



Unilaterally Elongated Styloid Process: an Anatomical Variation

KEYWORDS

styloid process, stylohyoid ligament, Riecherts cartilage, vernier caliper.

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ABSTRACT *The styloid process is a bony projection, situated immediately anterior to the stylomastoid foramen, averaging from 20 to 25mm in length. An unusual case of a unilaterally elongated styloid process was found in two dried adult human skulls out of 30 skulls in the department of anatomy of RVS dental college Coimbatore. The length of the styloid process was measured using vernier caliper. The anatomical variations of elongated styloid process cause certain clinical symptoms in the orofacial region because of structures related to it. Knowledge of such variation may serve as a guide for otolaryngologists and dentomaxillofacial surgeons.*

Introduction:

The styloid process is a bony projection which lies anteromedial to the mastoid process, averaging from 20 to 25mm in length. It is of cylindrical form and projects downwards from the inferior surface of the temporal bone towards the front, downwards and medially narrowing towards the tip. The tip of the styloid process situated between the internal and external carotid arteries. It is related lateral to the pharyngeal wall and lies immediately behind the tonsillar fossa. Three muscles (styloglossus, stylohyoid and stylopharyngeus) and two ligaments (stylohyoid and stylomandibular) were attached to the styloid process. The stylohyoid ligament extends from the tip of the styloid process up to the lesser horn of the hyoid bone. The styloid process, the stylohyoid ligament and related muscles were derived from the second branchial arch (1). In the present study the elongated styloid process is correlated with its clinical importance which will be useful for the surgeons.

Materials and Methods:

In a routine osteology demonstration classes for undergraduate students, RVS dental college Coimbatore. It was observed in two dried adult human skulls out of thirty skulls showed elongated styloid process. The length of the styloid processes was measured using vernier caliper.

Results:

In the first skull(A), right styloid process was 4.8 cm long and it was in two segments. The styloid process proper was 2.4 cm and remaining 2.4 cm was ossified stylohyoid ligament, the junction between the two was marked by bulge of bony mass. On the left side it was normal with 2.3 cm long (Table 1).

In the second skull(B) on the right side it was 4.2cm long and it was in only one segment. On the left side it was normal with 2.5cm long (Fig 1).

Table 1:

SKULL	LENGTH OF STYLOID PROCESS	
	IN CM	
	RIGHT	LEFT
A	4.8	2.3
B	4.2	2.5



Fig 1: Photograph of skulls showing elongated Styloid process

Discussion:

The styloid process is a slender, elongated, cylindrical bony projection from temporal bone that lies anteromedial to the mastoid process. It normally varies in length from 2cm to 3cm. The tip of the styloid process is important because it is located between external and internal carotid arteries just lateral to the tonsillar fossa, anteromedially it is related to facial nerve, medially with glossopharyngeal and vagus nerves(2). In the present study an elongated styloid process which measures 4.2-4.8 cm was observed. This result was in accordance with the study of kiran et al(3).

In 1937 eagle described elongated styloid process or eagle's syndrome in his study in ear-nose-throat patients and dentomaxillofacial cases(4). Elongated styloid process can cause orofacial pain, dysphasia, headache, ipsilateral otalgia, foreign body sensation, neck pain during rotation(5). It may also cause stroke due to the compression of carotid arteries (6).

The elongated styloid process variation observed in this study may be due to the calcification of stylohyoid ligament. Embryologically the styloid process, stylohyoid ligament and the lesser cornu of the hyoid bone were developed from the second branchial arch called as the Riechert's cartilage. Since the stylohyoid ligament is of cartilaginous origin, it has the potential to mineralize (7). In

the present study this may be the reason for the increase in the length of the styloid process.

The normal range of the length of the styloid process differs among the studies in the literature. Eagle et al (8) reported the normal length of the styloid process as 2.5 cms other author measured the length as 3cms (9). However it has been reported that it is probably symptomatic when the length exceeds 4cm (10). A unilateral elongated styloid process observed in this study may be helpful for comparison purposes in future.

Conclusion:

The elongated styloid process can be digitally palpated in the tonsillar fossa which produces pain. It can be diagnosed by radiographic and CT scans. The knowledge of elongated styloid process can help otolaryngologist in surgeries. Proper diagnosis can definitely be of immense help to rationalize the line of management and the ultimate clinical outcome.

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