

Dysphagia caused by Anterior Cervical Osteophyte: A Rare Entity Revisited

Prashanth Veerabhadraiah, Vishal Rao, Raghavendra Shankar, Naveen Shivappa, Praveen Kumar, TM Nagaraj

ABSTRACT

Large anterior cervical osteophytes can occur in degeneration of the cervical spine, cervical spondylosis or in diffuse idiopathic skeletal hyperostosis (DISH). Voluminous anterior cervical osteophytes which can develop from C3 to C7 can cause narrowing of the pharyngoesophageal segment by external compression and may cause dysphagia, which may be life threatening when it is associated with aspiration and or dyspnea. The objective of this case report is to highlight how commonly occurring anterior cervical osteophytes may become an unrecognized cause for life-threatening dysphagia. The clinical and radiographic findings in patient with dysphagia and ventral osteophytes of the cervical spine due to degeneration are demonstrated. The anterolateral approach for removal of these osteophytes is described.

Keywords: Dysphagia, Cervical osteophytes, Diffuse idiopathic skeletal hyperostosis (DISH), Anterolateral approach.

How to cite this article: Veerabhadraiah P, Rao V, Shankar R, Shivappa N, Kumar P, Nagaraj TM. Dysphagia caused by Anterior Cervical Osteophyte: A Rare Entity Revisited. *Int J Head and Neck Surg* 2012;3(3):168-171.

Source of support: Nil

Conflict of interest: None declared

CASE REPORT

A 63-year-old man presented with gradually progressive dysphagia for solid and liquid foods and pain in the neck on movement of head sideways and on flexion since 2 years duration. Dysphagia was more for solid foods than for liquids and was gradually progressive. Patient was not having any complaints of dyspnea or change in voice. Patient was not a smoker or alcoholic. There was no history of any medical comorbidities or illness. Patient had consulted few practitioners before but was not diagnosed correctly.

On clinical examination, a soft tissue bulge was noted in the posterior pharyngeal wall just above the level of the epiglottis and rest of the oropharynx appeared normal. On videolaryngoscopy, soft tissue bulge in the posterior pharyngeal wall just above the level of the epiglottis was confirmed and rest of the larynx and hypopharynx were normal with mobile vocal cords (Fig. 1). Rest of the head and neck examination was normal and no significant cervical lymphadenopathy was detected. Mucosal bulge in the pharynx made us to order an X-ray of neck lateral and anteroposterior view as a preliminary investigation. X-ray film of soft tissue neck lateral view showed sharp cervical



Fig. 1: Preoperative photograph of videolaryngoscopy



Fig. 2: Preoperative X-ray neck

osteophytes at the level of C2 and C3 compressing the oropharynx (Fig. 2). The oropharyngeal and esophageal soft tissue shadow was normal. Patient was not ordered further investigations as it was obvious from the X-ray that the pathology for the patient's problem was degenerative cervical osteophyte.

Orthopedicians consultation was obtained for further management. It was noted that cervical spine movement was limited in all directions to a moderate extent without any neurological deficits. It was also noted on X-ray that there was ossification of anterior longitudinal ligament in subaxial cervical spine, relative preservation of the disk spaces and lack of ankylosis of the facets or the sacroiliac joints. Based on these criteria, a diagnosis of diffuse idiopathic skeletal hyperostosis (DISH) was established.

It was planned for excision of the osteophytes with transcervical anterolateral approach to the vertebral column in coordination with the orthopedic and general surgeon.

Fiber-optic intubation was done. Transverse incision was given 2 to 3 cm up from the sternal notch from one sternomastoid to the other. Flaps were raised, sternomastoid and great vessels were lateralized without injuring superior thyroid artery, superior laryngeal and recurrent laryngeal nerve. Prevertebral space was approached. Vertebral column was exposed and exposure was given for orthopedician to excise osteophytes. Periosteum over C2 and C3 was incised and the longus colli muscles were retracted bilaterally and osteophytes were removed with rongeurs, initially from lower vertebra C3 and upper cervical vertebra C2. After smoothening, the raw surface area of the bone, bone wax was applied and hemostasis achieved. Vacuum drain was placed *in situ* and wound closed in layers. Patient was on nasogastric tube feeding initially, which was removed after 2 days and swallowing was normal without any aspiration.

Patients postoperative course was within normal limits without any problem. At the time of discharge, patient's speech, swallowing and indirect laryngoscopic findings were normal. Postoperative check X-ray was done to know the resolution (Fig. 3). Also upper gastrointestinal (GI) endoscopy was performed during the recovery time and other anatomical causes of dysphagia were ruled out.

