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CASE REPORT

A CASE OF ELONGATED STYLOID PROCESS OF SKULL (EAGLE'S SYNDROME)

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Abstract:

Eagle's syndrome or styloid–carotid artery syndrome is a rare condition where an elongated temporal styloid process (more than 30mm) is in conflict with the adjacent anatomical structures.Among the 105 dry specimens of skull collected in anatomy Dept. of SDM College; it was observed that a skull was having bilateral undue elongation of styloid process of temporal bone. As this kind of variation in the length of styloid process and its direction of projection medially forwards and downwards, will have its own impact over the soft structures present in the neck has been discussed in the paper in detail.

Keywords: anatomical variation, Eagle syndrome, styloid process, temporal bone.

Introduction

The styloid process is a cylindrical, long cartilaginous bone projecting from the temporal bone. The normal length is approximately 20-30mm. Elongation of styloid process or calcification of adjacent stylohyoid ligament, if results in length of styloid process more than 30mm the condition is called as Eagle's syndrome[1] or styloid–carotid artery syndrome. It is a rare condition where an elongated temporal styloid process is in conflict with the adjacent anatomical structures.As per the data in literature,it is a rare disease. 0.04-0.08% of population is suffering from it [2]. Ossification of the stylohyoid ligament was first reported in 1652 by Marchetti. In 1937, Watt W. Eagle presented the first two cases of symptomatic elongation of styloid process. Eagle's syndrome, named after him, is characterized by vague facial pain, dysphagia, otalgia, sensation, or the feeling of a foreign body in the throat and discomfort along the path of the internal and external carotid arteries. [3]

Methods

An observational study on 105 skull specimens collected in the anatomy Dept. of SDM College was done on the different features of specimens. They were also checked for variations from normal anatomy. The embryological and clinical significance due to variations are discussed.

Result

In the present study, one skull with elongated styloid process of temporal bone bilaterally was found. The length of both styloid processes were 5cm each. Both these are directed medially and downwards. The distance between the tips of both styloid processes was 4 cm. (Figure 1)

Discussion

A. Historical aspect:

In 1949, Eagle reported that the normal length of a styloid process was 25mm. From Eagle's early descriptions, patients were categorized into two groups: those who had classical symptoms of a ''foreign body'' lodged in the throat with a palpable mass in the tonsilar region following

tonsillectomy; and those with pain in the neck following the carotid artery distribution (carotid artery syndrome). Although these two types have a common etiology, their symptomatology differs (Breault, 1986) .[4]

