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Elongated Styloid Process (Eagle's Syndrome): A Case Report

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Abstract: ***A case of abnormally elongated styloid process found during routine osteological examination. Right sided temporal bony specimen was examined and the length of the stylohyoid osseous complex was measured at 37mm.***

Keywords: Styloid process, Eagle's syndrome, Stylohyoid complex

1. Introduction

The styloid process is a thin, cylindrical, sharp osseous process, deriving from the posterior lower surface of the petrosal bone (just anterior to stylomastoid foramen). The process is directed downwards, to the front and slightly to the inside. The apex of the styloid process is connected with the ipsilateral lesser cornu of hyoid bone via stylohyoid ligament. The ligament represents from embryological view the continuation of the process' apex. The entire previous mentioned features constitute the stylohyoid chain. The whole chain derives embryologicaly from four cartilages: tympanohyale, stylohyale, ceratohyale, and hypohyale. The styloid process originates from the second branchial arch.[8]

The styloid process together with the stylohyoid ligament is referred as the stylohyoid complex. Many important anatomical structures are in close proximity to the styloid process and the stylohyoid ligament. It is therefore worth studying the variability of these structures and analysing the possible effects of an ossified stylohyoid complex. Just posterior to the process lies the stylomastoid foramen, through which the facial nerve exits to run anteriorly and medially to the styloid process. The internal carotid artery, the internal jugular vein and the accessory and vagus nerves lie medially. The external carotid artery runs laterally to the stylohyoid ligament. The glossopharyngeal nerve exists in close proximity under the styloid process, stylohyoid muscle and the stylopharyngeal muscle. The elongated styloid process and the ossified stylohyoid ligament can compress some of these structures, leading to mild or severe clinical syndromes, such as sore throat, dysphagia, dysphasia, dysphoria of the throat, otalgia, the sensation of a foreign body in the throat, facial pain radiating to the ear or along the mandible and head and neck pain.[7]

The length of the styloid process varies considerably according to several reports. Eagle stated that the normal length of the process was ranged 25 to 30 mm in adults. Symptoms associated with an elongated styloid process and/or ossified stylohyoid ligament were first described by Eagle and referred to as "Eagle's syndrome".2

2. Materials & Method

We came across a dry bony specimen of right sided temporal bone in the Department of Anatomy, B. J. Medical College, Ahmedabad, Gujarat during routine osteological examination.

The source of the bony specimen however could not be determined through the records; hence the exact dating and origin remained unknown. The bone is well preserved, with no noticeable deformities other than an unusually elongated styloid process. The length of the styloid process was measured using a tape measure.

3. Results

The length of the osseous complex including the styloid process and the ossified stylohyoid ligament was measured out to be 37mm.

Figure 1: Interior view

Figure 2: Anterior view

4. Discussion

The normal length of the styloid process usually varies between 25.0 and 30.0mm.2 However, Moffat et al regard the normal range of the length of the styloid process as between 15.2 mm and 47.7 mm.4 A styloid process is considered to be elongated when it is longer than 30 mm. This anomaly appears in adults with varying frequency, ranging from 2% to 30%.[9]

According to Scaf et al unilateral elongation of the styloid process is the more frequent unilateral elongation of the styloid process (90.5%).6 Ossification of the stylohyoid ligament occurs with differing frequency and may be as low as 2–4% or as high as 84.4% but does not cause any symptoms.[1]

Abnormal length and anatomy of the stylohyoid complex may cause various clinical symptoms. One of these is Eagle's syndrome which occurs when an elongated styloid process or calcified stylohyoid ligament causes recurrent throat pain or foreign body sensation, dysphagia, facial pain, neck pain with radiation to the ipsilateral ear. Inflammatory changes or impingement of the adjacent arteries or sensory nerve endings may occur.

Eagle's syndrome is not frequently suspected in clinical practice, and only in a small percentage of the population does an ossified stylohyoid ligament manifest the clinical symptoms. The syndrome exists at about 28% of the population and is most commonly seen after the age of 30; there is no significant sex predilection.[3]

5. Conclusion

The importance for early identification of asymptomatic stylohyoid ossification cannot be underestimated. Any overpressure at the surrounding area of tonsillar fossa or violent manipulations around the neck area by medical, paramedical or manual therapists and rehabilitation personnel may lead to fracture, with many clinical subsequences for the patient. It might be of clinical significance to ENT surgeons, neurosurgeons, general surgeons, radiologists and physicians.5

Conflict of Interest
There was no conflict of interest.

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