Management of a Case of Airway Obstruction in the Emergency Department

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KEY WORDS: airway obstruction, airway management, esophageal foreign body, trichophagia, trichotillomania

IMAJ 2020; 22: 193–194

Upper airway obstruction is a life-threatening emergency and requires prompt recognition and management. We present an unusual case of partial upper airway obstruction that was managed successfully and expediently in the emergency department (ED).

Trichotillomania is characterized by extensive pulling of bodily hairs. Trichophagia is the compulsive eating of hair associated with trichotillomania. In extreme cases patients can develop a trichobezoar, which can lead to obstructions in the airway [1] and gastrointestinal tract. We describe a middle-aged man with trichotillomania who was admitted to the emergency department with partial upper airway obstruction following the ingestion of a large foreign object.

PATIENT DESCRIPTION

A 43-year-old man with a past medical history of intellectual disability and previous parieto-occipital cerebrovascular accidents, presented to our ED. He resided in a local community mental health center and was usually supervised 24 hours per day by a mental health worker due to his additional diagnosis of trichotillomania and a lifelong history of recurrent swallowing of objects.

The patient arrived in the ED following a report that during an unsupervised moment he had managed to ingest grass and soil, which he had then attempted to swallow. He presented 20 minutes after the ingestion with the following physical examination: blood pressure 125/85 mmHg, heart rate 120 beats per minute, oxygen saturation (by pulse oximetry) 78% (breathing room air), and body temperature 37.2ºC (axillary). The patient was mute and clinically appeared to be in respiratory distress, with stridor, tachypnea, copious salivation, the use of accessory respiratory muscles, and an inspiratory wheeze. These signs all prompted suspicion of a partial upper airway obstruction.

Following suctioning of the mouth, some soil, a small piece of plastic bag and grass were extracted. Face-mask oxygen was applied to the patient. Atropine 0.3 mg was administered intravenously due to the possibility of an anticholinergic toxic syndrome consequent to pesticides on the swallowed grass. This treatment was immediately effective in reducing the salivation. The stridor remained undiminished.

An upper airway fiberoptic examination was performed to assess airway patency but was very limited due to local bleeding and an uncooperative patient. However, a patent upper airway was revealed. A portable chest X-ray confirmed a hyper-opaque mass in the neck (4 × 2 cm in size) [Figure 1A]. Despite the patent upper airway, the patient's clinical condition was unchanged, and he remained in great distress. As such, immediate intervention was required to address the suspected large foreign body the patient had ingested, which was the likely cause of the stridor and impending airway occlusion. Preparations were made for urgent surgical airway access, with equipment for cricothyrotomy and tracheostomy immediately at hand.

The patient was monitored with continuous electrocardiography and pulse oximetry, including intermittent non-invasive blood pressure measurements. Due to fear of complete loss of the airway secondary to loss of muscle tone, the decision was made to avoid intravenous anesthetic agents and muscle relaxants. Anesthesia was induced with the patient in the semi-recumbent position, using sevoflurane for inhalational induction (an anesthetic machine was brought to the ED for this purpose). Induction took several minutes due to the reduced airflow via the semi-obstructed airway, but oxygen saturations were well maintained throughout. After an adequate depth of anesthesia had been achieved, direct inspection was performed using a standard laryngoscope (MAC 3 blade; our

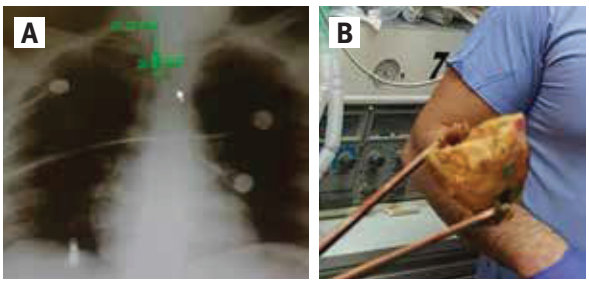

Figure 1.
[A] Portable chest X-ray showing large opacity in the lower neck consistent with an ingested foreign body
[B] The large stone recovered from the esophageal inlet of the patient

