

Case Report

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Dysphagia Turns Out to Be Ossification of the Anterior Longitudinal Ligament of The Cervical Spine: A Case Report

PGN Danushka¹, AGM Osudhihansi², R Jayasinghe³, RGN Punsara², D Attanayake¹

¹Department of Neurosurgery, National Hospital Sri Lanka

²Faculty of Medicine, University of Colombo, Sri Lanka

³Department of Neurosurgery, University Hospital Derriford, Plymouth trust

Correspondence:

PGN Danushka

E mail: danupiti@gmail.com

 : <https://orcid.org/0000-0001-6068-6081>

ABSTRACT

Ossification of the anterior longitudinal ligament (OALL) is a rare cause of dysphagia that can mimic esophageal malignancies, particularly in elderly patients. We present the case of a 61-year-old male with progressively worsening dysphagia, primarily for solids. Examination revealed a midline bulge in the posterior oropharyngeal wall. After esophageal malignancy was ruled out via endoscopy, computed tomography identified OALL extending from the C1-C2 spinal segments. The patient underwent anterior osteophylectomy at C1-C2, leading to significant symptom improvement without postoperative complications. Surgical intervention is a simple and effective procedure that provides immediate relief by decompressing the pharynx. In patients with symptomatic OALL severely affecting their quality of life, early surgical management yields favorable outcomes.

Keywords: Cervical spine, dysphagia, OALL, ossification, osteophylectomy

INTRODUCTION

Ossification of the anterior longitudinal ligament (OALL) and the development of osteophytes are frequently associated with degenerative conditions of the cervical spine and diffuse idiopathic skeletal hyperostosis (DISH) (1). DISH, also identified as Forestier's disease, is a non-inflammatory condition of joints of unknown origin that leads to abnormal calcification and ossification of spinal ligaments and entheses. This process results in the formation of bony projections along the anterolateral plane of the spine (2). According to recent studies, DISH predominantly affects older adults, with a higher prevalence in men, showing a

male-to-female ratio of approximately 2:1. The condition is estimated to affect between 20% and 42% of people over the age of 65 (3-6).

When the thoracic spine is commonly involved, dysphagia is an infrequent symptom, occurring in just 0.6% to 1% of times (6). However, when the condition affects the cervical spine, difficulty swallowing becomes the most commonly reported symptom, especially when the osteophytes are larger in size (3,4). Sometimes it is accompanied by breathing difficulties due to compression of the oesophagus and trachea. Neurological



complications are rare (5). When dysphagia arises from cervical OALL, it is typically due to mechanical compression of the hypopharyngeal oesophagus by enlarged osteophytes. Additionally, inflammation and nerve degeneration around the ossified areas may contribute to swelling of the larynx and oesophagus, worsening the swallowing impairment (7,8).

In this case, we report a rare presentation of cervical OALL causing dysphagia without concomitant posterior longitudinal ligament involvement. The patient underwent an anterior osteophyctomy and experienced a full recovery following the procedure.

CASE REPORT

A 61-year-old male with a known history of diabetes mellitus presented with a three-month history of progressively worsening dysphagia, primarily affecting the swallowing of solids more than liquids. He reported no difficulty initiating swallowing, though he experienced a sensation of obstruction at the oropharyngeal level when passing food into the pharynx. The patient denied odynophagia, and there were no symptoms indicative of local invasion, such as hoarseness, coughing during meals, persistent back pain, or haematemesis. Notably, he experienced an unintentional weight loss of approximately 3 kg over six months, despite an unchanged appetite. No signs of distant metastasis were noted. The patient was a non-smoker and an occasional alcohol user, with no history of corrosive ingestion, acid reflux, familial predisposition to oesophageal

cancer, or features suggestive of autoimmune diseases. On examination, a midline protrusion was observed over the oropharynx (Figure 1).

An upper gastrointestinal endoscopy demonstrated normal mucosa from the oesophagus to the second part of the duodenum. Non-contrast computed tomography (NCCT) of the cervical spine revealed ossification of the anterior longitudinal ligament (OALL) at the C1-C2 vertebral levels (Figure 2). The patient subsequently underwent osteophyctomy and drilling of the calcified ligament. Postoperatively, his swallowing improved by the second day, with no reported complications. A postoperative radiograph confirmed near-complete removal of the OALL.

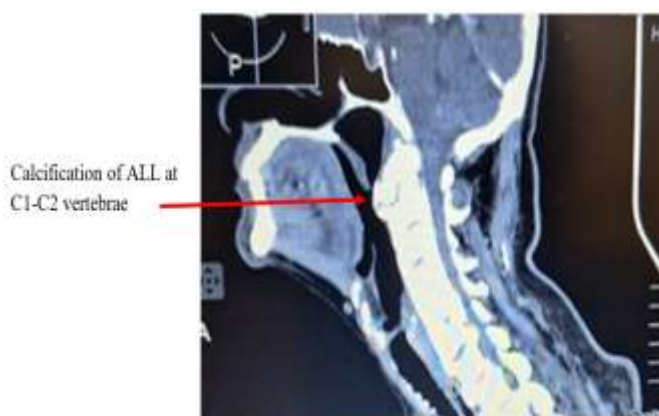


Figure 2: Cervical computed tomography (CT) scan showing calcification at anterior aspect of C1-C2 vertebrae (arrow)