DISCUSSION

The posterior wall of the pharynx is separated from the vertebral column only by a thin layer of soft tissue. Below the level of the glottis, the esophagus lies in front of the vertebral bodies starting from C4 extending caudally, with the trachea placed anteriorly. Thus, cervical pathology above C4 may compress the pharynx and lesions below may cause either esophageal or pharyngeal symptoms.¹



Fig. 3: Postoperative X-ray neck after correction

Dysphagia may arise due to oropharyngeal or esophageal causes. Anatomic causes of dysphagia are tumors, abscesses and cervical bony outgrowths (osteophytes). Development of anterior cervical osteophytes may rarely cause symptoms due to compression of the pharynx, esophagus or upper airways. Cervical bony outgrowths are common but except for large osteophytes most are asymptomatic. Large anterior cervical osteophytes can occur in degeneration of the cervical spine, cervical spondylosis or in DISH.² Hypertrophic anterior cervical osteophytes have been reported as a cause of dysphagia in more than 100 cases described in the literature.³ While it is estimated that hypertrophic cervical osteophytes occur in up to 20 to 30% of the population, they are only rarely associated with dysphagia.⁴ Pathophysiologically, dysphagia may occur secondary to (1) mechanical compression with partial obstruction or (2) periesophageal inflammation caused by pharyngoesophageal motion over the osteophytes.

The differential diagnosis of anterior spinal bony outgrowths is extensive, but the most common etiologies are DISH and ankylosing spondylitis (AS).⁵ DISH is also known as spondylitis ossificans ligamentosa, spondylosis hyperostotica, physiologic vertebral ligamentous calcification, generalized juxta-articular ossification of vertebral ligaments, ankylosing (senile) hyperostosis of the spine, Forestier's disease, spondylosis deformans and vertebral osteophytosis.⁶ Although cervical anterior osteophytes accompanying DISH are generally asymptomatic, large osteophytes sometimes cause swallowing disorders.⁷ The coexistence of DISH and AS has been reported previously, although a meaningful association has not been documented.⁵ The inflammatory changes, which can arise in some patients with DISH, can result in diagnostic difficulties.

Cervical spondylosis usually presents as neck and radicular pain. Cervical spondylosis may cause dysphagia, a sensation of retropharyngeal globus and stridor.^{8,9} Hyperostotic spondylosis (Forestier's disease/DISH) usually present in a middle aged or older patient and affects up to 10% of patients older than 65 years of age. It is characterized by flowing ossification along the anterior and lateral aspects of the spinal column. DISH is more frequent in men than in women. Patients may present with neck pain, myelopathy (due to stenosis) and are at risk of fracture through the disk space. Dysphagia, hemoptysis, the sensation of airway obstruction by a foreign body or recurrent laryngeal nerve palsy are possible too.¹⁰ Typically, osteophytes that cause dysphagia are usually seen in the C4/C5 cervical interspace. Anterior protrusion of cervical osteophytes in front of the cervical vertebrae can cause hypopharyngeal compression,

sensed by the patient as a lump in the throat. The possible mechanisms of dysphagia include (i) mechanical compression to esophagus, (ii) pharyngoesophageal irritation which induces periesophageal edema, (iii) local inflammatory reaction resulting in cricopharyngeal spasm. Patients may also feel sense of dyspnea if the osteophyte is large enough to compress the superior larynx.

A careful history, indirect laryngoscopy, barium swallow studies and lateral cervical spine films establish the diagnosis in most patients. Endoscopy is not advised till the external compression is ruled out. The evaluation of cervical osteophytes consists of cervical spine radiograph and barium swallow to confirm their presence. Barium swallow examination may confirm the obstructive nature of the osteophytes. Videofluoroscopy shows the sequence of muscular changes needed to transfer ingested material from mouth to upper esophagus and rules out neuromuscular causes of dysphagia.¹¹ In patients with cervical osteophytes, upper gastrointestinal endoscopy may be performed, but cautiously because of the risk of esophageal perforation.¹² Manometry and pH stimulation studies may help to exclude motility disorders and gastroesophageal reflux disease as a cause of dysphagia in the neck.¹¹

Most patients with cervical osteophytes can be managed conservatively when it is small. Medical management of patients with anterior cervical osteophytes causing dysphagia includes conservative treatment with anti-inflammatory drugs, muscle relaxants, antibiotics and an appropriate soft diet.¹³ The value of surgical therapy in the form of excision for this disorder has been debated, but most agree that surgical excision is appropriate in selected patients whose symptoms are severe and progressive.^{4,14-16} While both transoropharyngeal and transcervical extrapharyngeal surgical approaches have been used, a comprehensive review of the results of such procedures has not been reported.⁴

The anterolateral or posterolateral transcervical approaches can be used to expose the prevertebral space. In a series of six patients in one of the studies reported, both techniques produced equally effective palliation of dysphagia without associated morbidity.¹⁷ Theoretically, the anterolateral approach better preserves the carotid sheath neurovascular bundle, although the risk of injuring the recurrent laryngeal nerve is greater.¹⁷ The posterolateral technique offers a wider exposure of the prevertebral space but requires more retraction of the carotid sheath and increases the risk of injury to the sympathetic chain.¹⁷ Either exposure may be used depending on the preference of the attending surgeon. The projecting osteophyte should be excised or drilled out to give nonobstructing smooth surface. Usually, the results

are good whatever, approach is used and patient will be able to swallow from second postoperative day itself.

