

Bilateral Elongated Styloid Process: A Case Report and Review of Literature

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Citation

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Abstract

Eagle's syndrome occurs due to elongation of the styloid process or calcification of the stylohyoid ligament, which may produce a pain sensation due to the pressure exerted on various structures in the vicinity. Radiologic imaging helps in identifying the elongated styloid process. A case of a 50-year-old female with bilateral elongated styloid process is being reported. Magnetic resonance imaging (MRI) established the diagnosis.

INTRODUCTION

The styloid process is normally a cylindrical bone which arises from the temporal bone in front of the stylomastoid foramen. The length of the styloid process varies from 25 mm to 30 mm.¹ The elongated styloid process and the ossified stylohyoid ligament can compress the structure in close vicinity, leading to symptoms like sore throat, dysphasia, otalgia, the sensation of a foreign body in the throat, facial pain radiating to the ear or along the mandible, and head and neck.²⁻⁴ A styloid process is considered to be elongated when it is longer than 30.0 mm^{5,6} This anomaly appears in adults with varying frequency, ranging from 2% to 30%.⁷ A case of bilateral elongated styloid process along with review of literature is being presented.

CASE REPORT

A 50 year old female patient presented in the dental outpatient with complaint of staining of teeth and pain in the throat for about two years. The pain was aggravated by swallowing and neck movements. She also complained of a feeling of lump in the throat, pain on cervical rotation, and occasional vertigo and syncope attacks. There was no history of neck trauma, recurrent nasal infections or tonsillectomy. An Otorhinolaryngological opinion was taken for her throat and neck complaints.

General physical examination of the patient was normal. On Otorhinolaryngological examination the ear and nose were normal. Oral cavity examination revealed poor dental hygiene. Digital palpation of the tonsillar fossa was painful to the patient.

Patient was investigated with a provisional diagnosis of cervical spondylosis. Radiologic investigations including X-ray cervical spine antero-posterior and lateral views and MRI neck were done. MRI neck on T1, T2 weighted images were obtained in sagittal, coronal and axial planes which revealed bilateral elongated styloid process measuring 3.8 cm on the right side and 4 cm in length on the left side. (Figure 1, Figure 2 and Figure 3).

Figure 1

Figure 1: MRI showing elongated styloid process on right side measuring 3.8 cm.



Figure 2

Figure 2: MRI showing elongated styloid process on left side measuring 4 cm

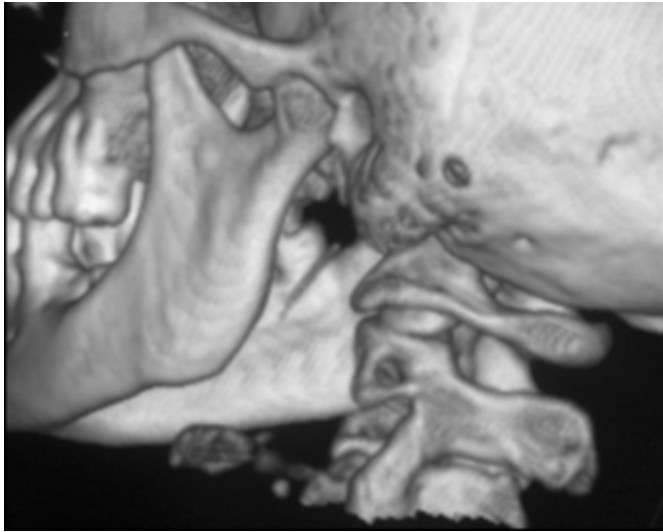
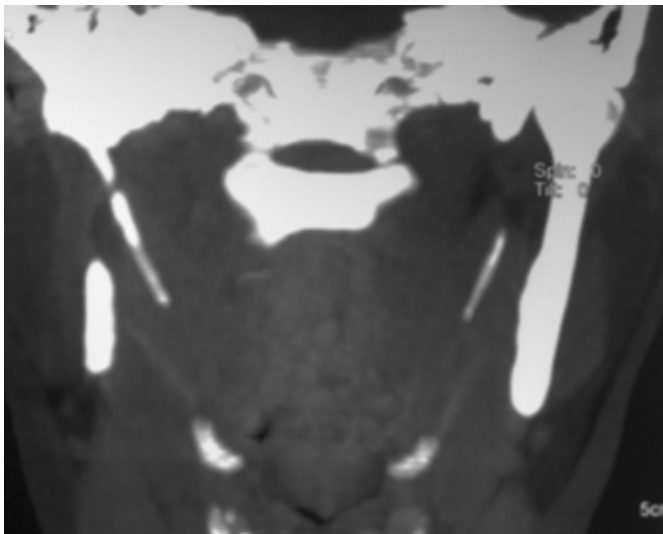


Figure 3

Figure 3: MRI Neck coronal view showing elongated bilateral styloid process



Small disc osteophytes were also seen at C4-5, C5-6 and C6-7. Patient was given analgesics and advised static neck exercises. The neck pain decreased and patient was able to regain her full neck movements. But the pain in the throat persisted. Patient was advised surgical excision of the styloid process, which she refused.

