

## Case Report

# Dysphagia Secondary to a Large Anterior Cervical Osteophyte: A Case Report

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### Keywords

Diffuse idiopathic skeletal hyperostosis · Dysphagia · Anterior cervical osteophytes · Swallowing disorders

### Abstract

**Introduction:** Diffuse idiopathic skeletal hyperostosis (DISH) is a common systemic condition that leads to ossification of the anterior spine longitudinal ligament with anterior marginal osteophyte formation. Generally, these osteophytes are asymptomatic, but when they are extremely large, their sizes may extend to the point that can lead to mechanical esophageal obstruction and dysphagia. **Case Presentation:** Sixty-three years old, male, presented with severe progressive dysphagia caused by a giant anterior cervical osteophyte, which was treated with surgical resection of the osteophyte and interbody fusion of the affected cervical segment. **Conclusion:** Cervical degenerative disc disease and DISH should be included in the differential diagnosis when evaluating an elderly patient for dysphagia. Early surgical intervention with osteophyte resection and interbody fusion is recommended to prevent recurrent osteophyte formation.

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## Introduction

Anterior cervical osteophytes can occur secondary to cervical spine disc degeneration, or in diffuse idiopathic skeletal hyperostosis (DISH) [1]. DISH is a common but underdiagnosed systemic condition that leads to ossification of the anterior spine longitudinal ligament [2]. Radiologically the condition is defined by a linear new bone formation along the anterolateral

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aspect of at least four adjacent vertebra, bumpy contour, subjacent radiolucency, and pointed bony outgrowths at the superior and inferior vertebral margins with normal appearance of the intervertebral discs [1, 3, 4].

Anterior cervical osteophytes are generally asymptomatic. However, in rare cases, they can lead to dysphagia, dysphonia, and dyspnea, depending on the size of the hypertrophic spur [5–7]. These symptoms may affect the patient's quality of life [8]. We are reporting a 63-year-old man, presented to our clinic with severe progressive dysphagia secondary to a giant anterior cervical osteophytes, whose symptoms improved following surgical resection of the osteophytes and anterior cervical discectomy and interbody fusion. The CARE checklist has been completed by the authors for this case report, attached as an online supplementary material (for all online suppl. material, see <https://doi.org/10.1159/000534759>) [9].

