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Case Report

Surgical management of symptomatic ossified anterior longitudinal ligament: A case report

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Abstract

Background: Ossified anterior longitudinal ligament (OALL) of the cervical spine can cause dysphagia, dyspnoea, and dysphonia, although these symptoms are rare.

Case Description: A 71-year-old male presented with gradually progressive dysphagia secondary to OALL. He underwent fiber optic endoscopy and lateral video fluoroscopy. The OALL extended from C4 to C7 and contributed to significant compression of the pharynx as demonstrated on plain cervical radiography, magnetic resonance (MR) imaging, and computed tomography (CT). Following microsurgical resection of the OALL, his symptoms improved.

Conclusions: This study focuses on the clinical and radiographic presentation of OALL; the latter utilizing plain X-rays, MR, and CT studies. Notably, surgical resection is straightforward and allows for immediate decompression of the pharynx as long as it is truly the symptomatic problem.

Key Words: Dysphagia, microsurgical resection, ossified anterior longitudinal ligament

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INTRODUCTION

Symptomatic Ossified Anterior Longitudinal Ligament (OALL) of the cervical spine is rare, although common in men in their sixth or seventh decades of life.[2,6] The terms diffuse idiopathic skeletal hyperostosis (DISH), OALL, and degenerative cervical osteophytes causing symptomatic dysphagia have been interchangeably used in many previous reports.[1,4,5] However, the management of symptomatic OALL remains controversial. While majority of the patients are managed conservatively, surgical treatment is required at times. Here, we present a case of symptomatic OALL, focusing on the diagnostic criteria and its surgical treatment.

CASE DESCRIPTION

A 71-year-old male presented with dysphagia over a one year period. He initially underwent fiber optic endoscopy that revealed an anterior mass in the midline projecting

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into the middle pharynx [Figure 1]. Plain cervical radiography revealed OALL extending from the C4 to C7 levels with beak-like OALL maximal at C4-5 [Figure 2a]. The magnetic resonance (MR) scan and computed tomography (CT) scan both confirmed marked anterior OALL projecting into the middle/distal pharynx. There was minimal cervical cord compression at the C3-4 disc level due to OPLL [Figures 2b and 2c]. The maxillofacial surgeons performed lateral video fluoroscopy (LVF) documenting a disturbance in the oesophageal phase, and reflux at the level of the beak-like projection [Figure 3]. The patient was initially conservatively managed and was prescribed a Kampo medicine (Hange-koboku-To, TJ-16).

With increasing symptoms (e.g., frequent cough/hoarseness), the patient was reassessed the next year for surgery. There was difficulty during intubation due to the severe beak-like deformity and it was performed using enhanced direct video larygoscopy (McGRATH MAC, Medtronics, USA). A microscopic anterior cervical approach was utilized for removal of the OALL. It was largely removed with a bone rongeur and then smoothed using a high-speed drill [Figure 4a and b] and ultrasonic bone curette (SONOPET, Stryker, USA, Figure 4c). The OALL was removed at C4-5 level and extended to C3-4 as more pathology was found intraoperatively. Postoperatively, the patient's dysphagia resolved immediately, and his hoarseness improved. Adequate decompression of the OALL was confirmed on the lateral plain radiograph [Figure 5a] and CT [Figures 5b and 5c] studies. Additionally, the LVF study one-month later confirmed improved swallowing [Figure 5d].

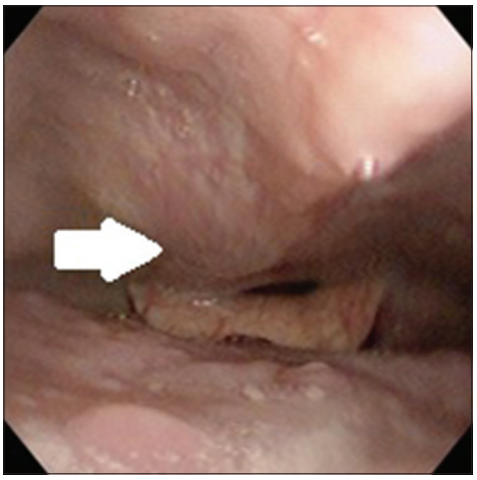

Figure 1: Preoperative fiber optic endoscopy showed protrusion of the posterior pharyngeal wall causing partial occlusion of the oesophageal inlet (arrow)