DISCUSSION

The styloid process can be elongated bilaterally or unilaterally, however unilateral elongation of the styloid process is more frequent.⁸ Ossification of the stylohyoid ligament occurs with differing frequency and may be as low

as 2–4% or as high as 84.4% but may be asymptomatic.^{9,10} In the Eagle's syndrome, the elongated styloid process or ossified stylohyoid ligament is a source of pain.^{2,3,11} The length of styloid process normally varies in length from 2 cm. to 3 cm and a styloid process longer than 3 cms is found in 4 to 7 % of the population.^{1,2}

Eagle (1937) described the syndrome and stated that the normal styloid process is approximately 2.75 cm and any styloid process beyond that may be considered elongated. Eagle divided the syndrome into two categories. He described the classic syndrome as persistent pain in the pharynx, aggravated by swallowing with the pain frequently referred to the ear on the side of the elongated styloid process. He also noticed increased salivation, hesitancy, difficulty in swallowing, gagging and a foreign body sensation.^{1,12}

In the first group symptoms are characterized by pain located in the areas of distribution of the fifth, seventh, eighth, ninth and tenth cranial nerves. It is associated in most cases with tonsillectomy which may have been performed many years earlier.¹³ Pain following tonsillectomy is presumably created by stretching or compressing the nerve or nerve endings of cranial nerves in the tonsillar fossa either during healing or due to scar formation.¹⁴ The elongated styloid process can be palpated by inserting a finger orally along the occlusal plane posterior to the region of the tonsillar fossa. Pain is reproduced by palpation of the styloid process. Confirmation is made with radiographs showing an elongated styloid process or mineralization of the stylohyoid complex.¹⁵

The second type, the carotid artery syndrome, usually is not associated with tonsillectomy. The carotid artery syndrome is caused by mechanical irritation of the sympathetic nerve tissue in the walls of the internal and/or external carotid artery by the tip of the styloid process or the ossified ligament. This irritation produces referred pain in

the respective area of vascularization.^{6, 16}

Eagle syndrome is most commonly seen after the age of 30 years. There is no significant sex predilection in occurrence of mineralization of the styloid process; however, symptoms are more common in females.¹⁷

Eagle's syndrome is not frequently suspected in clinical practice. The symptoms in Eagle's syndrome range from mild discomfort to acute neurologic and referred pain. These

may include: pain in the throat, sensation of a foreign body in the pharynx, difficulty in swallowing, otalgia, headache, pain along the distribution of the external and internal carotid arteries, dysphasia, pain on cervical rotation, facial pain, vertigo, and syncope.^{14,18}

The styloid process may develop inflammatory changes or impinge on the adjacent arteries, on sensory nerve endings leading to the symptoms. Diagnosis can usually be made on physical examination: by digital palpation of the styloid process in the tonsillar fossa which exacerbates the pain. Relief of symptoms with injection of local anesthetic into tonsillar fossa relieving the pain can be used as a diagnostic tool.¹⁹

Diagnosis can also be made by plain radiography, orthopantomogram and CT scan. Radiographs of the head and neck in posterior-anterior views, can reveal the elongated styloid process. Three-dimensional CT (3DCT) has made possible better depiction of the anatomy of the surrounding structures.^{20,21}

The differential diagnosis of eagle's syndrome include: cranial nerve neuralgias: trigeminal, glosso-pharyngeal, spheno-palantine, superior laryngeal and primary geniculate neuralgia²⁰, temporomandibular joint disease, chronic pharyngo-tonsillitis, un-erupted or impacted molar teeth and tumors in the oro-pharynx, primary tumor of tonsil, tumors of para-pharyngeal space and cervical osteoarthritis. In the present case also the initial diagnosis was cervical osteoarthritis²².

Treatment has traditionally been surgical excision of the styloid process and/or the mineralized ligaments. However, a more conservative approach has been to attempt to decrease any muscle spasm and scar tissue around the styloid process and mineralized ligaments. However, failing this attempt, surgery remains a viable alternative. Other treatments have concentrated on steroid injections into the affected tissues with varying results.^{23,24}

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