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Recurrent Nasogastric Tube Insertion Failure Secondary to Anterior Cervical Osteophyte: A Case Report

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Abstract
Nasogastric tube (NGT) insertion is a routine bedside procedure for enteral feeding, medication administration, and gastric decompression. While typically straightforward, repeated failures should prompt evaluation for structural causes. Anterior cervical osteophytes (ACOs), though often asymptomatic, can obstruct NGT passage and contribute to dysphagia or airway compromise. This case report describes recurrent NGT insertion failure caused by a prominent anterior cervical osteophyte at the C3–C4 level and emphasizes the importance of early structural assessment, particularly in patients with complex or overlapping clinical conditions. A 64-year-old man with recent medullary infarct and aspiration pneumonia presented with dysphagia and choking. After three failed NGT insertion attempts, flexible nasopharyngolaryngoscopy revealed posterior pharyngeal wall bulging and saliva pooling. Cervical spine radiography demonstrated a large anterior osteophyte at C3–C4 protruding into the hypopharynx. Multiple endoscopy-guided attempts were unsuccessful, but NGT placement was later achieved via esophagogastroduodenoscopy (OGDS), allowing safe establishment of enteral access. Structural abnormalities such as ACOs may be overlooked in patients with neurogenic dysphagia, therefore, endoscopic and radiologic evaluations are essential when repeated NGT failures occur. Early recognition and a multidisciplinary approach support safe and effective management, reducing the risk of procedural trauma and ensuring timely nutritional support.

Keywords
Dysphagia, cervical vertebrae, osteophyte, nasogastric intubation, endoscopy

Introduction

Nasogastric tube (NGT) insertion is a common bedside procedure used for enteral nutrition, medication administration, and gastrointestinal decompression. While generally straightforward, repeated failure

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during NGT placement should prompt investigation into underlying anatomical or pathological causes. Structural abnormalities of the cervical spine, such as anterior cervical osteophytes (ACOs), are a rare but important mechanical cause of NGT insertion failure.[1]

ACOs are bony projections along the anterior margin of the cervical vertebrae, often associated with degenerative spinal disease or diffuse idiopathic skeletal hyperostosis (DISH).[2] Although frequently asymptomatic, prominent ACOs can encroach upon the pharyngeal or esophageal lumen, leading to dysphagia, aspiration, and resistance to NGT passage.[3] In rare cases, they may also cause airway compromise, including stridor or dyspnea, particularly when impinging on the hypopharynx or larynx.

Obstruction or deviation of the normal anatomical passage may result from a variety of etiologies. These include oropharyngeal and esophageal malignancies, Zenker's diverticulum, esophageal strictures, cricopharyngeal muscle dysfunction, or congenital anomalies.[4] Neurological conditions such as stroke or Parkinson's disease may impair swallowing coordination, while prior surgeries to the head, neck, or esophagus can lead to altered anatomy or scar-related strictures. Less commonly, vertebral abnormalities such as kyphosis or cervical spine fusion may mechanically influence the trajectory of the NGT. This report presents a patient with recurrent NGT insertion failure due to a prominent ACO at the C3–C4 level, highlighting the need to consider structural causes in cases of difficult NGT placement.

Case Report

A 64-year-old Malay man with chronic atrial fibrillation was admitted for management of an acute medullary infarct and aspiration pneumonia. He had experienced progressive dysphagia and aspiration with oral intake for five days prior to admission. He reported no history of dysphagia prior to this illness. He denied hoarseness, noisy breathing, or dyspnea.

In view of his dysphagia and recent aspiration, NGT insertion was planned for enteral feeding and airway protection. Three attempts at NGT insertion by the primary team were unsuccessful. Referral to the otorhinolaryngology (ORL) team was made for evaluation of upper airway obstruction and assistance with NGT placement. Examination revealed an absent gag reflex and intermittent choking during bedside swallowing tests.

Flexible nasopharyngolaryngoscopy revealed bulging of the posterior pharyngeal wall at the level of the epiglottis, along with pooling of saliva (Figure 1). Vocal cord mobility was preserved with only a minimal phonation gap observed. Despite multiple attempts of NGT insertion under endoscopic guidance, placement remained unsuccessful. He was subsequently referred to the surgical team to achieve successful insertion using esophagogastroduodenoscopy (OGDS) guidance. A lateral cervical spine X-ray demonstrated a prominent anterior cervical osteophyte at the C3–C4 vertebral level, protruding anteriorly into the hypopharynx (Figure 2). The patient was managed conservatively with swallowing therapy, upright feeding posture, and texture-modified diets. He was referred to orthopaedics team for further evaluation and management of the ACO but did not attend follow-up appointments.