standard direct laryngoscope is Truphatek [Truphatek International]). Cormack-Lehane Grade II view was achieved. A large rock (5 × 5 × 3 cm) [Figure 1B] was lodged in the esophageal inlet and was partially occluding the larynx, just above the tracheal inlet. The rock was extracted using Magill forceps, under direct vision. The partial airway obstruction was immediately relieved, and the patient was allowed to awaken. He presented with no ill effects and after a 2-hour period of observation, he was discharged back to his institution into the care of his mental health worker.

COMMENT

We discussed a case of intentional ingestion of a large foreign body that reached the esophagus and caused partial airway obstruction in a middle-aged man with intellectual disability and trichotillomania. Foreign body ingestion is most common in children and adults over age 65 years [2]. In adults, foreign body ingestion is generally accidental, except in individuals with psychological or cognitive impairments, as was seen in this case. The patient we described had a history of ingestion of foreign objects, apparently related to his state of intellectual disability and trichotillomania. Nonetheless, he did not display symptoms of trichobezoar, which typically form in the gastrointestinal tract and present with abdominal pain and nausea (although can rarely cause airway obstruction). This report should highlight the possibility of individuals with trichotillomania ingesting objects other than pulled hair. According to a recently published study, the previous ingestion of foreign bodies, together with other atypical and severe non-suicidal attempts at self-injury, confers risk for other severe psychopathologies [3].

Patients with mental status compromise cannot always verbalize that they are having difficulty breathing. In such situations, recognition of the clinical signs of developing obstruction is even more critical. Early signs include accessory muscle use (sternocleidomastoid and scalene neck muscles), rib retraction, tracheal tug and paradoxical breathing. As obstruction worsens and the patient must work harder to breath, the jaw and the tongue are pulled backward, the nostrils flare and the head might bob, the patient develops dyspnea and noisy respiration – stridor, grunting or snoring. Finally, silent breathing can be a sign of total airway obstruction and does not necessarily indicate an improving condition. Sialorrhea (or drooling) is an important sign of upper esophageal obstruction, particularly in children, and was a prominent feature in this patient's presentation.

Both fiberoptic and X-ray examinations were performed in the described patient. While the fiberoptic examination revealed a patent upper airway, the X-ray was needed to identify the ingested object due to the lack of cooperation of the patient during the fiberoptic examination. According to a retrospective study of patients who presented to EDs due to foreign body ingestion, X-rays were performed more often, yet the diagnostic yield of the fiberoptic examinations was greater. The esophagus was the most common location of the foreign bodies [4]. Several studies have reported the usefulness of X-rays for detecting ingested foreign bodies [5]. A foreign body in the esophagus is recognized as a serious condition and prompt removal is essential, particularly in the case of a large object, to clear potential concurrent airway obstruction.

In our case, prompt detection of the large foreign object and its removal with forceps averted the need for surgery. In a large medical center in China, forceps were used to retrieve 65% of ingested foreign objects from the upper gastrointestinal tract [5].

CONCLUSION

A patient with trichotillomania presenting to the ED with respiratory distress or the inability to manage his or her own secretions (drooling) should immediately raise the suspicion of potential airway and/or esophageal obstruction. The use of sevoflurane as an induction agent, avoidance of intravenous anesthesia and muscle relaxation, as well as prompt identification and extraction of a large foreign object in a man with trichotillomania and intellectual disability, averted the need for surgery.

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"When it comes to chocolate, resistance is futile"

Regina Brett (born 1949), American author, inspirational speaker, and newspaper columnist currently writing for *The Cleveland Jewish News*

"Most human beings have an almost infinite capacity for taking things for granted"

Aldous Leonard Huxley (1894–1963), an English writer and philosopher