



Case report

Dysphagia due to oesophageal obstruction: A case report of unusual occupational aetiology



Navnit Makaram*, Rohit Gohil, Samit Majumdar

Department of Otorhinolaryngology, Head and Neck Surgery, Ninewells Hospital, Dundee, DD1 9SY, United Kingdom

HIGHLIGHTS

- The rare case of a large obstructive vertebral osteophyte in an elderly gentleman is described.
- Rarer still is the significant occupational history given, providing a strong case for aetiology.
- The importance of a thorough and systematic assessment in patients with dysphagia is emphasised.
- The importance of Barium swallow to investigate position and nature of obstruction is illustrated.

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ABSTRACT

Introduction: We report the rare case of a patient presenting with dysphagia secondary to a large vertebral osteophyte, which formed from his previous occupation.

Presentation of case: A 76-year-old gentleman presented with a year-long history of dysphagia to solids, at the laryngeal level. He was otherwise well, with no red-flag symptoms. Nasoendoscopy showed a left-sided bulge obstructing the piriform fossa. Barium swallow demonstrated a large C4/C5 vertebral osteophyte. Excluding other abnormalities the patient's dysphagia was determined to be due to the osteophyte. The patient mentioned carrying large (50 kg) bags of coal for his previous occupation. This chronic trauma was concluded to be the cause for the osteophyte.

Discussion: We use this case as an opportunity to outline mechanism of swallowing, and the causes and classification of dysphagia are additionally described. We also review the literature regarding vertebral osteophytes to contextualise the rarity of this case, especially in regard to the strong occupational association.

Conclusion: A structured and thorough history and examination in dysphagia is emphasized. It is important to enquire about 'red-flag' symptoms, suggestive of head and neck or upper gastrointestinal malignancy. Barium swallow is a critical investigation in dysphagia—it can also demonstrate large bony abnormalities, which is a rare causative factor.

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1. Introduction

The human swallow is a complex neuromuscular function, which is divided into a number of phases that proceed seamlessly from one to another, and involve a significant number of inter-playing muscles.

We can thus appreciate that any in-coordination in this

multistage process can lead to a difficulty in swallowing, defined as dysphagia [1].

Dysphagia is broadly categorised into 2 types by its particular aetiology: oropharyngeal dysphagia, i.e. a difficulty in the initiation of a swallow [1]; or oesophageal dysphagia, the sensation or experience of difficulty in the passage of a bolus from the throat to the stomach [2]. This categorisation is detailed further in our discussion.

In this report, we describe the rare case of a patient who presented with oesophageal dysphagia, secondary to a large vertebral osteophyte partly occluding his pharynx, which had formed as a

* Corresponding author.

E-mail address: nmakaram@nhs.net (N. Makaram).

result of his previous occupation. Uniquely, the extensive occupational history and the tasks involved in his occupation are very closely associated with the resultant pathology.

A recent review of the literature by Dutta et al. [3] showed 73 cases identified in the literature of dysphagia due to vertebral osteophytes, all being due to Diffuse idiopathic skeletal hyperostosis (DISH) syndrome. Indeed, the literature states that in the vast majority of cases of dysphagia caused by vertebral osteophytes, the aetiology are multi-level conditions such as DISH or Ankylosing Spondylitis (AS).

A search of EMBASE and MEDLINE conducted by the authors using the words 'dysphagia' AND 'osteophyte', restricted to the English Language and to be present in title or abstract resulted in 214 results, with 17 excluded manually due to irrelevance. All but 6 reports were due to multi-level syndromes – either DISH or AS, and in a handful of studies the aetiology was post-traumatic following surgery. None described an occupational association with the development of the osteophyte.

2. Case presentation

A 76-year-old Caucasian gentleman and retired coal-miner, with a background of osteoarthritis and glaucoma, was referred to the ENT department with the complaint of non-progressive dysphagia to solids over the previous year. He felt that solids were eventually able to pass, and the resulting discomfort was appreciated more so on the left, at the level of his larynx. On occasion he had regurgitated food, but was pain-free and otherwise well. The patient's voice remained normal and unchanged, and he denied any symptoms of dysphonia, haemoptysis, breathlessness or stridor. There was no history of weight loss or systemic features such as fevers or malaise.

