



## CASE REPORT ON UNILATERAL SEGMENTAL CALCIFICATION OF STYLOHYOID LIGAMENT

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### ABSTRACT

An unusual case of a unilaterally elongated styloid process with a length of 6.8 cm was found on orthopantomogram (OPG) of male patient. The patient reported with ipsilateralotalgia presumably due to nerve compression from the elongated styloid process. The symptomatology appeared by such an anatomical variant as well as relative literature is discussed in the present case.

**KEY WORDS:** Styloid process, Otagia, Stylohyoid ligament, orthopantomogram

### INTRODUCTION

The styloid process is a slender, elongated, cylindrical bony projection from temporal bone that lies anteromedial to the mastoid process. The word styloid process is derived from the Greek word 'Stylos' which means pillar. 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 apex of the styloid process is connected with the ipsilateral lesser cornu of hyoid bone via stylohyoid ligament. It is situated between the carotid internal and external arteries, posterior to the pharynx, which cover stylohyoid, styloglossus and stylopharyngeal muscles. The styloid process has attachments to three muscles and two ligaments. The stylopharyngeus, stylohyoid and styloglossus muscles originate here. The stylohyoid ligament extends from the styloid process to the lesser cornu of the hyoid bone. The styloid process originates from the second branchial arch<sup>[1]</sup>. In the review of article we found that the length of the styloid process varies from 25 mm to 30 mm with 28.00 mm as the mean, more than 30mm leads to elongated styloid process<sup>[2]</sup>. It normally varies from 2 cm. to 3cm in length, longer than 3cms is found in 4 to 7 % of the population<sup>[3]</sup>. 'Elongated styloid process' a term

used since a publication by Eagle in reports concerning findings in dentomaxillofacial and ear- nose- throat patients<sup>[4]</sup>.

### CASE PRESENTATION

A 43 year old male patient complains of pain on the right side of face below the ear and lower jaw region since one year. Patient gives the history pain on the right side of face posteriorly below the mandibular region since one year. Pain aggravates especially while turning the head, widely opening of mouth, sometime during swallowing and also associated with radiating pain to the ear. Patient also gives a history of intermittent swelling the submandibular gland region. Pain is not associated with headache, and transient syncope. No previous history of tonsillectomy or any neck related surgery.

On extra oral examination no gross asymmetry detected. Local examination on palpation on the right side of the mandibular region posteriorly below the angle of the mandible and below the ear is tender. No associated with any swelling and discharge.

*Intra oral examination on palpation:* On right the tonsillar fossa and lateral to the pharyngeal wall side is tender on palpation. No sign of inflammation and swelling.

*Investigation:* OPG report shows interrupted 3 segments of mineralized Stylohyoid ligament seen posteriorly to the right mandibular ramus and angle of mandible running superiorly

from the styloid process to lesser cornu of hyoid bone with a length of 6.8 cm was found (Fig 1,).



**Fig 1: Calcification of Stylohyoid ligament 1- 1st segment, 2- 2nd segment, 3- 3rd segment of Stylohyoid ligament**

*Treatment:* surgical excision of the elongated styloid process or mineralized stylohyoid ligament through extra-oral approach (Fig 2&3).



**Fig 2. Excised styloid process**



**Fig 3: Post-operative OPG**

## DISCUSSION

The stylohyoid is chain process is derived embryologically from the first and second branchial arches in four different segments: tympanohyal, stylohyal, ceratohyal and hypohyal segments.

These segments are derived from Reichert’s cartilages<sup>[5]</sup>.

Elongated styloid process or calcified stylohyoid ligament can lead to cause like recurrent throat pain with foreign body sensation, dysphagia or facial pain<sup>[6]</sup>. Diagnosis of elongated styloid process is considered with evaluation of recurrent neck, throat or facial pain and dysphagia with some time evolving a radiation of pain to the ipsilateral ear. Diagnosis is based on physical examination by digital palpation of the styloid process in the tonsillar fossa which leads to pain<sup>[7]</sup>. Although 4% of the population is thought to have an elongated styloid, only 4–10% of this group is symptomatic<sup>[8]</sup>. Elongation was seen four times more in males than females and in 75% of cases the elongation was bilateral<sup>[9]</sup>. Radiographic of diagnosis of styloid process include antero-posterior and lateral skull films, orthopantomogram and CT scan and the other clinical method is injection of local anesthetic into tonsillar fossa relieves pain<sup>[10]</sup>.

Appropriate choice of therapy, depends on the symptom of the patients like pain intensity or dysphagia and it can be conservative or invasive. If the Symptomatology persists then treatment of Eagles syndrome is primarily surgical. The styloid process can be shortened through an intraoral or external approach<sup>[11]</sup>. Langlais et al proposed a radiographic classification of elongated and mineralized stylohyoid ligament complex. This classification was based on types of elongation and patterns of calcification of stylohyoidligament<sup>[12]</sup> (Table 1 & 2).

**Table 1: Patterns of calcifications**

Patterns	Radiographic appearances
Calcified outline	Thin radiopaque cortex and a central lucency that constitutes most of the process.
Partially calcified	Thicker radiopaque outline with almost complete opacification as well as small and occasionally discontinuous radiolucent core.
Nodular complex	Knobby or scalloped outline which may be partially calcified with varying degree of central radiolucency.
Completely calcified	Totally radiopaque with no evidence of a radiolucent interior.

**Table 2: Morphologic Characteristics of Styloid Process**

Typ e	Nomenclatur e	Radiographic appearances
I	Elongated	Uninterrupted integrity of styloid image (>25-28mm).
II	Pseudoarticul ated	Styloid process is joined to the mineralized stylomandibular or stylohyoid ligament by a single pseudoarticulation, usually located superior to inferior border of the mandible.
III	Segmented	Short or long continuous portions of the styloid process or uninterrupted segments of mineralized ligament

Keur et al (1986) assessed 1135 edentulous patients clinically and radio graphically to determine the relationship between the elongated styloid process and four symptoms frequently encountered in patients with Eagles syndrome<sup>[13]</sup>. Bilateral elongation of styloid process has been described by Bagojiet. AI<sup>[14]</sup>. In study of Massey, 11 cases of styloid process having length of more than 4 cm out of 2000 cases studied<sup>[15]</sup>.

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The Author(s) declare(s) that there is no conflict of interest.

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