



Case Report

Unusual Bilateral Elongation of Styloid Process in a Human Dry Skull: A Case Report

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ABSTRACT

Aim: Aim of the present case is to report and describe a case of elongated styloid process and eagle's syndrome.

Case report: Styloid process is a bony projection situated anterioromedial to stylomastoid foramen, projecting downwards from the inferior surface of temporal bone. Elongation of styloid process draws attention due to its close proximity to important neuro muscular and vascular structures. Usually length of styloid process averages between 20 to 25 mm. In the present case the length of styloid process was observed to be 4.5cm on right side and 3.7 cm on left side which may lead to eagles's syndrome.

Conclusion: Knowledge of eagle syndrome is important for surgeons and dentists to differentiate it from other syndromes such as costen's syndrome, trotter's syndrome and several other pharyngo-cranio-facial pain disorders.

Key words: styloid process, styloid apparatus, eagle's syndrome

INTRODUCTION

Styloid process is a bony projection situated anterioromedial to stylomastoid foramen, projecting downwards from the inferior surface of temporal bone. Stylohyoid complex consists of styloid process, stylo hyoid ligament and lesser cornu of hyoid bone. Tip of styloid process is located lateral to superior constrictor of pharynx, behind the tonsillar fossa and between internal and external carotid arteries. Lateral to the tip, external carotid artery bifurcates into superficial temporal and maxillary arteries.^[1,2]

Elongation of styloid process draws attention due to its close proximity to

important neuro muscular and vascular structures such as internal jugular vein, spinal accessory nerve, hypoglossal nerve, vagus nerve and glossopharyngeal nerve. Styloid apparatus consists of 3 muscles stylopharyngeus, stylohyoid, styloglossus and two ligaments stylohyoid and stylomandibular.

CASE REPORT

During routine osteology classes for freshman undergraduates, we found a dry skull with bilateral long styloid process. Usually length of styloid process averages between 20 to 25 mm. In the present case the length of styloid process was observed to

be 4.5cm on right side and 3.7 cm on left



Figure No. 1 Base of skull showing bilateral elongation of styloid Process.

Embryologically styloid process is derived from 2nd branchial arch cartilage (Reitcher's cartilage) with stylohyoid ligament, lesser conu & superior portion of body of hyoid. [3] Abnormal ossification of stylohyoid ligament leads to its elongation. Ossification can occur anywhere along its length with segmentation and pseudo articulation.

DISCUSSION

Usually length of styloid process averages between 20 to 25 mm. In 1937 Watt W Eagle described an elongated styloid process or calcified stylohyoid ligament of more than 2.5cm. [4] Murtagh observed that the average length of styloid process was between 20-30 mm, [5] Dilhan Ilguy reported the mean length of styloid process as 25.3 ± 11.3 mm. [6] According to Feldman, length of styloid process is more than 3cm in 3-4% of population. [7] T Jung H reported that the cutoff point to consider styloid process as elongated was 45mm, but according to kim E et al, out of 2000 cranial dissections, only 11specimens showed styloid process longer than 4cm. [8,9]

side (Fig No.1 & 2).



Figure No. 2 Lateral view of skull showing elongation right styloid process more than that of left side.

Watt W Eagle observed that the elongation of styloid process leads to certain symptoms due to its relation to the important muscular neural and vascular structures. [10] Eagle's syndrome is of two types. 1. Classic type (classical stylohyoid syndrome), 2. Carotid artery type (sylocarotid syndrome).

The classic Eagle's syndrome develops after tonsillectomy, by fibrous tissue formation in the stylohyoid complex. It is characterized by continuous pharyngeal pain in the tonsillar area with referred otalgia, accompanied by dysphagia and foreign body sensation while swallowing due to compression of IX cranial nerve and irritation of pharyngeal mucosa. [11]

The Carotid artery syndrome is independent of tonsillectomy but the pain is due to impingement of the elongated styloid process on carotid arteries and related sympathetic nerve fibers.

Kishore et al observed that only 4% to 10.3% of patients with elongated styloid process have symptoms. [12] According to Kim et al, Harma et al the severity of symptoms is not related to length of styloid process. [9,13]

Eagle proposed that, surgical trauma or local irritation can cause ossifying hyperplasia which may lead to elongation of styloid process.^[10] Later other hypotheses such as congenital elongation of styloid process, osseous metaplasia of Reiter's cartilage residues, growth of osseous tissue at the insertion of ligament, persistence of mesenchymal elements capable of producing bone tissue in adults and ossification of stylohyoid ligament related to endocrine disorders in women at menopause were formulated.^[14] Carmada et al proposed pseudo styloid syndrome, in which radiographic evidence of ossification of stylohyoid ligament is absent.^[15]

CONCLUSION

Knowledge of eagle syndrome is important for surgeons and dentists to differentiate it from other syndromes such as costen's syndrome, trotter's syndrome and several other pharyngo-cranio-facial pain disorders.

Competing interests: The authors declare that we have no competing interests

Ethical committee clearance: As the study included only a dried human skull, ethical committee clearance was not taken into consideration. Authors will take the responsibility of any further allegations regarding ethical clearance that arise from the study.

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