Clinical examination of the oral cavity and palpation of the neck yielded no abnormality. Flexible nasoendoscopy performed in clinic showed a significant bulge on the left of the midline in the mid-cervical region, which appeared to partially obliterate the left pyriform fossa. The arytenoid cartilage was visible on the right but not the left. There were no mucosal changes suggestive of malignancy, and his airway was patent (Fig. 1). Given these clinical findings, it was felt that a benign structural obstruction was the most likely cause of his symptoms.

Barium swallow was thereafter performed, which revealed a large bridging vertebral osteophyte at C4/C5. This was causing a marked posterior indentation of the oesophagus (Fig. 2). There was no evidence of a pharyngeal pouch, nor any distal obstruction, and his ability to co-ordinate a swallow was preserved. Therefore the cause of the patient's dysphagia was solely determined to be due to

the osteophytic growth.

Upon further enquiry at follow up, the patient volunteered that he used to regularly carry 50 kg bags of coal on his left shoulder for several decades as part of his occupation. It was concluded that the chronic repetitive stress to his cervical vertebrae as a result of sustained periods of weight bearing work was the principal cause for the development of this osteophyte.

The patient was not keen on any further investigation or management, and felt that he could successfully manage this problem through dietary modification. He was therefore discharged from clinic.

3. Discussion

3.1. The mechanism of swallowing

An intact swallowing mechanism is one of the main factors in maintaining adequate nutrition. In the event that it becomes ineffective, the result can lead to choking, airway obstruction, or pulmonary aspiration with potentially fatal consequences [4]. The process of swallowing is divided into several phases, which through complex interplay between the oropharyngeal muscles and associated structures, allow for safe passage of food via the oesophagus through to the stomach (Fig. 3). The phases of swallowing are divided as follows [5]:

1. *Oral Preparatory Phase*: In this phase, food is enclosed in the mouth and pulverised into a food bolus with the introduction of saliva. The process of chewing keeps the food bolus between the upper and lower molar teeth by coordination of the buccinators muscle (facial nerve) and tongue (hypoglossal nerve). The act of swallowing is initially regulated by sensory afferents of the lingual, chorda tympani and glossopharyngeal nerves [6]. With the tip of the tongue at the alveolar ridge, keeping the bolus against the hard palate, it is then transported posteriorly. Nasal breathing continues throughout this stage with the labial muscles keeping the mouth shut [7].
2. *Oral Transport Stage*: This is the second voluntary stage, the end of which initiates the involuntary stages. Inspiration is inhibited at this point and the bolus of food is moved posteriorly through a rolling motion of the tongue against the hard palate. The endpoint is when the bolus passes the anterior faucal pillars and contacts the posterior pharyngeal wall into the oropharynx [8].
3. *Pharyngeal Phase*: At this stage, the nasopharynx and larynx are sealed to prevent aspiration, consequently activities such as breathing, chewing, and coughing are all inhibited. This stage is mediated by the medulla via the glossopharyngeal nerve.

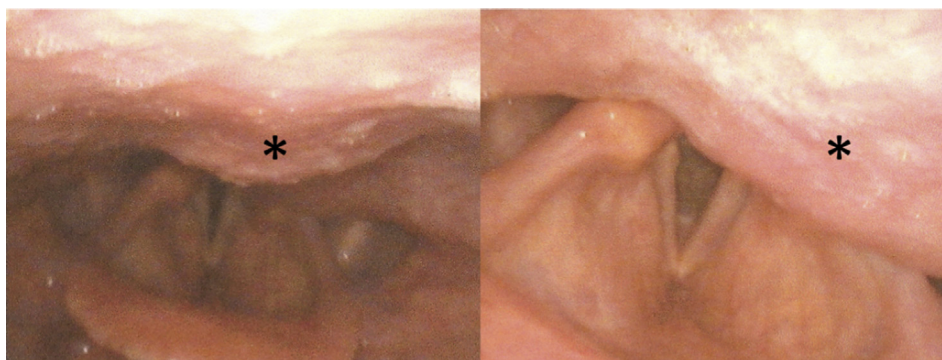


Fig. 1. Successive photographs taken during flexible nasoendoscopy. "*" indicates location of the pharyngeal swelling left of the midline and its associated obliteration of the left pyriform fossa.

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