

The Eagle Syndrome

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Despite the striking radiographic appearance of an ossified and elongated stylohyoid process, the significance of this abnormality has not been appreciated except by physicians and dental surgeons who are familiar with the symptom complex first described by Eagle [1]. Symptomatic elongation of the stylohyoid process, the Eagle syndrome, should be considered in the differential diagnosis of obscure causes of head and neck pain. The increased use of panoramic radiographic units, especially by dental surgeons, has increased the awareness of abnormalities of the stylohyoid process [2]. The paucity of information in the radiologic literature prompted this report.

Case Report

A 43-year-old woman had a 15-year history of bilateral preauricular pain that radiated into her neck. The pain was more severe on the left and increased when she turned her head to the left. A previous diagnosis of migraine headaches had been made. She had undergone a tonsillectomy 15 years earlier. Physical examination revealed an exacerbation of the pain by palpation of the left tonsillar fossa. A hard bony mass could be palpated in the fossa. Similar but less severe findings were present on the right.

Radiographic examination (fig. 1) demonstrated a thick, ossified stylohyoid ligament extending down into the area of the tonsillar fossa bilaterally. The left stylohyoid process was thicker, and the process on the right showed multiple articulations. Surgical removal of each process resulted in complete relief of the patient's symptoms.

Discussion

The embryology of the stylohyoid chain has been described fully [1-4]. Four distinct segments are present in the stylohyoid apparatus: the tympanohyal, the stylohyal, the ceratohyal, and the hypohyal. The ligamentous part has its origin from the ceratohyal cartilage. It extends from the stylohyal to the (lesser) cornu of the hyoid bone. The potential for ossification of the ligament persists and with ossification, segmentation and pseudoarticulation may occur.

Neural and vascular structures and their relationship to the stylohyoid process are important in understanding the

etiology of the symptoms described in Eagle syndrome. The internal carotid artery, the internal jugular vein, and the accessory, hypoglossal, vagus, and glossopharyngeal nerves are medial and close to the stylohyoid apparatus. The external carotid artery is lateral and is also closely related (fig. 2). The normal stylohyoid process is 2.5-3 cm long, but considerable variation occurs (5-7.5 cm) [4].

Eagle [1] described a group of patients with symptoms of spastic and nagging pain in the pharynx radiating into the mastoid region. A feeling of a foreign body in the throat, dysphagia, or distortion of taste sensation was also experienced. All of his original patients had had a tonsillectomy, and there was dense scar tissue in the tonsillar fossa. A hard mass was palpated in the fossa, which on radiography proved to be an ossified stylohyoid ligament. Palpation of the mass reproduced the symptoms. Eagle believed that the scar tissue incorporated branches of the glossopharyngeal nerve.

Eagle [5] later described a second group of patients who complained of pain along the distribution of the carotid artery. Surgical exploration revealed compression of the external carotid artery by the stylohyoid process, and surgical removal of the process alleviated the symptoms. Messer and Abramson [6] also described a patient with similar clinical findings; angiography verified external impression of the carotid arteries by the ossified stylohyoid process. Surgical removal of the process resulted in a clinical cure.

The radiographic findings are those of an elongated and ossified process, of varying length and degrees of segmentation, extending at times to the area of the lesser cornu of the hyoid bone. The process may be smooth and well corticated or it may be bulky with an irregular contour. Lengths of over 2.5 cm are thought to be significant, but less than 4% of Eagle's patients were in this group [5]. Position and contour may be more important than length [7].

The Eagle syndrome, therefore, includes two distinct groups of patients: the classic syndrome in the tonsillectomized patients, and the patients with pain referred into the distribution of the carotid artery (carotidynia). Eagle's observations have been substantiated by many authors [4, 6-

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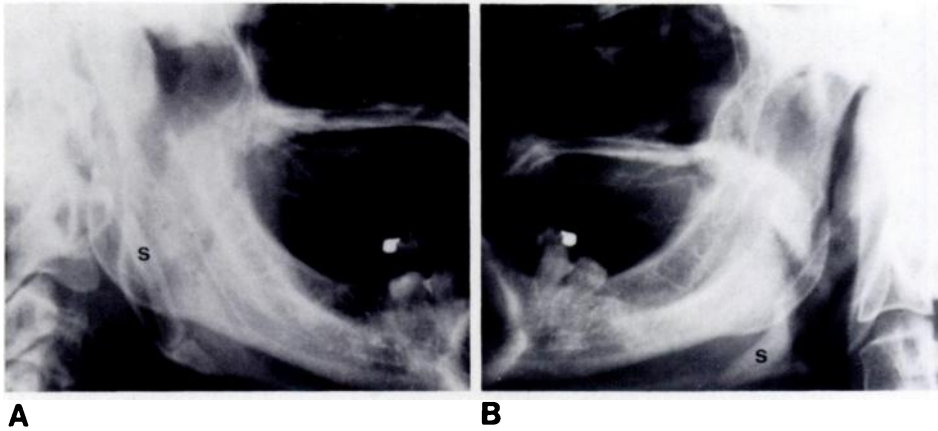


Fig. 1.—A, Right. Process is as long as left, but thinner. Pseudoarticulations and segmentation are not unusual. S = stylohyoid process. B, Left. Thick, elongated, ossified process was easily palpated in tonsillar fossa. S = stylohyoid process.

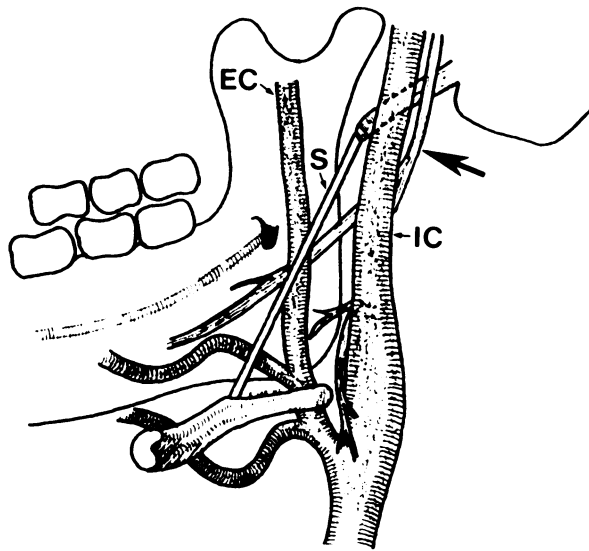


Fig. 2.—Diagram from inside mouth. IC = medially positioned internal carotid artery; EC = laterally positioned external carotid artery; Arrow = glossopharyngeal nerve; S = stylohyoid process.

9]. The problem of neck pain and its many etiologies plus the observation in many patients of an elongated ossified ligament without symptoms has caused some to question the cause-effect relationship of radiographic finding and the

symptom complex [7]. Although many of the patients with the symptom complex described by Eagle do not fit the pattern as described, we believe the syndrome is legitimate and deserves consideration in the workup of patients with neck pain of obscure origin.

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