

Esophageal Perforation due to Anterior Cervical Osteophyte: A Rare Case

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ABSTRACT

Degenerative osteophyte formation in cervical spine is common and anterior osteophytes are usually asymptomatic. Esophageal perforation due to a prominent anterior osteophyte and a hyperextension injury to neck is rare. We report a case and review its literature.

Keywords: Anterior cervical osteophyte, Degenerative spine disease, Esophageal perforation.

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INTRODUCTION

Degenerative anterior cervical osteophyte is usually asymptomatic. Scarce reports of the prominent anterior osteophyte becoming symptomatic and causing problems like dysphagia, dyspnea, dysphonia, esophageal perforation, etc., exist in the literature. Esophageal injuries due to anterior cervical osteophytes are very rare. Most of the cases follow endoscopic interventions. We add a case report of an esophageal perforation following trauma due to a preexisting asymptomatic prominent anterior cervical degenerative osteophyte, to this list.

CASE REPORT

A 55-year-old gentleman presented with no prior comorbid illness, presented to us with a history of road accident with a whiplash mechanism of injury to the neck. He had associated history of oral and nasal bleed. He subsequently noticed a difficulty in swallowing and a painful swallowing for both solids and liquids. On examination, he was conscious and had subcutaneous emphysema present in the neck and upper chest.

Computed tomography (CT) scan showed subcutaneous emphysema in neck from upper chest, till mandible and minimal air in the upper mediastinum. But there was no pneumothorax. He had a large prominent anterior osteophyte at C3-4 (Fig. 1), forming a beak-like projection beneath the esophagus. Oral gastrografin CT thorax (Fig. 2) was done showing posterior hypopharyngeal wall rupture at C3 level with contrast extravasation. The patient was managed with strict nil oral status and antibiotics. Barium swallow (Fig. 3) 7 days later showed that the rent was reduced but not fully healed. Nasogastric tube insertion was done for nutrition. Follow-up scan at the end of 2 weeks showed a healed perforation.

DISCUSSION

Degeneration is an inevitable physiology of aging involving virtually every organ, and cervical spine is no exception, rather quite common. Osteophyte formation is an important adaptive component of a degenerating spine, which is primarily generated to add support to the degenerating spine, i.e., imparted with excessive workload. However, a growing osteophyte can become pathological when they develop over the posterior aspect of the vertebral body causing compression of the cord or nerve roots. Whereas, an osteophyte also develops over the anterior aspect of the vertebral body but are usually asymptomatic. Asymptomatic anterior osteophytes are commonly seen in about 20 to 30% of general population.

A symptomatic degenerative cervical spine disease is seen affecting 75% of the population beyond 60 years of age. A large osteophyte can occasionally become symptomatic. Such large symptomatic anterior osteophytes are seen in conditions like diffuse idiopathic skeletal hyperostosis (DISH), ankylosing spondylitis, infectious spondylitis, or trauma. The prevalence of DISH varies between 3 and 30%.

Mosher¹ was among the first to describe dysphagia due to an anterior osteophyte. The most frequent level causing dysphagia is C5-6 followed by C4-5. C2-3 is the least common level affected.²

Esophageal perforation is usually iatrogenic (70%) after endoscopic procedures, anterior cervical spine surgery, etc., less commonly spontaneous (Boerhaave syndrome), rarely due to weight lifting, parturition, defecation, Heimlich maneuver, etc. Traumatic causes

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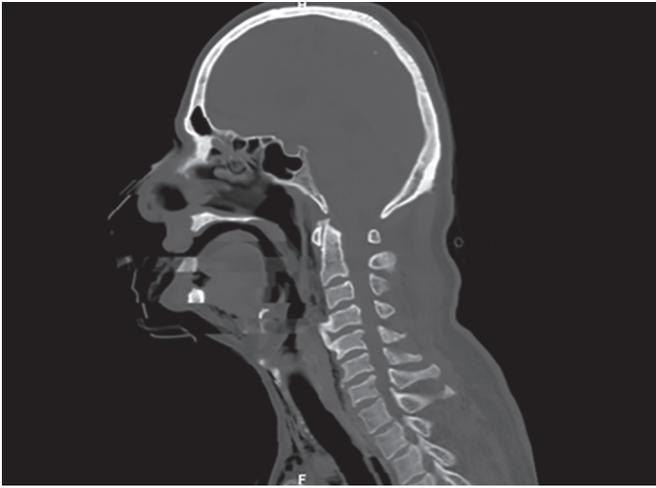