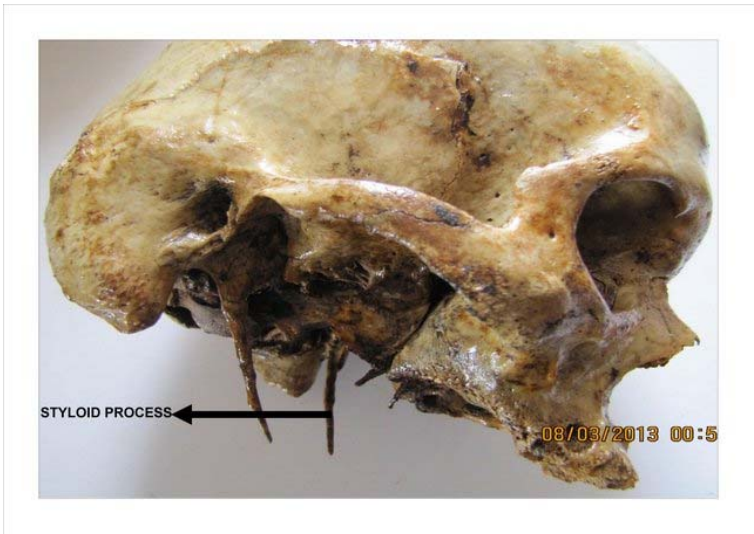

Figure No.1: Skull showing the elongated styloid process

B. Anatomy of styloid process

The styloid process is a small, tapering projection of the temporal bone located anterior to the stylomastoid foramen. Eagle documented that the average length ranges from 2.5 to 3.0 centimeters. The styloid process lies between the internal and external carotid arteries, posterior to the tonsillar fossa and lateral to the pharyngeal wall. The styloid process has attachments to three muscles and two ligaments. The stylohyoid ligament itself extends from the tip of the styloid process to the lesser cornu of the hyoid bone. The stylomandibular ligament extends from the styloid process to the angle of the mandible. The three muscles include the stylopharyngeus stylohyoid, and styloglossus. The nerve supply comes from the glossopharyngeal, facial, and hypoglossal nerves, respectively. The internal jugular vein and the accessory, hypoglossal,vagus, and glossopharyngeal nerves are located medial to the styloid process. The glossopharyngeal nerve emerges from the anterior part of the jugular foramen,medial to the styloid process, where it then curves around the posterior border at the level of the origin of the stylohyoid muscle. This anatomic relationship is important because of glossopharyngeal neuralgia reported in cases with an elongated and or fractured styloid process as the etiologic cause.[6]

C. Embryological aspect of styloid process

The styloid process is derived from Reichert's cartilage, a structure of second branchial arch origin. Degeneration of Reichert's cartilage produces four divisions, which include the tympanohyale, stylohyale, ceratohylae and the hypohyalez. Failure of degeneration and subsequent calcification of portion of Reichert's cartilage may result in an elongated styloid or

Lesser cornu of the hyoid, calcification of stylohyoid ligament or rarely a solid bar of bone from the styloid to the hyoid bone,[5]

D. Etiopathogenesis of Eagle's syndrome

The actual cause of the elongation is a poorly understood process. There are several different theories, which try to explain the etiopathology of Eagle's syndrome such as congenital elongation of the styloid process and calcification and ossification of the stylohyoid

ligament. Fini et.al. reported that past tonsillectomy is related to Eagle's syndrome.[7]

Clinical significance of ES

Two forms of eagle syndrome exist: The classic form and the vascular one. Patients with the classic "Eagle Syndrome" can present with unilateral sore throat, dysphagia, tinnitus unilateral facial and neck pain, and otalgia. In patients with the vascular form of "Eagle syndrome", the elongated styloid process is in contact with the extracranial internal carotid artery. This can cause a compression (while turning the head) or a dissection of the carotid artery causing a transient ischemic event or a stroke. Patients with this syndrome tend to be between 30 and 50 years of age but it has been recorded in teenagers and in patients > 75 years old. It is more common in women with a male : female ratio ~ 1:2. Diagnosis is made both radio graphically and by physical examination. Palpation of the styloid process in the tonsillar fossa is indicative of elongated styloid, as processes of normal length are not normally palpable. Palpation of the tip of the styloid should exacerbate existing symptoms.

Conclusion

The elongated styloid process syndrome can be diagnosed by a detailed history, physical examination, and radiological investigations. It can be confused or mistaken for many other conditions that must be excluded. Resection of the elongated styloid process is the treatment of choice. An awareness of pain syndromes related to the styloid process is important to all health practitioners involved in the diagnosis and treatmentof neck and head pain to rationalize the line of management and the ultimate clinical outcome as a ‘‘cancerophobia’’ may cause great emotional distress.[4]

Elongated styloid processes should be kept in mind when the clinician is faced with oropharengeal/maxillary pain originating from impacted or unerupted third molars or dental caries. Careful palpation of the tonsillar fossa which elicits the patient ’s pain and a panoramic radiography examination which can show a correct picture of the elongated styloid process confirm the diagnosis.[8]

Although conventional radiographs provide a rough idea of the anatomy, it is difficult to get to the actual diagnosis due to superimposed anatomical structures. In imaging the head and neck region in particular, three-dimensional computed tomography (3D-CT) has several advantages over conventional coronal and axial CT images. 3D-CT is an extremely valuable imaging tool in head and neck pathologies because of its ability to accurately image the anatomy and help tailor the surgical plan.[9]

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