

**BILATERAL PARTIAL OSSIFICATION OF STYLOHYOID LIGAMENT: A CASE REPORT**Aparna Gullapalli<sup>1</sup><sup>1</sup>Associate Professor, Department of Anatomy, NRI Medical College.**ABSTRACT**

**BACKGROUND:** The present case is regarding the incidental finding of a "Bilateral partial ossification of stylohyoid ligament", which was found during UG dissection in a male cadaver. The styloid process was directed downwards, anteriorly and medially. From the tip of the styloid process, cartilage extends till greater cornu of hyoid bone to which it is connected by membranous band. Clinically, such variations are important to Anaesthetists, Radiologists and ENT surgeons for accurate diagnosis and management.

**KEYWORDS**

Styloid, Eagle Syndrome, Reichert's Cartilage.

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**INTRODUCTION:** The present case regarding the incidental finding of a "Bilateral partial ossification of stylohyoid ligament", which was found during UG dissection in a male cadaver. Styloid process is divisible into two parts.<sup>[1]</sup>

- Proximal/tympanohyal part – It is surrounded by a bony sheath derived from lower border tympanic part of temporal bone.
- Distal/stylohyal part: The styloid process is a conical projection directed downward, forward & medially.

It provides attachments to 3 muscles & 2 ligaments. It is interposed between parotid gland laterally & IJV medially. ECA crosses tip of styloid process superficially. FN at base laterally & IJV medially. According to Eagle's definition, the normal length of styloid process is 2.5 to 3 cm. Elongated styloid process or ossified stylohyoid ligament may cause various clinical symptoms such as neck & cervicofacial pain due to compression of surrounding anatomical structures. The styloid process & greater cornu of hyoid bone derived from 2<sup>nd</sup> & 3<sup>rd</sup> branchial arches.<sup>[2,3,4,5]</sup> (fig. 1)



**Fig. 1: Showing elongated Styloid Process with Stylohyoid Ligament**

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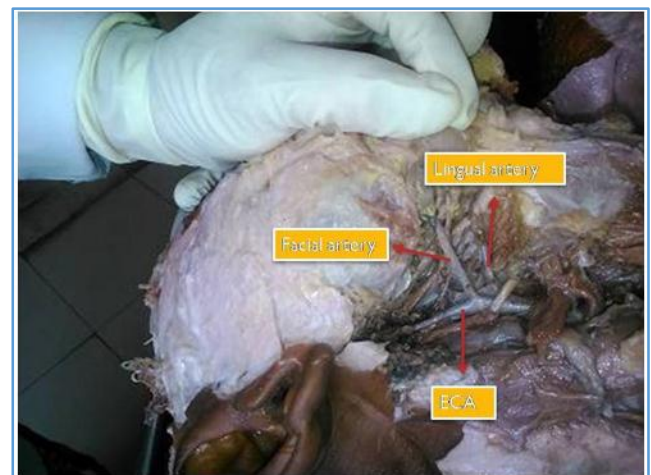
Corresponding Author:

Dr. Aparna Gullapalli,  
Associate Professor, Department of Anatomy, NRI Medical  
College, Chinakakani, Guntur-522503, Andhra Pradesh.

E-mail: maildraparna@gmail.com

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**CASE REPORT:** In the present case, during routine UG dissection, Bilateral partial ossification of stylohyoid ligament was found. The length of the styloid process from base of skull - on Right side 8.5 cm & on Left side 6.3 cm. Here, the lingual artery & Facial artery run superficially. The ECA running superficially to styloid process (Fig: 2 & 3).



**Fig. 2: Showing Structures passing Superficial and deep to Styloid Process**



**Fig. 3**

The Bilateral stylohyoid ligament extends from the apex of the styloid process to tip of the greater cornu of hyoid bone. In some cases it is partially ossified & in other cases completely ossified. In present case it is partially ossified.<sup>[6]</sup>

3 types of elongation appearance of styloid process has been observed.

- a. **Type I:** Continuous, uninterrupted styloid process.
- b. **Type II:** Pseudo-articulation of styloid process to stylohyoid ligament.
- c. **Type III:** Interrupted mineralisation of ligament giving appearance of pseudo-articulations within ligament.<sup>[7,8]</sup>

**DISCUSSION:** The styloid process & greater cornu of hyoid bone develops from second & third pharyngeal arches. Some authors demonstrated that during foetal development, Reichert's cartilage links the styloid bone to hyoid bone. In the adult, the stylohyoid ligament, which is normally composed of dense fibrous connective tissue, may retain some of its embryonic cartilage and thus have the potential to become partially or completely ossified. If these structures solidify, they can cause the pain and suffering present in Eagle syndrome.<sup>[9,10]</sup>

**Steinmann proposed various theories to ossification.<sup>[11]</sup>**

- a) **Theory of Reactive Hyperplasia:** Trauma can cause ossification at the end of the styloid process down the length of the styloid ligament, since the styloid ligament contains remnants of its connective tissue and fibrocartilaginous origins, the potential for ossification remains.
- b) **Theory of Reactive Metaplasia:** An abnormal post-traumatic healing response initiates the calcification of stylohyoid ligament.
- c) **Theory of Anatomic Variance:** The early elongation of the styloid process and ossification of the styloid ligament are anatomical variations that occur without recognisable trauma.

In present case, during dissection, Bilateral partial ossification of stylohyoid ligament was found. The styloid process runs downwards medially and reaches tip of the greater cornu of hyoid bone which is connected by membranous band.

The clinical importance of elongated styloid process is related to glossopharyngeal neuralgia with underlying aetiology of irritation by the bony process. The treatment for Eagle syndrome is surgical removal of the calcified styloid process.<sup>[12,13,14,15,16]</sup>

**CONCLUSION:** The partially ossified stylohyoid ligament causes compression of underlying structures & causes recurrent throat pain, foreign body sensation, dysphagia and facial pain. Some patients have localised pain or pain radiating to jaw & ear (Eagle syndrome).

It also causes transient ischaemic attack due to compression of ICA. Treatment for this condition is surgical removal of calcified structure.

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