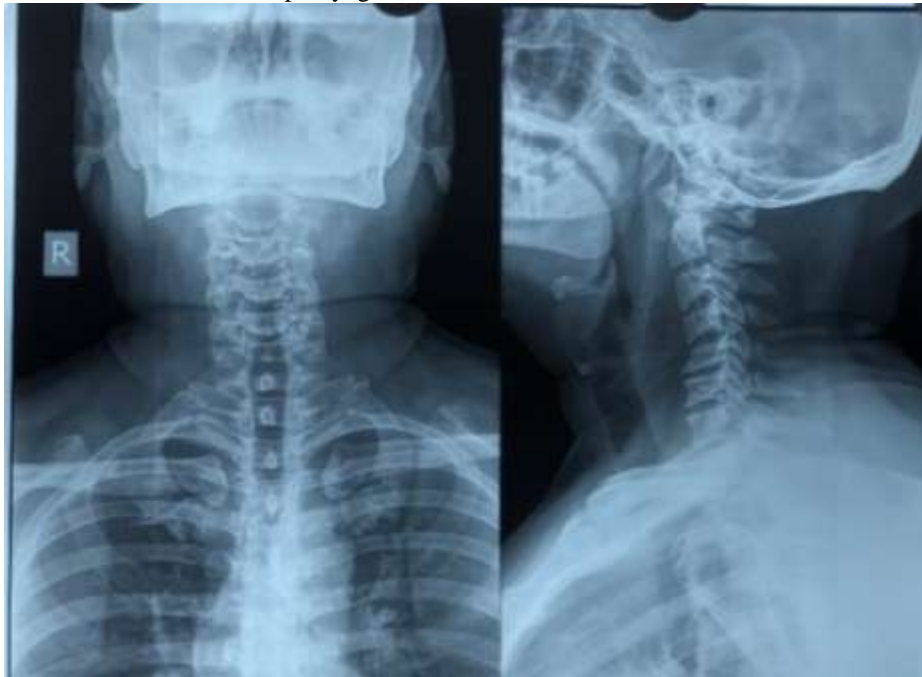


Figure 2:- Anteroposterior & Lateral Neck Xray views.

A decision to take up the patient for DLscopic removal of the Foreign Body under anesthesia was made. After explaining the procedure, and the various risks and obtaining proper consent, the patient was classified under ASA

(American Society of Anaesthesiologists) grade 2 and prepared for surgery. Nebulization with 4% lignocaine solution was given to decrease the airway reflexes. The patient was taken on the OT table, IV line was secured and connected to Ringer's Lactate solution. All monitors were attached and vital parameters like heart rate, oxygen saturation, respiratory rate, blood pressure, and electrocardiogram (ECG) were monitored. The patient was premedicated with Inj. Glycopyrrolate 0.2 mg IV and Inj. Fentanyl 1ug/kg IV. Preoxygenation of the patient with 100% oxygen was started for 3 minutes. Given the anticipated airway of the patient, all equipment for difficult airway management was kept ready, including that for emergency tracheostomy. A nasotracheal intubation was planned for the patient. Anesthesia was induced with Inj. Propofol 2mg/kg IV slowly in graded doses till loss of consciousness of the patient. A nasal airway was introduced in the left nostril after lubricating it with lignocaine jelly. After checking for ventilation, Inj. Atracurium 0.75 mg/kg IV was administered. The patient was ventilated with oxygen and nitrous oxide for 2.5 minutes followed by 100% oxygen for 30 seconds to buy enough time for a smooth intubation. After removing the nasal airway, a flexometallic endotracheal tube of size 7 was gently introduced through the left nostril after lubrication with lignocaine jelly and guided in the trachea with the help of a Besdata (a video laryngoscope) using a D blade and Magill's forceps in the first attempt. After confirming the proper placement of the endotracheal tube, the tube was fixed and the patient was handed over to the surgeons for foreign body removal. Anaesthesia was maintained with sevoflurane in oxygen and nitrous oxide throughout the procedure. Patient tolerated the procedure well with no derangements in vital parameters.



Figure 3:- Nasotracheal Intubation.

After DLscopic removal of the foreign body, a check scopy was done to check for hemostasis. After the patient's adequate breathing efforts were confirmed, he was reversed using neostigmine and glycopyrrolate, and extubated. Postoperatively, the patient was conscious, breathing adequately, maintaining good saturation on room air and was haemodynamically stable. The patient was shifted to postoperative ward after observation.