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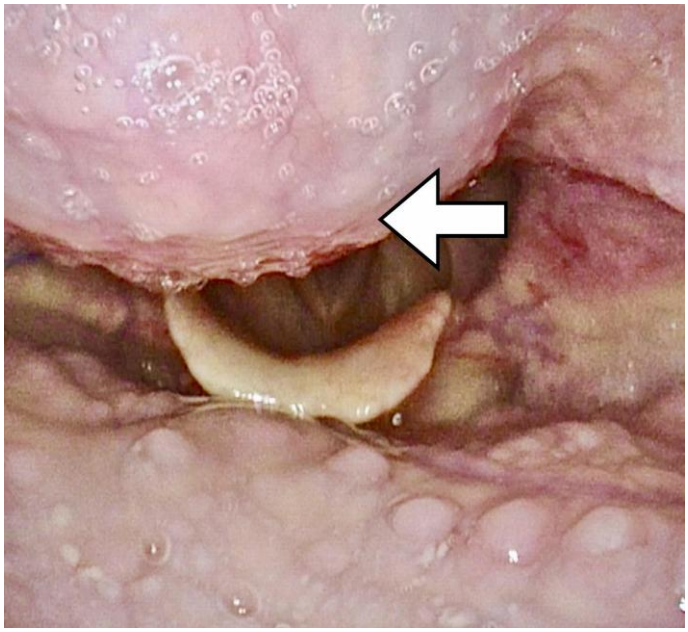

Figure 1: Flexible nasopharyngolaryngoscopy (FNPLS) image demonstrating prominent posterior pharyngeal wall bulging at the level of the hypopharynx (arrow).

Figure 2: Lateral neck X-ray showing a large anterior cervical osteophyte (arrow) at the C3–C4 level, measuring approximately 0.90 cm.

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Discussion

Anterior cervical osteophytes (ACOs) are often incidental radiographic findings, particularly in elderly males, with a reported prevalence of up to 20–30% in individuals over the age of 60.[5] While usually asymptomatic, ACOs may become clinically significant when they impinge upon adjacent structures, especially in the presence of comorbidities such as neurogenic dysphagia or degenerative cervical spine disease.[1] ACOs are frequently associated with Diffuse Idiopathic Skeletal Hyperostosis (DISH), a systemic condition characterized by ossification of the anterior longitudinal ligament across multiple vertebral levels. When DISH affects the cervical spine, it can result in prominent osteophytes that mechanically obstruct the pharyngeal or esophageal lumen.[6]

The location of the osteophyte influences symptom severity. Higher-level ACOs (e.g., C3–C4) may impinge on the hypopharynx, while those lower in the cervical spine more commonly affect the cricopharyngeal or supraglottic regions.[7] In our patient, the C3–C4 osteophyte likely caused hypopharyngeal obstruction, contributing to failed NGT passage. Neurological deficits from the patient's acute medullary infarct such as an absent gag reflex and pooling of saliva, likely compounded the structural obstruction. This case illustrates the need to assess both structural and neurologic causes in patients with persistent feeding difficulties.

In difficult NGT insertions, several bedside techniques, including neck flexion with lateral pressure, reverse Sellick's, and the SORT maneuver, may improve the success rate.[8] When these methods fail, endoscopic-guided insertion is the next appropriate step, as it allows direct visualization of the upper aerodigestive tract and helps navigate anatomical irregularities. In our case, however, even multiple endoscopically guided attempts were unsuccessful, prompting the need for esophagogastroduodenoscopy (OGDS). Compared to flexible nasoendoscopy, OGDS provides deeper visualization and offers a more controlled passage into the esophagus, enabling successful tube placement despite significant structural obstruction. Lateral cervical spine radiography provides a simple initial assessment for bony abnormalities, while CT offers superior anatomical detail for evaluating the extent of soft tissue displacement and compression.[9]

Management depends on symptom severity and patient fitness. Conservative strategies including dietary modification, swallowing therapy, and postural adjustments are typically first-line. Surgical resection is reserved for cases with refractory dysphagia, repeated aspiration, or airway compromise.[10] Decisions regarding surgery should weigh symptom burden, comorbidities, surgical risk, and recovery potential. In elderly or high-risk patients, conservative approaches may be more appropriate.

Conclusion

Anterior cervical osteophytes are a rare but clinically significant cause of nasogastric tube insertion failure and dysphagia. This case emphasizes the importance of considering structural abnormalities in patients with repeated NGT placement difficulties, as well as the need for early ORL involvement when upper aerodigestive obstruction is suspected. Prompt recognition through endoscopic and radiologic evaluation facilitates appropriate management, whether conservative or surgical. A coordinated multidisciplinary approach is essential to optimize outcomes and reduce risks such as aspiration and malnutrition.

Declaration of Competing Interests

The authors declare no conflicts of interest.

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