CONCLUSION

Cervical anterior osteophytes are a common and easily diagnosed anatomical pathology of the elderly that must be followed very closely and treated appropriately as symptoms progress to avoid catastrophic complications. Osteophytes occurring at the level of C2-C3 pose greater surgical challenges. Causes like DISH and AS have to be considered in the differential diagnosis while evaluating dysphagia. Radiological evaluation is key to clinch the diagnosis. Most patients with cervical osteophytes can be managed conservatively. Conservative management consisting of sedation, anti-inflammatory medication and reassurance is often sufficient in patients with only mild to moderate and often transient symptoms. Surgical excision is appropriate in patients with severe and progressive symptoms. Wide exposure with preservation of neurovascular structures is key to success. Physical therapy may also help as a supplement in the treatment.¹³

REFERENCES

1. Fuerderer S, Eysel-Gosepath K, Schröder U, Delank, Eysel P. Retropharyngeal obstruction in association with osteophytes of the cervical spine. *J Bone Joint Surg* 2004;86-B:837-40.
2. Giger R, Dulguero P, Payer M. Anterior cervical osteophytes causing dysphagia and dyspnoea: An Uncommon entity revisited. *Dysphagia* 21(4):259-63.
3. Francesco M, Lucio S, Luigi S, Simona B. Dysphagia and dyspnea due to an anterior cervical osteophyte. *Arch Orthopaed Trauma Surg* 122(4):245-47.
4. Sobol SM, Rigual NR. Anterolateral extrapharyngeal approach for cervical osteophyte-induced dysphagia. Literature review. *Ann Otol Rhinol Laryngol* 1984 Sep-Oct;93(5 Pt 1): 498-504.
5. De Jesus-Monge W, Cruz-Cuevas E. Dysphagia and lung aspiration secondary to anterior cervical osteophytes: A case report and review of the literature. *Ethn Dis* 2008 Spring;18(2 Suppl 2):137-40.
6. Resnick D. *Diagnosis of bone and joint disorders* (3rd ed). Philadelphia, Pennsylvania Saunders 1995.
7. Miyamoto K, Sugiyama S, Hosoe H, Iinuma N, Suzuki Y, et al. Postsurgical recurrence of osteophytes causing dysphagia in patients with diffuse idiopathic skeletal hyperostosis. *Eur Spine J* 2009;18(11):1652-58.
8. Benhabyles M, Brattstrom H, Sunden G. Dysphagia and dyspnea as complications in spondylarthritis anklyopoetica with cervical osteophytes. *Acta Orthop Scand* 1970;41:396-401.
9. Grasshof H, Motsch C, Mahlfeld K. Vertebragenic dysphagia. *Zentralbl Chir* 1999;124:1041-44.
10. Humphreys SC, Hodges SD, Eck JC, Griffin J. Dysphagia caused by anterior cervical osteophytes: A case report. *Am J Orthop* 2002;31:417-19.
11. Srinivas P, George J. Cervical osteoarthropathy: An unusual cause of dysphagia. *Age Ageing* 1999;28(3):321-22.

12. Wright RA. Upper-esophageal perforation with a flexible endoscope secondary to cervical osteophytes. *Dig Dis Sci* 1980;25(1):66-68.
13. Unlu Z, Orguc S, Eskiizmir G, Aslan A, Tasci S. The role of phonophoresis in dysphagia due to cervical osteophytes. *Int J Gen Med* 2008;1:11-13.
14. Matthew L. Carlson DJ, Darlene AE, Graner JL. Kasperbauer surgical management of dysphagia and airway obstruction in patients with prominent ventral cervical osteophytes. *Dysphagia* 2011;26:34-40.
15. Paul A, Fabiola C. Anterior cervical osteophytes causing airway compromise. *N Engl J Med* 2003;349:26.
16. Solaroglu I, Okutan O, Mustafa K, Saygili B, Beskonakli E. Dysphagia due to diffuse idiopathic skeletal hyperostosis of the cervical spine. *Turkish Neurosurg* 2008;18(4):409-11.
17. Ricardo M, Carrau L, Cintron FR, Astor F. Transcervical approaches to the prevertebral space. *Arch Otolaryngol Head Neck Surg* 1990;116(9):1070-73.

ABOUT THE AUTHORS

Prashanth Veerabhadraiah (Corresponding Author)

Assistant Professor, Department of ENT and Head and Neck Surgery Rajarajeswari Medical College and Hospital, Bengaluru, Karnataka India, e-mail: princeprashanth_2007@rediffmail.com

Vishal Rao

Assistant Professor, Department of ENT and Head and Neck Surgery Rajarajeswari Medical College and Hospital, Bengaluru, Karnataka India

Raghavendra Shankar

Assistant Professor, Department of Orthopedics, Rajarajeswari Medical College and Hospital, Bengaluru, Karnataka, India

Naveen Shivappa

Associate Professor, Department of Surgery, Rajarajeswari Medical College and Hospital, Bengaluru, Karnataka, India

Praveen Kumar

Assistant Professor, Department of ENT and Head and Neck Surgery Rajarajeswari Medical College and Hospital, Bengaluru, Karnataka India

TM Nagaraj

Professor and Head, Department of ENT and Head and Neck Surgery Rajarajeswari Medical College and Hospital, Bengaluru, Karnataka India