Figure 4:- Foreign Body (Chicken Bone) after removal – Approximately 3 cm in Length.

Discussion:

Lodgement of ingested foreign bodies in the aerodigestive tract is a common emergency in the ENT operating rooms [1–3]. At times these foreign bodies, especially if sharp, can pierce the wall and lodge extraluminally in the soft tissues of the neck [4,5]. Though rare, quick diagnosis and appropriate treatment are required in such cases to avoid complications. Foreign body ingestion commonly occurs in children, the mentally challenged, and in some professions such as electricians, fishermen, and carpenters who hold these small items in their teeth while they are working [6]. Presentation of the impacted foreign body varies according to its site and size. Patients may present with respiratory distress, change in voice quality, or difficulty in swallowing that may be preceded by a severe attack of choking or coughing [7,8].

Foreign body impaction may present as a respiratory emergency that requires urgent intervention to save the patient's life [6]. However, in the discussed case, the chicken bone was lodged in the retropharyngeal space for over a week. The presenting complaints of the patient were pain in the neck more related to swallowing and voice change. There were no symptoms of respiratory distress.

Usually, most impacted foreign bodies in the airway are removed by direct endoscopy under general anesthesia [9]. Indirect fiberoptic endoscopy is employed in some patients who have a sensitive gag reflex [10]. Nasotracheal intubation is an effective and safe technique that is usually applied in head and neck surgeries but is also underused in current practice. The benefits of nasotracheal intubation to the head and neck surgeon usually outweigh the potential disadvantages to the patient. Fiber-optic intubation may be used in patients with difficult orotracheal intubation.

However, it is expensive in terms of time and equipment required for routine minor ENT or maxillofacial procedures. It is in this setting, that careful intubation with the help of forceps or 'blind' nasotracheal intubation with adequate training forms a quick and safe alternative for the anesthetist while providing improved operating conditions for the surgeon. [11]

Usually, a foreign body retrieval in the airway is carried out with the help of a rigid bronchoscope under general anesthesia with oro-tracheal intubation. Bronchoscopy, both rigid and flexible requires a good team effort for safe anesthesia and a successful procedure. Various methods of ventilation during general anesthesia may be available and the best option should be selected based on the need of the procedure, the expertise of the surgeon and the anaesthesiologist, and the equipment available. Controlled mechanical ventilation combined with intravenous drugs and muscle relaxants gives the best results for rigid bronchoscopy. [12]

The anesthetic implications of concern, in this case, were many. The patient may be dehydrated, due to poor oral intake and dysphagia, which may result in electrolyte imbalance and metabolic derangements. The restricted mouth opening of the patient, a short neck, anticipated difficult airway and mucosal edema involving the posterior hypopharyngeal and laryngeal walls, and mild luminal narrowing of hypopharynx as depicted on the CT scan were of major concern. Tracheal intubation in such cases may be complicated further due to distorted airway anatomy, oedema and decreased mouth opening. A cannot ventilate, cannot intubate situation may arise in such cases after induction or during surgical manipulation. Hence, a decision to check ventilate and intubate the patient via a nasotracheal route before handing over to the surgeons was taken in this case. The vocal cords may be difficult to visualize due to swollen pharyngeal walls, airway edema, laryngeal displacement, and instrumentation later. If the patient presents late, it may lead to other complications like retropharyngeal abscess, empyema, or even mediastinitis. [13]

Conclusion:-

The lodging of ingested foreign bodies within the aerodigestive tract constitutes a common medical emergency, yet in rare instances, these objects may breach the wall and become extraluminally lodged in soft tissues such as the retropharyngeal space, as observed in this case. Typically, impacted foreign bodies in the airway necessitate direct endoscopic removal under general anesthesia. Nasotracheal intubation emerges as an effective and secure technique commonly employed in head and neck surgeries. Careful nasotracheal intubation, aided by video laryngoscopy and forceps, or by blind intubation, presents a swift and safe alternative for anesthesiologists, concurrently offering improved surgical conditions. Here, the successful management of a patient with an anticipated difficult airway and a foreign body in an atypical location was achieved through meticulous planning and execution of nasotracheal intubation, showcasing collaborative efforts between anesthesia and surgical teams.

Conflict of Interest

None.

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