The elongated styloid process is a known cause of acute or chronic cervical and craniofacial pain.1-7 According to Fini, in 1652, Pietro Marchetti, a surgeon from Padua, Italy, reported an elongated styloid process of an ossified stylohyoid ligament.8 In 1937, Eagle was the first to report two patients with periauricular and throat pain who had abnormal styloid processes,5 thus this syndrome bears his name. Although ossification of the stylohyoid ligament and elongation of the styloid process are not uncommon, only a small percentage of patients manifest symptoms.

Eagle’s syndrome is an aggregate of symptoms (dysphagia, foreign body sensation, cervical pain, face pain, and throat pain with radiation to the ipsilateral ear), which usually are evident after injury (with flexion of the cervical spine being the most common mechanism) of the already elongated styloid process.1,3,7 Due to the variety of symptoms and their nonspecific nature, this syndrome usually is misdiagnosed in patients with cervical pain.

This article reports a patient with Eagle’s syndrome and discusses the pathophysiology, diagnosis, and treatment.

**CASE REPORT**

A 43-year-old man presented with a history of unremitting neck pain radiating to the left post-auricular area and pharyngeal foreign body sensation. The patient reported mild and occasional symptoms of 3 years’ duration and an exacerbation after an automobile accident, in which a whiplash-like neck injury was sustained. No other pertinent medical history was ascertained.

On physical examination, symptoms were aggravated with forward flexion of the neck. Cervical spine range of motion was normal. Deep palpation of the upper corner of the anterior cervical triangle and palpation of the left tonsilar fossa and retromandibular area were painful. Neurologic examination revealed no pathology.

Anteroposterior and lateral cervical spine radiographs showed a left elongated styloid process (Figure). No other pathology from the cervical spine was noted.

Styloidectomy was recommended, however, the patient refused operative intervention or a steroid injection. Thus, he was treated conservatively with a soft cervical collar for 2 weeks and nonsteroidal anti-inflammatory drugs (NSAIDs) for 3 months. At 1-year follow-up, symptoms had improved and no further treatment was required.

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**Case Report**

**DISCUSSION**

Eagle’s syndrome is characterized by an elongated styloid process >25 mm long or a calcified stylohyoid ligament that compresses the fifth or ninth cranial nerve.9 Styloid process elongation and stylohyoid ligament ossification does not necessarily correspond with evoked symptomatology. Eagle reported a long styloid process in 4% of the sample in his series, whereas Kaufman reported a 7% prevalence.8 Ossification of the stylohyoid ligament occurs in 1%-4% of the general population9 whereas clinical symptomatology occurs in only 1%-5%.7 Although initially thought to be more common in women, recent studies have shown that this syndrome occurs more commonly in patients aged >50 years.8

Although the cause of elongated styloid process has not been fully elucidated, several theories have been proposed: 1) congenital elongation of the process due to persistence of a cartilaginous anlage in the stylohyal; 2) calcification of the stylohyoid ligament giving the appearance of an elongated styloid process; and 3) growth of osseous tissue at the insertion of the stylohyoid ligament, which develops early around the stylohyoid insertion, called insertion tendinosis; 4) irritation of the pharyngeal mucosa by direct compression or post-tonsillelctomy scarring (involves cranial nerves V, VII, IX, and X); and 5) impingement on the carotid vessels, producing irritation of the sympathetic nerves in the arterial sheath.1,12-14

Originally, Eagle described two possible clinical entities of the syndrome. The classical stylohyoid syndrome15 almost always presents itself after tonsillelctomy and is characterized by dull and persistent pharyngeal pain localized at the tonsilar fossa with radiation to the ipsilateral ear, accompanied with occasional dysphagia and odynophagia, foreign body sensation, and occasional cervical pain. The pain is seldom intense.

Stylocarotid syndrome1,5,8 does not correlate with tonsillelctomy. It presents when the styloid process compresses the internal or external carotid artery and especially the perivascular sympathetic nerve fibers. Characterized by cervical pain when the internal carotid artery is compressed, it worsens by torsion movements of the head and neck and radiates to the areas vascularized by the ophthalmic artery involving the supraorbital and parietal etas.16 When the external carotid artery is compressed, the pain radiates to the infra-orbital area.8

A new classification with wider acceptance includes three syndromes that implicate the styloid process, presenting with cervical and pharyngeal pain: 1) Eagle’s syndrome that refers to patients, regardless of age, with cervical and pharyngeal pain and elongated, ossified styloid process or ossified stylohyoid ligament, especially after trauma (eg, a whiplash injury); 2) the styloid syndrome that is characterized by an elongated styloid process or ossified stylohyoid ligament, which develops early in life as an anatomical dysplasia, with apparent trauma history; and 3) as in this case, symptoms, when apparent, usually develop after age 40 years. The pseudostylohyoid syndrome is observed in older patients without trauma history in whom tendinosis develops at the junction of the stylohyoid ligament and lesser cornua of the hyoid.7

A complete medical history and careful palpation of the tonsilar fossae and retro-mandibular region is necessary for patients with craniofacial pain. Radiographs, such as true lateral skull, posteroanterior skull, oblique mandibular, and Towne’s view are essential in establishing a diagnosis.7 A panoramic radiograph is also useful.18,19

Computed tomography provides more information on the extent of ossification of the styloid process and its relation with adjacent tissues.2,19

Although Eagle’s syndrome may require operative treatment, it can be treated conservatively.1,6,7,8,20,21 Transpharyngeal infiltration with corticosteroids and local anesthetics in the tonsilar fossa has been suggested. Liquid diet, muscle relaxants, NSAIDs, and analgesics have also been used.

Styloidecomy, the surgical treatment of choice, can be performed transorally22,23 or by an extraoral1,4,13,22 approach. Eagle introduced the transoral approach. One disadvantage is the poor visibility leading to potential risks of iatrogenic injury to the main neurovascular structures. Furthermore, intraoperative contamination is possible. Postoperative edema of the tonsilar fossa may temporarily compromise speech and swallowing. The extraoral approach allows better exposure of the stylohyoid process, enables resection of a larger portion of the stylohyoid complex, and provides greater intraoperative sterility. However, it requires longer recovery and results in a visible neck scar. van der Westhuijzen et al17 suggested excising the lesser cornua of the hyoid in pseudostylohyoid syndrome, as in these cases both lesser cornua of the hyoid bone

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are markedly elongated and surgical removal can remit patient’s symptoms.

REFERENCES


