

Elongated Styloid Process: An Unusual Cause of Neck Pain and Difficulty in Swallowing

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An elongated styloid process is an unusual source of craniofacial and cervical pain. This condition is characterized by a dull, nagging pharyngeal pain and a palpatory finding in the tonsillar fossa. Eagle described it for the first time in 1937 as Eagle's Syndrome and divided it into two subtypes: the "classic syndrome" and the "stylo-carotid syndrome." The syndrome generally follows tonsillectomy or trauma. Diagnosis is confirmed by radiological findings. Palpation of the styloid process in the tonsillar fossa and infiltration with anesthetic are also used for making a diagnosis. This article presents a case report of a patient with a history of throat pain that was relieved after surgical treatment. J OROFAC PAIN 2011;25:269-271

Key words: Eagle syndrome, neck pain, styloid process

The styloid process appears as a narrow and elongated protrusion of the temporal bone. It is directed caudally, medially, and anteriorly within the maxillo-vertebro-pharyngeal space, in which are located important anatomical structures such as both carotid arteries, the internal jugular vein, and the facial, glossopharyngeal, vagus, and hypoglossal nerves¹. It is a slender, osseous projection derived from the second branchial arch, or Reichert's cartilage.²

An elongated styloid process produces a complex of symptoms described by Eagle in 1937, also known as Eagle's syndrome. It is a rare entity, which is not commonly suspected in clinical practice.^{1,3} The syndrome generally follows tonsillectomy or trauma. Diagnosis is confirmed by radiological findings, and palpation of the styloid process in the tonsillar fossa and infiltration with anesthetic are also used for making the diagnosis.^{1,3} Eagle originally quoted the normal process length at 2.5 cm.⁴ Subsequent studies have stated normal lengths from 1.52 cm to 5.0 cm.⁵

The pain associated with certain temporomandibular disorders, atypical myofascial pain, and even pain of dental origin may all mask the true underlying diagnosis of Eagle's syndrome.⁶ These patients may be seen by a surgeon, a dentist, a neurologist, and a psychiatrist, often receiving a variety of treatments that do not relieve the symptoms and that cloud the clinical picture.⁷ Eagle's syndrome is characterized by the symptoms of recurrent throat pain, pharyngeal foreign body sensation, dysphagia, referred ipsilateral otalgia, neck pain and reduced neck mobility when turning to the affected side, and painful limitation of mandibular opening and lateral excursion.⁸ This article presents a case report with emphasis on diagnosis of elongated styloid process and its treatment.

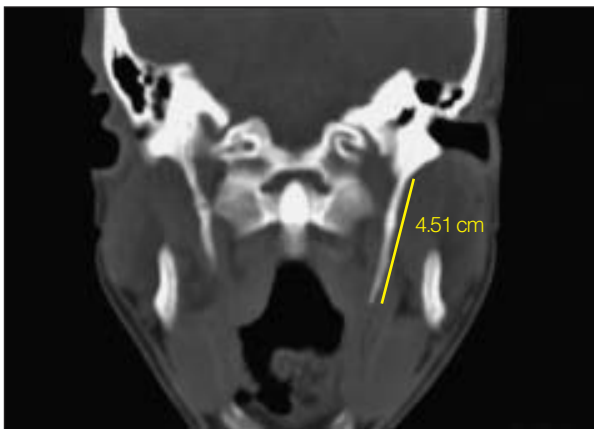


Fig 1 Preoperative CT scan showing 4.51 cm length of left styloid process.



Fig 2 Intraoperative intraoral photograph.

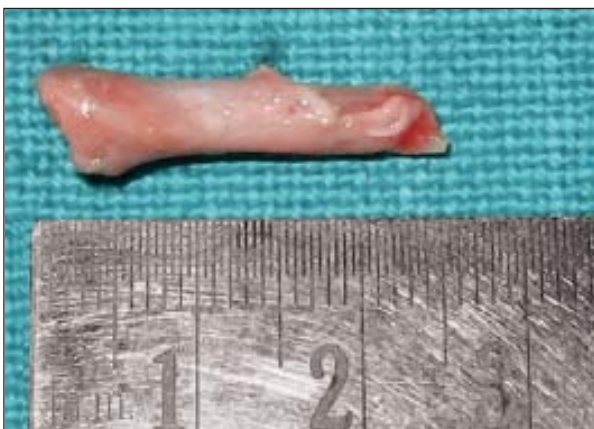


Fig 3 Photograph showing 25 mm length of resected left styloid process.