Fig. 1: Computed tomography cervical spine sagittal section showing the prominent anterior osteophyte

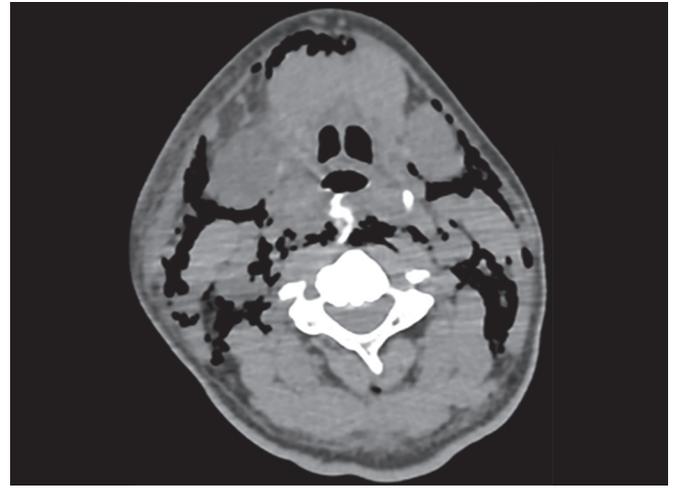


Fig. 2: Computed tomography neck axial section showing the contrast extravasation through the perforated esophagus

are usually due to penetrating sharp injuries, gun-shot injuries, or air blast trauma. Closed neck trauma as a cause is very rare.

Morrison³ was among the first to report on esophageal rupture on a patient with cervical spine injury. The patient died of mediastinitis and bronchopneumonia 2 weeks after injury. Spenler and Benfiel⁴ reported a patient, who presented with a retropharyngeal abscess due to delayed diagnosis and was treated with surgical drainage.⁵ Similar such reports include those of Stringer et al,⁵ Henderson et al,⁶ Kim,⁷ and Evans et al.⁸

The proposed mechanism for traumatic esophageal perforation includes a hyperextension mechanism of injury to the neck and entrapment, impingement or tear of the posterior esophageal wall against the sharp margins of the vertebral body, or the osteophytes.⁶

The management of esophageal perforation after closed neck injuries is controversial. Esophageal injuries are traditionally considered life-threatening, with a mortality rate ranging from 10% and reaching up to 40%. Hence, the management is fraught with intensive care management and surgical repair of the perforation.

However, all the cases reported in the literature⁵⁻⁸ are found to have an injury at the level of lower cervical spine and are almost always associated with a pneumo-mediastinum and less commonly abscess collection. And so, all the reported cases were managed with surgical repair of the perforation.

But our reported case had the perforation at upper cervical level, i.e., C3-4, with small pneumomediastinum. He was managed with nil oral status, parenteral, and nonoral feeding through nasogastric tubes and was advised to spit out his saliva whenever possible. He managed to improve with nonsurgical measures and on follow-up, never developed any infective collection or abscess in the parapharyngeal spaces. We propose that the leak would have been transient and small at the



Fig. 3: Barium swallow study after 1 week showing healed, non leaking esophagus

time of injury with subsequent edema obstructing the perforation. Early identification helped us to guide him toward providing adequate environment for healing of the perforation. Hence, a nonsurgical treatment is a feasible option in upper esophageal perforation when detected early.

CONCLUSION

Esophageal perforation after closed neck trauma in the background of prominent anterior cervical osteophyte is rare. With scarce literature, the management is controversial and a nonsurgical option can be considered if detected earlier. With the advent of CT, the diagnosis is made easier, but still a proper history taking and clinical assessment is of paramount importance to have a high index of suspicion to diagnose such condition earlier.

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