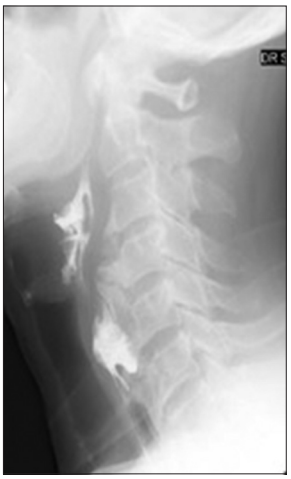

Figure 3: Preoperative lateral video fluoroscopy (LVF) revealed a filling defect in the pharynx anterior to the projected OALL at the C4–5 level

DISCUSSION

Dysphagia, dyspnoea, and dysphonia are common symptoms caused by OALL. Dysphagia secondary to OALL can be secondary to mechanical obstruction as well as chronic inflammation and fibrosis leading to dysfunction in peristalsis. McCafferty *et al*. stated that less than 10% of patients with dysphagia require surgical management. Plain radiography and CT images are helpful in identifying and distinguishing OALL from DISH and degenerative cervical osteophytes.[7] CT imaging of our patient revealed the mixed type of globular

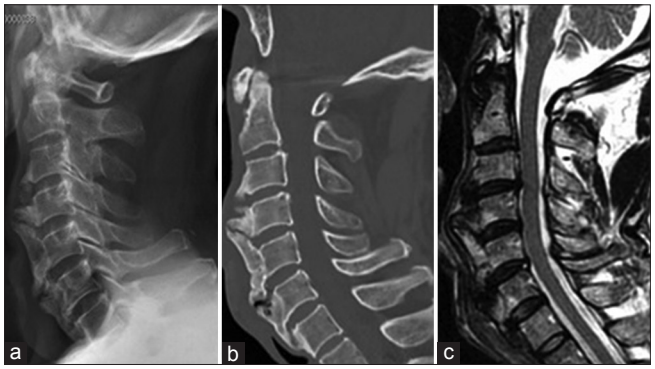

Figure 2: The preoperative lateral plain radiograph reveals beak like ossified anterior longitudinal ligament (OALL) projecting anteriorly at C4–5 (a), which is confirmed on mid-sagittal computed tomography (CT) image (b). The magnetic resonance T2 weighted image (c) shows minimal compression of the thecal sac at C3–4 disc level

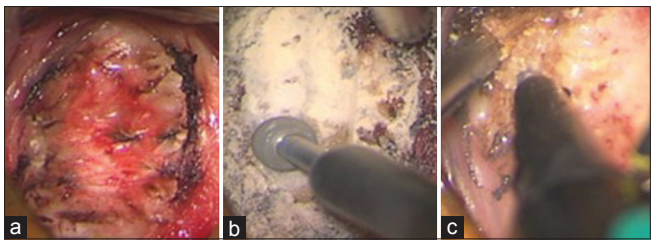

Figure 4: The OALL was protruding into the operative field (a), which was smoothened by a combination of high-speed drill (b), and an ultrasonic bone curette (c)

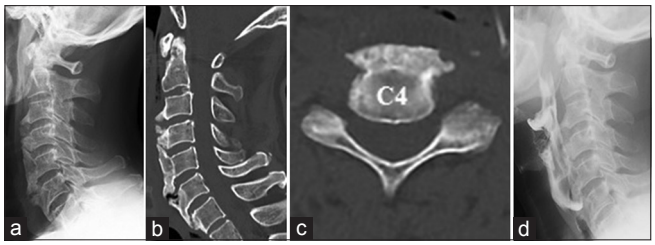

Figure 5: The postoperative plain lateral radiograph (a) and CT mid-sagittal image (b) and axial image at C4 level (c) showing adequate smoothening of the OALL. The postoperative LVF study revealed improvement in the swallowing function (d)

OALL, with a beak-like projection at the C4-5 level, which was compressing the pharynx.

LVF complemented with fiber optic endoscopy will contribute significantly to rule out other causes of oro-pharyngeal dysphagia such as malignancy, neurological impairment, diverticula, pharyngeal or oesophageal stenosis.[3] Once LVF and fiber optic endoscopy revealed pharyngeal compressing lesion, a CT scan is recommended for evaluation of the OALL and other deformities.

Early surgery in symptomatic patients, particularly those with mechanical obstruction aids in the prevention of chronic inflammation and local fibrosis, which may otherwise cause delayed response. We have performed a microsurgical resection of the OALL using rongeurs, diamond drills, and the ultrasonic bone curette.

Surgical management in symptomatic OALL will prevent secondary complications of dysphagia, and improve the quality of life.

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Conflicts of interest
There are no conflicts of interest.

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