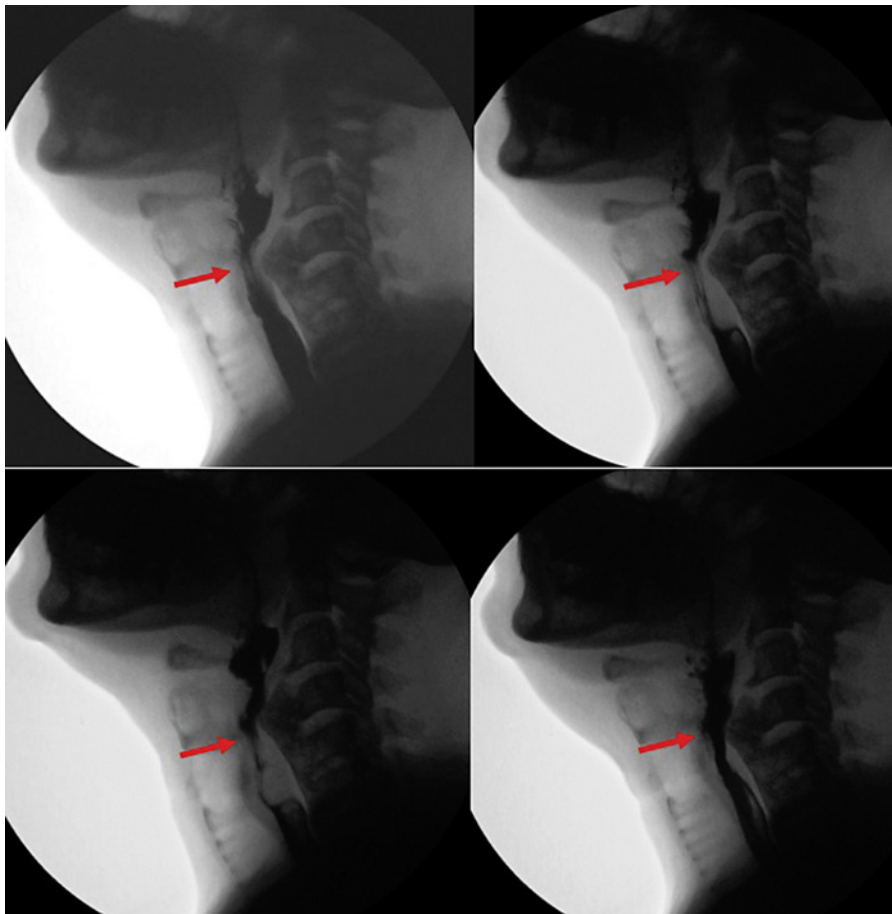
## Case Presentation

Sixty-three years old, male, engineer presented with past medical history of diabetes mellitus and hypertension and under control with oral medication. He presented to our clinic with a history of gradually progressive dysphagia for solid and liquid food for 1-year duration. He did not have any dyspnea or changes in his voice. He was not a smoker or alcoholic. Prior to his presentation to our clinic, he was seen by a general practitioner and a barium swallow revealed a smooth extrinsic indentation in the esophagus at the cervical vertebra 4–5 level (C4-5) (Fig. 1) while radiological evaluation has shown features of diffused idiopathic skeletal hyperostosis (DISH) with a large anterior cervical osteophyte at C4-5 causing compression of the esophagus (Fig. 2).

On clinical examination the patient had normal gait, with no spine deformity, there was tenderness to palpation over the posterior cervical spine, power and sensation in both upper limbs were normal, and he did not have any signs of myelopathy. The rest of the head and neck examination was unremarkable. The patient's symptoms were affecting his daily activities including eating food and drinking fluids. Further radiological evaluation including computed tomography scan of the cervical spine showed a linear fracture at the anterior osteophyte between cervical 4-5 vertebral bodies (Fig. 3).

The decision was to excise the anterior cervical osteophyte at the C4-5 level as it was the cause of his dysphagia. The patient underwent surgery with a right-sided anterolateral (Smith Roberson) approach. The preretracheal fascia was separated and the trachea along with the esophagus were retracted medially, while the carotid sheath along with the sternocleidomastoid muscle were retracted laterally. Then the prevertebral fascia was incised, and the giant anterior cervical osteophyte was removed with a bone nibbler. We perceived that the C4-5 segment will be unstable following removal of the anterior osteophytes. So, the intervertebral disc was removed and interbody fusion with stand-alone cage was performed.

Postoperatively the patient was immobilized with hard neck collar; the dysphagia was improved immediately after the surgery. Two days later, he was discharged home with routine follow-up in the orthopedics spine clinic. The neck collar was continued up to 6 weeks postoperatively. During his hospital stay, the patient did not have any complications and during his routine follow-up he did not have any surgical-related complications. 6 months following surgery, he had complete resolution of symptoms and with no radiological evidence of interbody fusion complication (Fig. 4).

