

Carotid artery syndrome: a case report

Veena, KM.^{1*}, Ashwini, SS.² and Jagadishchandra, H.³

¹Department of Oral Medicine and Radiology, Yenepoya Dental College,
Yenepoya University, 575018, Mangalore, India

²Department of Anatomy, Yenepoya Medical College, Yenepoya University, 575018, Mangalore, India

³Department of Oral and Maxillofacial Surgery, Yenepoya Dental College,
Yenepoya University, 575018, Mangalore, India

*E-mail: veenaomr@rediffmail.com

Abstract

Styloid process is normally a slender; cylindrical bone that arises from the temporal bone in front of the stylo mastoid foramen which is normally varies from 2.0 to 2.5 cm in adults. Because it is cartilaginous origin, the ligaments has the potential to mineralize. Elongation of Styloid process or Ossification of the stylohyoid ligament usually extends downward from the base of the skull and commonly occurs bilaterally. When the entity is associated with discomfort without the history of neck trauma or tonsillectomy, it is called as 'carotid artery syndrome' or 'stylohyoid syndrome' and when it is associated with neck trauma, it is called as 'Eagle's syndrome'. Some authors consider the 'calcification of stylohyoid complex' the best terminology.

Keywords: Carotid artery syndrome, Eagle's syndrome, elongated styloid process.

1 Introduction

Styloid process is normally a slender; cylindrical bone that arises from the temporal bone in front of the stylo mastoid foramen which is normally varies from 2.0 to 2.5 cm in adults (EAGLE, 1948). The apex of the styloid process is clinically important, because it lies between internal and external carotid arteries. The glossopharyngeal nerve exists through jugular foramen and curves; in close proximity under the Styloid process. The accessory and vagus nerve also run medial to styloid process. The attached structure includes the stylopharyngeus, styloglossus muscle, stylohyoid ligaments that reaches the hyoid bone.

Embryologically, the styloid process, the stylohyoid ligament and the lesser cornu of the hyoid bone are developed from the second branchial arch called Reichert's cartilage. Because it is cartilaginous origin, the ligaments has the potential to mineralize. (BARRET, GRIFFITH and SCULLY, 1993; KEUR, CAMPBELL, McCARTHY et al., 1986). Elongation of Styloid process or Ossification of the stylohyoid ligament usually extends downward from the base of the skull and commonly occurs bilaterally.

The widespread terminology is found in the literature to express the elongation of styloid process and mineralization of stylo mandibular and stylohyoid ligament. When the entity is associated with discomfort without the history of neck trauma or tonsillectomy, it is called as 'carotid artery syndrome' or stylohyoid syndrome and when it is associated with neck trauma, it is called as Eagle's syndrome. Some authors consider the calcification of stylohyoid complex the best terminology (CAMARDA, DESCHAMS and FOREST, 1989; CORRELL, JENSEN, TAYLOR et al., 1979; LANGLAIS, MILES and VAN DIS, 1986).

There is high variability in prevalence studies about elongated styloid process with a slight gender prediction for females (KEUR, CAMPBELL, McCARTHY et al., 1986; O'CARROLL, 1984). But for other authors equal

frequency occurred in both male and females subjects. Some authors related the increasing length of Styloid process with age (KEUR, CAMPBELL, McCARTHY et al., 1986), (LANGLAIS, MILES and VAN DIS, 1986), (FERRARIO, SIGURTA, DADDONA et al., 1990) and (MONSOUR and YOUNG, 1986). But Corel could not find, substantiate relationship (CORRELL, JENSEN, TAYLOR et al., 1979). Omnell, Gandhi and Omnell (1998) suggest that Elongated Styloid process starts during childhood and adolescence.

2 Case report

A forty one year old man presented to the dentist with the complaint of vague pain in the throat, for about 2 years. The pain was aggravated by swallowing and neck movement, and had referred otalgia. General physical examination of the patient was within normal limit. There was no history of neck trauma, recurrent nasal infections or tonsillectomy. Oral cavity examination revealed poor dental hygiene. Digital palpation of the tonsillar fossa was painful to the patient. Based on the history and clinical examination a provisional diagnosis of temporomandibular joint dysfunction made. Patient was subjected to Radiological investigation like Orthopantomograph. It revealed, no changes in temporomandibular joint but showed bilateral elongated styloid process measuring 4 cm on the left side and 5 cm on the right side. (Figure 1) Hence the diagnosis of carotid artery syndrome was made. The patient was referred to the oral and maxillofacial surgeon for the partial excision of the elongated styloid ligament.

3 Discussion

Carotid artery syndrome or stylohyoid syndrome is caused by the elongated styloid process. It is an uncommon and under diagnosed clinical case. Often it presents with vague



Figure 1. Orthopantomograph showing bilateral elongated styloid process.

pain in the throat, facial pain, and referred otalgia, difficulty in swallowing. The first mention of elongated styloid process as clinical entity in literature was by Luke in 1870 (EAGLE, 1948).

Very little correlation exists between extent of the ossification and the intensity of the symptoms. Patient may present with vague pain on swallowing, turning the head, or opening the mouth. Other symptoms could be earache, headache, dizziness or syncope. These symptoms are caused may be because of impingement of glossopharyngeal nerve by the calcified ligament (KEUR, CAMPBELL, McCARTHY et al., 1986). Our patient had vague pain in the throat which aggravated on swallowing and neck movement. He also had head ache and referred otalgia.

In panoramic image, the linear ossification extends from the mastoid process and crosses the postero inferior aspect of the ramus towards the hyoid bone. The length of the Styloid process has been studied by Jung, Tschernitschek, Hippen et al. (2004), Basekim, Mutlu, Gungor et al. (2005), Savranlar, Uzun, Ugur et al. (2005) and Wang, Liu, Cui et al. (2006) from radiographs or three dimension computed tomography. Thot, Revel, Mohandas et al. (2000) reported that the length of the left side Styloid ranged from 0.7 to 1.6 cm and on the right side from 0.8 to 2.4 cm. The average length for the left and right Styloid were 1.52 and 1.59 cm respectively in Indian subject. Keur, Campbell, McCarthy et al., 1986 stated that, if the length of the process or the mineralised part of the ligaments which appeared in radiography was 30 mm or more, this could be considered an elongated styloid process. Thot, Revel, Mohandas et al. (2000) stressed that length in isolation is not risk factor. But that its combination with increased acuity in deviation from the norm both anteriorly and medially, makes the elongated Styloid process the sole cause of stylohyoid syndrome. The length of the styloid process in our patient was 4 cm on the left side and 5 cm on the right side which was definitely longer than the normal range.

Treatment for this condition depends on the severity of the symptoms. For mild cases, just reassurance of the patient is sufficient. In more severe cases, excision of the elongated styloid process is done. The prognosis is good.

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