Dysphagia secondary to anterior cervical osteophytes

Report of two cases

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Two cases of dysphagia secondary to anterior cervical osteophytes were successfully treated at the University of Oregon Medical School by surgical excision of the osteophytes. In both cases the cervical osteophytes caused mechanical obstruction to deglutition by esophageal compression. Postoperative x-ray examination confirmed relief of obstruction. Related cases, clinical features, diagnostic steps, and possible mechanisms are discussed.

Key Words • dysphagia • spondylosis • cervical osteophytes

Cervical spondylosis is a condition which all neurosurgeons frequently encounter. When symptomatic, local neck pain and signs of nerve root or spinal cord compression are familiar findings. Dysphagia as a manifestation of cervical spondylosis is less well known.

We have recently seen two patients in whom anterior cervical osteophytes caused dysphagia solely by acting as a mechanical obstruction to deglutition because of esophageal compression. In both cases, the anterior cervical osteophytes were removed; exposure was gained through a right transverse neck incision utilizing anterior interbody fusion retractors. Postoperative roentgenological examination showed removal of the esophageal obstruction. The dysphagia was relieved by this simple operative procedure.

Case Reports

Case 1
A 73-year-old man was hospitalized because of pain in the left side of the chest of 5 days' duration. The pain was aggravated by movement, breathing, or coughing. For several months the patient had coughed up large quantities of yellowish sputum and had been intermittently febrile. He suffered increasing fatigue, weight loss, and dysphagia. He had more difficulty swallowing solids than liquids, and he had noted that he would cough while drinking liquids. There was no history of trauma.

Examination. The temperature was 100.6°. The patient's general appearance showed moderate dehydration and weight loss. The voice was hoarse. Examination of the neck revealed decreased mobility, but no abnormal masses. On direct laryngoscopy a prominent bulge was visualized in the posterior wall of the hypopharynx immediately over the esophageal orifice. X-ray films of the cervical spine showed large osteophytic formations on the anterior bodies of the fourth and fifth cervical vertebrae (Fig. 1 left). Chest films showed a left chest mass and pneumo-
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Fig. 1. Case 1. Lateral cervical spine films. Left: Preoperative film showing osteophyte formations at C4-5. Right: Postoperative film 1 year after surgery showing absence of osteophytes.

nitis. Bronchoscopy was unsuccessful because of inability to extend the neck. By thoracentesis, 60 ml of yellow cloudy fluid containing a pure culture of anaerobic Streptococci were removed from the chest. An eight-rib resection and drainage of an empyema was done. A bronchopleural fistula quickly closed, and recovery was uneventful.

Operation. After resolution of the empyema, the osteophytes were removed from the fourth and fifth cervical vertebrae. Exposure was gained through a right transverse neck incision. With anterior interbody fusion retractors, the sternomastoid muscle, jugular vein, and carotid sheath were retracted laterally, while the trachea and esophagus were retracted to the left side. The osteophytes were removed by means of ronguers and an air-driven burr.

Postoperative Course. Recovery was uncomplicated, with relief of dysphagia, hoarseness, and aspiration difficulties. At follow-up examination 1 year after surgery, an esophagram and x-ray films of the cervical spine (Fig. 1 right) and chest showed no recurrence of the osteophytes or chest problem.

Case 2

For 3 years, a 49-year-old alcoholic man was examined on numerous occasions in various areas of the country because of dysphagia. He experienced painless dysphagia for solid foods, but had no difficulty swallowing liquids. Although large cervical osteophytes had been noted previously, they were apparently not thought to be related to the dysphagia (Fig. 2 left). There was no history of neck injury.

Examination. Physical examination was entirely normal. Esophagoscopy showed a somewhat redundant mucosa at the esophageal inlet and a firm mass on the vertebral aspect of the pharynx. An esophagram revealed an indentation in the posterior hypopharynx opposite osteophytes of the third and fourth cervical vertebral bodies (Fig. 3).

Operation. The osteophytes were removed in a fashion similar to that described in Case 1.

Postoperative Course. The dysphagia disappeared. A cervical spine x-ray film 1 week after surgery showed a smooth contour along the vertebral bodies (Fig. 2 right). Prevertebral edema from surgical trauma was still present. Three months after surgery the patient was free of dysphagia. He died in an unrelated accident before a postoperative esophogram was done.

Discussion

Deglutition involves a complex coordinated reflex action which is hindered by the
osteophytes. The bolus of food is prevented from passing in the larynx by many factors. Scott-Brown, et al., summarized the mechanism of deglutition as follows:

"The larynx is suddenly and forcibly elevated into apposition with the base of the tongue. The entrance to the larynx is thus drawn upwards under the shelter of the backward projecting base of the tongue. This powerful elevation is affected mainly by the stylohyoid, stylopharyngeus, digastric, and mylohyoid muscles. The thyrohyoid muscle also contracts, pulling the thyroid cartilage upwards. The upper border of the thyroid cartilage may be drawn upwards well behind the hyoid bone. Fixation of the thyroid cartilage preventing elevation of the larynx renders deglutition impossible. Contraction of the elevator group of pharyngeal muscles, that is, stylopharyngeus and palatopharyngeus, together with the elevators of the hyoid bone and larynx, decrease the vertical length of the pharynx. This facilitates the passage of the bolus because the pharyngeal wall is, as it were, pulled up over the descending bolus, and the pharyngo-oesophageal opening is pulled upwards to meet the descending bolus."

It is likely that large anterior cervical osteophytes cause dysphagia not only by compression of the alimentary tract, but also by impeding the rostral and caudal movement of the larynx, pharynx, and esophagus during deglutition.

Dysphagia and cervical osteophytes are not uncommon, but dysphagia caused by cervical osteophytes is rare. Hilding and Tachdjian in 1960 found only 36 cases reported. In our two cases, the onset of dysphagia was indeterminable. Encroachment of the esophagus by growth of the osteophyte is a gradual process but symptoms can occur suddenly. The most frequent complaint reported was difficulty in swallowing, particularly for solid foods. Painful swallowing and foreign body sensation were also noted in some cases. No other cases of respiratory difficulty secondary to cervical osteophytes are reported except for one instance of aspiration atelectasis in a patient who had a coexisting esophageal carcinoma. The junction of the fifth and sixth cervical vertebrae was the most frequent level of involvement.

Cervical spondylosis was not the etiology...
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in 1200 cases of dysphagia studies by Le-Roux and was not mentioned in the diagnosis of 100 consecutive cases of dysphagia reported by Osborne, et al.

The mere presence of anterior cervical osteophytes does not preclude the existence of other causes of dysphagia such as myasthenia gravis, Plummer-Vinson syndrome, diverticulum, foreign body, globus hystericus, and neoplasm. The most common cause of dysphagia is a primary malignant tumor in the proximal part of the alimentary tract.

A patient with suspected dysphagia should never be managed conservatively and should have detailed investigation in a hospital with orthopedic, neurological, endoscopic, and roentgenological examination being essential. Care should be taken to avoid esophageal perforation during esophagoscopy by compression of the esophageal wall between the osteophyte and the esophagoscope. Assurance and sedation are reported to be effective treatment in mild cases.

Very little of importance has been added to the surgical management of this problem since Iglauer reported the first surgical resection of cervical osteophytes for the relief of dysphagia in 1938. Nine other cases of surgical removal of cervical osteophytes for the relief of dysphagia have been reported. All except one of the patients were successfully relieved of dysphagia following resection of the cervical osteophyte, and in this one patient esophagoscopy later proved the existence of carcinoma of the cervical esophagus.

References

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