Nasogastric tube syndrome: a life-threatening laryngeal obstruction in a 72-year-old patient*

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Abstract

Nasogastric tube (NGT) syndrome is a rarely reported complication of NGT use that can cause life-threatening laryngeal obstruction. The syndrome results from post-cricoid ulceration, which affects the posterior cricoarytenoid muscles, thus causing vocal cord abduction paralysis and upper airway obstruction. We describe a case of a 72-year-old patient with this syndrome who was treated successfully and emphasise the difficulty of diagnosis in frail older adults.

Keywords: nasogastric tube syndrome, larynx, upper airway obstruction, enteral nutrition, elderly

Case report

A 72-year-old male diabetic patient with right hemiplegia and swallowing impairment because of head trauma with intraparenchymal haemorrhage was fed via a nasogastric tube (NGT). One month following insertion of the NGT, the patient gradually developed tachypnea, which progressed to severe dyspnea and inspiratory stridor. Verbal communication with the patient was very limited because of the brain insult, and therefore, anamnesis regarding pain or other symptoms could not be elicited. On physical examination, the patient was afebrile, blood pressure was 130/90 mmHg, heart rate was 100 beats/min and respiratory rate was 30 breaths/min. Inspiratory stridor was heard, and on chest auscultation, breath sounds were decreased slightly bilaterally. Oxygen saturation remained 95% on room air. Chest x-ray did not reveal any pathology. Fibre optic laryngeal examination was performed immediately and revealed mild oedema of the epiglottis, bilateral severe oedema of the arytenoids, right vocal cord paralysis, impaired left vocal cord mobility with a glottic opening of 3–4 mm and pooling of saliva in the hypopharynx. The NGT was located at the midline of the post-cricoid area between the two arytenoids, creating a small decubitus ulcer. The NGT was removed immediately. The patient was observed in the respiratory intensive care unit, and intravenous steroids along with antibiotic therapy were initiated. Because there was no clinical improvement during the initial 48 h, the patient underwent open tracheotomy and percutaneous gastrostomy. Laryngeal examination 2 months later revealed bilateral normally moving vocal cords without oedema or pathology in the post-cricoid area. Subsequently, the patient underwent successful weaning from the tracheotomy tube and remained asymptomatic since then.

Discussion

NGT is commonly used in frail older adults for enteral nutrition. Dyspnea in these patients is usually attributed to aspiration, pulmonary embolism or congestive heart failure. The possibility of upper airway obstruction as a cause of dyspnea is frequently underestimated. NGT syndrome is a rarely reported entity, which was described by Sofferman and Hubbell [1] and may cause life-threatening upper airway obstruction. The NGT presses against the posterior cricoioid lamina on which the bodies of the posterior cricoarytenoid muscles lie. The tube-induced pressure gen-

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erates traumatic and/or ischemic post-cricoid ulceration, which is occasionally followed by bacterial infection. The extensive penetration of the post-cricoid inflammation into the posterior cricoarytenoid muscles can cause vocal cord dysfunction such as bilateral vocal cord abduction paralysis [1, 2].

Several mechanisms have been implicated [1]: (i) the dynamic nature of the larynx, sliding up and down against a semirigid NGT as the patient coughs and swallows, (ii) normal tonic contractile state of the cricopharyngeus muscle pressing the tube against the posterior cricoid cartilage lamina and (iii) in the supine patient, gravity pulling the larynx posteriorly, pinching the NGT between the two rigid structures of the cricoid cartilage and anterior cervical spine.

Diabetes mellitus and immunocompromised states have been suggested as risk factors for NGT syndrome [3]. Sofferman et al. [3] suggested the following diagnostic criteria for NGT syndrome: (i) throat pain—there may be odynophagia and referred otalgia, (ii) presence of NGT and (iii) vocal cord paralysis—cord dysfunction is usually bilateral but may occasionally be unilateral [4, 5].

Among frail older adults who have difficulties in communication or may have non-specific complaints, a history of throat pain may not have been elicited [6]. In a review of 31 cases of NGT syndrome (1939–2001), age range 4–77 years (mean 47.4 years), the syndrome had been reported 2–52 days (mean 24.6 days) after tube placement [7]. Seventy-seven per cent of all cases required tracheotomy. Although NGT syndrome is rare, laryngeal involvement is common among patients with NGTs. In one series, among 57 patients, 32% had oedema of the arytenoids [1]. In a postmortem examination of larynges among those with an NGT for >48 h, 35% had post-cricoid ulcers [8].

Immediately after suspicion of the NGT syndrome, a fibre optic laryngoscopy is mandatory. It is important to emphasise that in the presence of inspiratory stridor, fibre optic laryngoscopy should be performed before any other investigation for other possible causes of dyspnea. Management includes immediate removal of the NGT, parenteral antibiotics and steroids, anti-reflux therapy and performance of a tracheotomy as needed [7]. If necessary, percutaneous gastrostomy should be performed for enteral nutrition. After appropriate therapy, recovery is noted in most cases within 1–12 weeks [9] but not in all [10].

NGT syndrome should be considered in the differential diagnosis of patients with NGT and dyspnea. This syndrome may present a spectrum of diseases in which many less severely affected individuals may benefit from early diagnosis and appropriate management [7]. Awareness within the geriatric community is essential.

Key points

- In any patient with NGT who presents with dyspnea and/or sore throat, NGT syndrome should be suspected.
- In these patients, fibre optic laryngeal examination should be performed immediately.
- Treatment includes immediate removal of the NGT, parenteral antibiotics and steroids, anti-reflux therapy and performance of a tracheotomy as needed.
- A high index of suspicion, early diagnosis and treatment are prudent to avoid life-threatening laryngeal obstruction.

Conflict of interest

None.

References


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