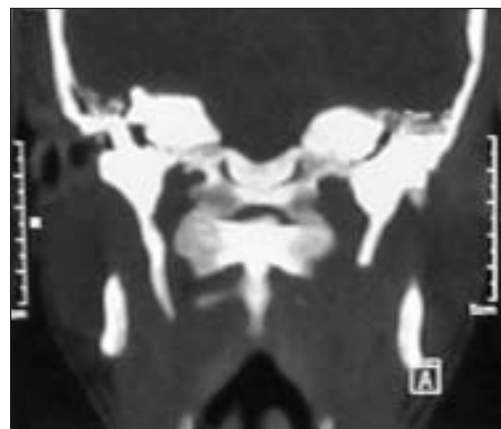


Fig 4 Postoperative CT scan showing resected styloid process on the left side.

Case Report

A 42-year-old man came to the clinic with a complaint of left-sided throat pain and difficulty in swallowing for over 15 years. The pain was intermittent, radiating down to the left shoulder, and it intensified over time. The patient also had radiating pain in the left ear that caused severe headache that intensified on rotation of the head toward the left side. The patient had a feeling of the presence of a foreign body in the throat. Past history revealed he had a surgical extraction of the left lower third molar about 16 years prior. There was no history of any trauma to the neck. Subsequently, he was under the care of various medical and dental specialists. He received temporomandibular joint treatments, steroid and epidural injections, holistic medicine therapies, and radio-frequency treatments to the neck. On extraoral examination, clinical signs of dysphagia, neck pain and reduction in neck mobility when turning to the

left, and painful limitation of mandibular movements were evident. The elongated styloid process was palpable intraorally at the left tonsillar fossa. Palpation of the tonsillar fossa elicited a painful burning sensation down his left neck. Orthopantomogram (OPG) x-ray showed elongated left styloid process. A computed tomography (CT) scan confirmed the findings, and the length of the left styloid process was measured to be 4.51 cm (Fig 1).

Once the diagnosis was confirmed, it was decided to undertake surgical treatment. The patient's consent was obtained. The surgery was performed through an intraoral approach. The styloid process was exposed (Fig 2) and the length of about 25 mm was resected (Fig 3). After 1 week of follow-up, the patient's symptoms were completely relieved. Postoperative OPG x-ray and CT scan (Fig 4) confirmed the resection of the styloid process. After 10 months of follow-up, the patient was having no pain or difficulty in swallowing.

Discussion

The styloid process is a slender bony projection arising from the lower surface of the petrous portion of temporal bone. It projects inferiorly and anteriorly into the parapharyngeal space, and the involvement of structures in and around the parapharyngeal space has been attributed to the origin of pathologic conditions related to Eagle's syndrome.

Eagle originally stated that an elongated styloid process occurs in about 4% of the general population, while only a small percentage (between 4% to 10.3%) of these patients are symptomatic, so the true incidence is about 0.16%.⁹ There is a female predominance in Eagle's syndrome.¹ Eagle primarily described two syndromes: Classic styloid syndrome and the stylo-carotid syndrome. The case described here resembles the stylo-carotid syndrome.

Vague head and neck pain symptoms may lead to an extensive differential diagnosis.⁵ An elongated styloid process can be felt during palpation of the tonsillar fossa as a firm mass beneath the mucosa. If an elongated styloid process causes this constellation of symptoms, it will be reproduced with greater severity during palpation. Radiological examination confirms the diagnosis. CT scans are better for defining length, angulation, and anatomical relationships of the stylohyoid process.¹⁰

Several conditions that may simulate Eagle's syndrome include unerupted molars, temporomandibular joint disorders, tumors in the oropharynx and hypopharynx, neuralgias, and irritation from dental prosthesis. The glossopharyngeal and trigeminal neuralgias are characterized by sudden, lancinating pain of short duration evoked by "trigger zone" stimulation and contrast with Eagle's syndrome in which the pain is dull and persistent.¹¹ Temporomandibular joint disorders and pain from wisdom teeth can be ruled out by thorough clinical and radiological examination.

Eagle's syndrome can be treated surgically and nonsurgically.⁵ A pharmacological approach by transpharyngeal infiltration of steroids or anesthetics in the tonsillar fossa can be used.¹¹ However, surgical excision is the treatment of choice in most cases. It can be performed transorally or by an extraoral approach.¹ The transoral approach was introduced by Eagle. The surgeon locates the styloid process by digital palpation of the tonsillar fossa, followed by surgical incision and styloidectomy. The external approach was described by Loeser and Caldwell in 1942.¹² A cervical incision is made from the proximal portion of the sternocleidomastoid muscle to the hyoid bone, and then the styloid process is dissected and removed.¹

Conclusions

Correct diagnosis of Eagle's syndrome is the most important aspect in its treatment. A high level of suspicion is required based on the patient's history for a correct diagnosis of Eagle's syndrome. Once accurately diagnosed, resection of the elongated styloid process via an appropriate surgical approach can effectively treat the condition.

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