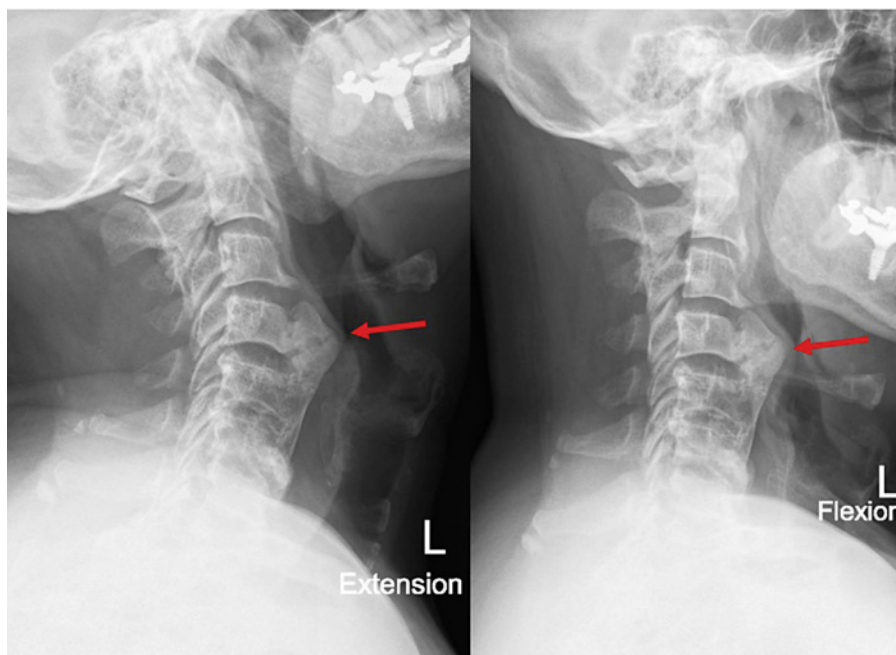


**Fig. 1.** Barium swallow study of the patient showing smooth extrinsic indentation in the esophagus at the cervical vertebra 4–5 level.

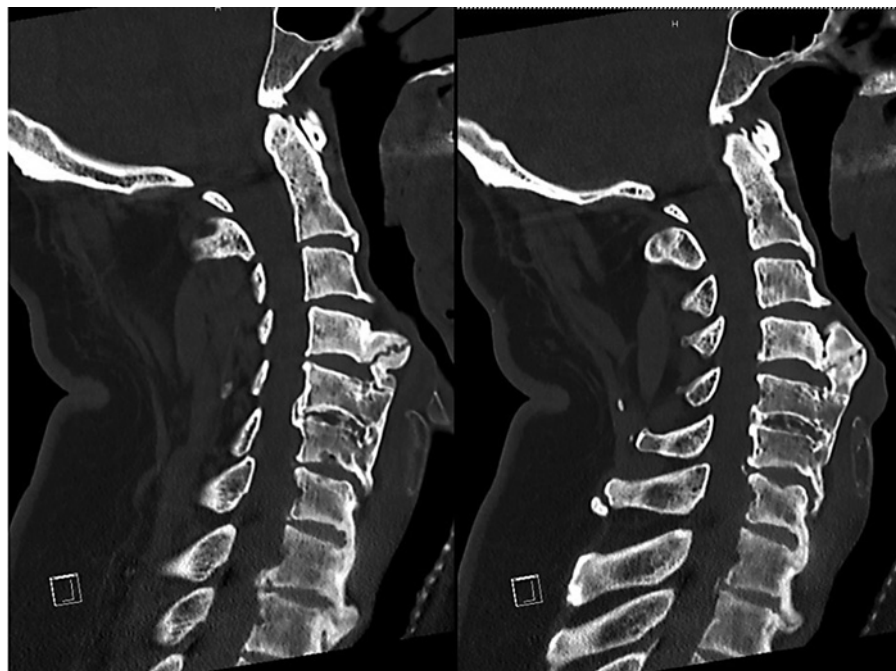
## Discussion

Osteophytes can form at any cervical level but they are more commonly found at the C5-6 and C6-7 levels [10]. The pathogenesis of dysphagia caused by anterior cervical osteophytes can be explained by a direct mechanical compression of the esophagus, pharyngoesophageal irritation and local adjacent soft tissues inflammation resulting in cricopharyngeal spasm [3, 11–17]. It is estimated that 3% of patients over the age of 40 have DISH, and 0.1–6% of them they will develop dysphagia [18]. In a single study of the veteran population the incidence of anterior cervical hyperostosis is reported to be approximately 11% in patients over the age of 60 undergoing dysphagia evaluation, suggesting a higher incidence than what is reported in the literature [19].