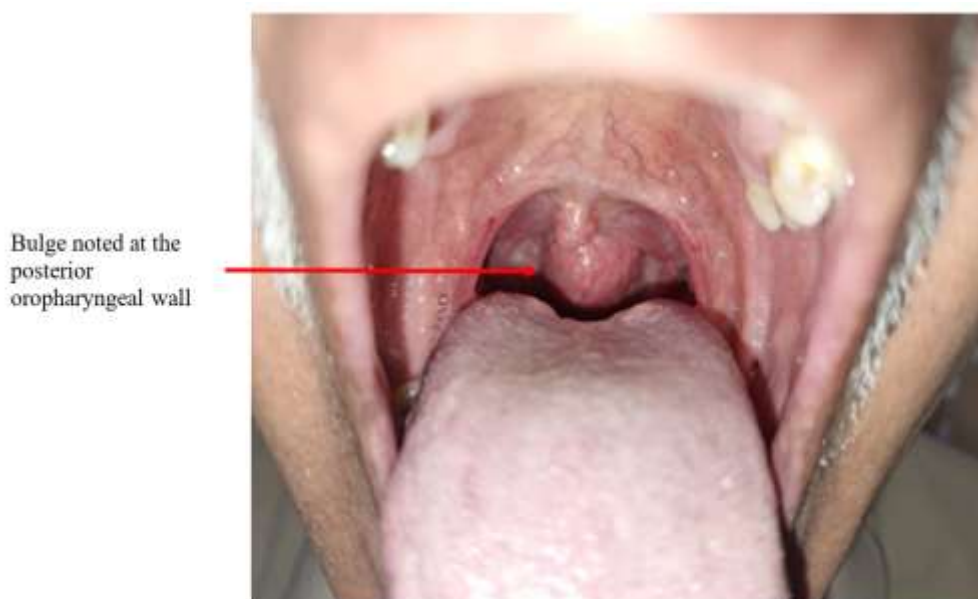


Figure 1: - Midline bulging over oropharynx noted during oral cavity examination

DISCUSSION AND CONCLUSION

Malignant hyperthermia is a rare condition with the anterior longitudinal ligament (ALL) is located along the front surface of the vertebral bodies and intervertebral discs. Ossification of the ALL, as seen in diffuse idiopathic skeletal hyperostosis (DISH), is more commonly observed in older men and can have significant clinical implications (6). Cervical osteophytes and ossification of the ALL (OALL), which typically arise from degenerative processes, are often asymptomatic. However, when symptoms manifest, progressive difficulty swallowing solid foods (dysphagia) tends to be the primary concern. In more advanced cases, dysphagia can extend to liquids, increasing the risk of malnutrition and considerable unintentional weight loss (2,9).

The symptoms largely depend on the site of ossification. Dysphagia is most frequently associated with cervical spine involvement, while thoracic spine involvement seldom causes swallowing difficulties. Cervical involvement may result in mechanical obstruction leading to dysphagia, dyspnea, and occasionally dysphonia (2). Dysphagia may also occur due to chronic inflammation and fibrosis that disrupt the esophageal peristalsis (9,10). Additionally, periesophageal edema caused by irritation from osteophytes, or smaller osteophytes located at critical points of esophageal segments, may contribute to swallowing difficulties. Pain and muscle spasms triggered by irritation, or a combination of these mechanisms, further exacerbate dysphagia (4). Severe cases of dysphagia are often accompanied by unintended weight loss and malnutrition (9). In this case, the patient exhibited progressively worsening dysphagia along with unintentional weight loss, and there was no evidence of significant adhesion between the ossified ligament and the esophagus, pointing to a non-inflammatory mechanical compression.

Diagnostic assessment for dysphagia in such patients typically includes esophageal endoscopy to exclude other causes like malignancy. Imaging techniques, including plain radiographs and CT scans, are vital for identifying OALL and distinguishing it from other conditions such as DISH

and degenerative cervical osteophytes (11). In this case, the patient underwent both esophageal endoscopy, which ruled out malignancy, and a contrast-enhanced CT scan to confirm the diagnosis and evaluate the ossification's extent. In certain instances, MRI can be valuable for visualizing displacement of the trachea and esophagus caused by ossification (4). Endoscopic assessment remains critical to ruling out other potential causes of dysphagia, such as neoplasms, neurological disorders, diverticula, or stenosis (12). A reported case highlights this, where a male patient with severe dysphagia was initially suspected to have cervical OALL. However, a later laryngoscopy revealed a mass in the vallecula, subsequently diagnosed as squamous cell carcinoma (13).

For asymptomatic individuals, treatment can be deferred. In cases of mild dysphagia, conservative approaches, including swallowing therapy and anti-inflammatory medications, may effectively alleviate symptoms and mitigate the risk of aspiration (3,4). A recent review found that only 20.7% of OALL cases were managed non-surgically (14). Most symptomatic patients, particularly those with mechanical obstruction, typically benefit from surgical intervention. Prompt surgical treatment can stop the inflammatory and fibrotic processes from progressing. Delayed intervention may lead to poorer outcomes (10). Surgical procedures such as anterior osteotomy, ostectomy, and osteophytectomy are commonly performed. Many patients who undergo these procedures experience considerable symptom relief and report improved postoperative quality of life (2-5,8,10).

Nevertheless, anterior approaches to osteophyte resection come with potential complications, including vocal cord paralysis, Horner's syndrome, and esophageal or tracheal perforation or fistula formation (15). In this case, osteophytectomy was successfully performed to remove the calcified ALL, which led to resolution of the patient's symptoms without postoperative complications.

We recommend evaluating the cervical spine for OALL in patients presenting with dysphagia when gastrointestinal causes have been ruled out. However, cervical OALL should be considered a diagnosis of exclusion, confirmed only after thorough investigation and ruling out more serious

conditions, such as malignancy. In patients with severe symptoms that significantly affect their quality of life, early surgical intervention often results in promising outcomes.

Author declaration

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Statement on data availability:

All data generated during this study are included in this published article.

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