While the exact etiology of DISH is unknown, there have been reports of potential risk factors including, excessive mechanical stress, hyperlipidemia, and increased level of insulin [4, 20]. Biomechanical studies of the cervical spine have shown an increase in the strain at the adjacent levels of a fused cervical segment leading to accelerated degeneration, and presumably this will result in a large anterior cervical osteophytes [21]. In this case, the cervical vertebral bodies were fused by bridging anterior osteophytes secondary from the anterior longitudinal ligament ossification, except for the C4-5 segment. Therefore, excessive mechanical stress led to the formation of a giant osteophyte which caused compression of the esophagus.



**Fig. 2.** Anteroposterior and lateral dynamic radiographs of the patients demonstrating features of diffuse idiopathic skeletal hyperostosis (DISH) and a giant anterior cervical osteophyte with esophageal compression (red arrow).



**Fig. 3.** CT scan sagittal view showing a linear fracture at the anterior osteophyte osteophytes between cervical 4-5 vertebral bodies. CT, computed tomography.



**Fig. 4.** Anteroposterior and lateral radiographs 6 months following the surgery with no surgical-related complications.

The radiological evaluation of a cervical degenerative disease usually consists of plain radiographs, computed tomography scan, and MRI. However in patient who presented with degenerative cervical spine disease and dysphagia, a barium swallow is essential to confirm the obstructive nature of the osteophyte [6, 8, 22]. Furthermore, endoscopy is not advised till the external compression is ruled out because of the risk for esophageal perforation [23].

The mainstay treatment of anterior cervical osteophytes is conservative, including anti-inflammatory medication and lifestyle modifications, while surgical intervention is preserved for patients in whom conservative management has failed [24]. However, some authors recommended surgical treatment should be considered for all patients with cervical osteophytes causing dysphagia or dyspnea because of possible progression to perforation and acute respiratory distress [6, 25].

Following surgical excision, recurrence of the osteophyte is rare. However, there have been reports of recurrence in long-term follow-up [26–30]. Therefore, the routine addition of interbody fusion maybe indicated, also osteophyctomy alone may induce segmental instability, which leads to increased segmental mobility and promotes the further development of recurrent osteophytes [4, 27, 28]. In this case, because of the extreme size and presence of linear fracture at the anterior osteophyte, we choose early surgical treatment via the anterior cervical approach with osteophyte excision and interbody fusion to reduce the risk of postoperative instability and recurrence of osteophyte formation.

### Conclusion

DISH is a common cause of anterior cervical osteophyte formation which might result in dysphagia. DISH and degenerative cervical disc disease should be included in the differential diagnosis of dysphagia in elderly patients. Patients with significant and progressive symptoms should be considered for surgical excision of the osteophyte and anterior cervical interbody

fusion to prevent recurrence. Furthermore, routine radiological and clinical examination follow-up should continue postoperatively for prolonged time, as recurrence after long period of time can occur.

### Statement of Ethics

This article was approved by Hamad Medical Corporation Institutional Review Board with approval number MRC-04-23-186. A written informed consent was obtained from the patient for publication of this case report and any accompanying images.

### Conflict of Interest Statement

The authors have no competing interests to declare.

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### Author Contributions

Isam Sami Moghamis: investigation and writing original draft – review and editing. Jawad Derbas and Moh'd Ishaq Alamlih: investigation and writing – review and editing. Nasser Mehrab Khan and Mutaz Awad Alhardallo: review and editing; Abdul Moeen Baco: investigation, supervision, project administration, and manuscript preparation.

### Data Availability Statement

All data generated or analyzed during this study are included in this article and its online supplementary material. Further inquiries can be directed to the corresponding author.

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