ORIGINAL RESEARCH PAPER

Otorhinolaryngology

CAUGHT IN THE BEAK - A THREE YEAR DIAGNOSTIC ODYSSEY OF EAGLE SYNDROME : A CASE REPORT

KEY WORDS: Eagle syndrome, styloid process, stylalgia, cervicofacial pain, styloidectomy, misdiagnosis

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ABSTRACT

Introduction: An unusually elongated styloid process or a hardened stylohyoid ligament can press against nearby nerves and blood vessels in the neck, triggering a persistent pattern of throat, jaw, and neck pain known as Eagle syndrome. Though the anatomical variant is seen in a notable portion of the population, only a small number of individuals ever develop symptoms, making it an easy condition to overlook. **Case Report:** We present the case of a 60-year-old woman who endured three years of worsening right-sided throat and neck pain radiating to her ear, during which time she was incorrectly treated for acid reflux with no improvement. A careful clinical examination revealed a tender, palpable bony tip in the right throat region, and a CT scan of the neck confirmed the right styloid process to be approximately 4.17 cm — well beyond the accepted normal range. Medications failed to bring her adequate relief, and she ultimately underwent surgical removal of the elongated process through a trans-tonsillar approach, after which her symptoms resolved completely. **Conclusion:** This case draws attention to how easily Eagle syndrome can be mistaken for more common conditions, and emphasizes that a thorough physical examination combined with targeted imaging can spare patients years of unnecessary suffering.

INTRODUCTION

Eagle syndrome, first described in 1937 by Watt W. Eagle, an otolaryngologist at Duke University, is a rare clinical entity characterized by an elongated or disfigured styloid process or a calcified stylohyoid ligament [1, 2]. Also referred to in the literature as stylohyoid syndrome, styloid syndrome, or styloid-carotid artery syndrome, this condition occurs when these anatomical variations interfere with neighboring structures, leading to orofacial and cervical pain often exacerbated by neck movements [2]. While it is estimated to affect approximately 4% of the population, the diagnosis remains a challenge due to the variability in "normal" anatomy [3]. Although the average length of the styloid process ranges from 15.2 to 47 mm, a length exceeding 25 to 30 mm is generally considered the threshold for Eagle syndrome [3,4].

The resulting clinical presentation involves an unusual array of symptoms dictated by the specific anatomical structures involved [4]. Patients frequently report recurrent throat pain, a foreign body sensation (globus pharyngeus), dysphagia, or facial pain, which may radiate to the ipsilateral ear [1]. Because these symptoms frequently mimic various facial neuralgias and temporomandibular disorders, a multidisciplinary approach is often required to achieve an accurate diagnosis and prevent prolonged patient discomfort [1,4].

Case History :

A 60-year-old female presented to the ENT outpatient department with complaints of right sided neck and throat pain of 3 years' duration. The pain was insidious in onset, continuous and progressive in nature. It was aggravated by neck movements and swallowing, and was associated with referred pain to the right ear.

The patient had previously consulted multiple general physicians and was empirically treated for gastroesophageal reflux disease (GERD) with prolonged medical therapy; however, she reported no symptomatic relief.

There was no history of trauma, fever, dental infection, or prior surgical interventions. She denied symptoms of foreign body sensation, heartburn, voice change, dysphagia, or weight loss. There was also no history of betel nut chewing.

The persistent pain significantly affected her quality of life and daily activities.

Examination Findings:

On local examination, marked tenderness was elicited in the right tonsillar fossa on digital palpation, and the styloid process was palpable. The oral cavity and oropharyngeal examination were otherwise unremarkable. Neck movements reproduced the pain. There was no evidence of cervical lymphadenopathy, and no tenderness was noted over the temporomandibular joint. Examination of the nose and ears did not reveal any significant abnormality.

Investigations:

Computed tomography scan of the neck revealed an elongated right styloid process measuring 4.17 cm, confirming the diagnosis. It also revealed that the left styloid process measured 3.34 cm which was asymptomatic.

Diagnosis:

Eagle syndrome (Right sided Stylalgia)

Differential Diagnosis:

- Temporomandibular joint disorder
- Gastroesophageal reflux disease
- Chronic Tonsillitis
- Dental caries

Treatment:

The patient was initially managed conservatively with tricyclic antidepressants and analgesics for 2 months. However, there was no symptomatic relief. In view of persistent, severe symptoms and radiological findings, styloidectomy was performed via trans-tonsillar approach.

Follow Up and Outcome:
Post-operatively, the patient showed complete resolution of symptoms. On follow-up, she remained asymptomatic with no recurrence of pain and had significant improvement in quality of life.

DISCUSSION:
The clinical diagnosis of Eagle syndrome (ES) remains notoriously difficult due to its symptomatic overlap with a wide array of cervicofacial pain syndromes. Although an elongated styloid process is present in roughly 4% of the general population, only a small fraction (0.16%) becomes symptomatic [5, 6]. Our patient, a 60-year-old female, presented with a three-year history of chronic, progressive right-sided neck and throat pain—a timeline that highlights the frequent diagnostic delay associated with this condition. The fact that she was empirically treated for gastroesophageal reflux disease (GERD) without relief is a common clinical pitfall; the mechanical irritation of the stylohyoid complex often mimics the referred discomfort of chronic acid reflux or globus pharyngeus [5,6].

The "classical" subtype of ES, or stylalgia, is driven by the impingement of the elongated process on the parapharyngeal space, irritating cranial nerves V, VII, IX, and X [1,6]. In this case, the patient's pain was characteristically exacerbated by neck movements and swallowing, with referred pain to the right ear. This specific radiation pattern is a hallmark of glossopharyngeal neuralgia mimics. However, unlike primary idiopathic neuralgia, which is often paroxysmal, the pain in ES is strictly anatomical. This was confirmed during the physical examination, where marked tenderness was elicited via digital palpation of the right tonsillar fossa—a maneuver that reproduced her exact symptoms.

Clinical Evaluation:
Identifying a palpable styloid tip in the ton-sillar fossa. A normal styloid process is typically non-palpable, making a positive finding a strong indicator of ES. [5]

Imaging remains the gold standard for evaluating the precise length and angulation of the stylohyoid complex [7]. In our patient, CT reconstruction imaging confirmed a 4.17 cm right styloid process. Notably, the left side measured 3.34 cm but remained asymptomatic, reinforcing the observation that the degree of ossification does not always correlate with the severity of symptoms.

Historically, ES was linked to post-tonsillectomy scarring; however, our patient had no history of trauma or surgery. This underscores the importance of a high index of clinical suspicion in any patient with refractory cervicofacial pain. A multidisciplinary approach, potentially involving ENT specialists and radiologists, is essential to navigate this anatomical enigma and provide definitive pharmacological or surgical relief [6,8].

Clinical Significance:
The clinical significance of Eagle syndrome (ES) lies in its potential for misdiagnosis and the precision required for identification. Diagnosis relies on a high index of suspicion during physical examination; while a normal styloid process is typically non-palpable, an elongated process can often be identified through careful intraoral palpation of the tonsillar fossa. The reproduction of referred pain to the ear, face, or head during this maneuver is a strong diagnostic indicator [5]. Given the diagnostic complexity, management is best achieved through a multidisciplinary approach . While pharmacological therapy can manage neuropathic symptoms, surgical excision is the definitive treatment for refractory cases. Complication rates vary by surgical approach: the intraoral (trans-tonsillar) approach used in our patient is associated with a low complication profile, including transient dysphagia and wound-site issues, whereas the external/cervical approach carries a higher risk of transient facial nerve paresis [9,10].

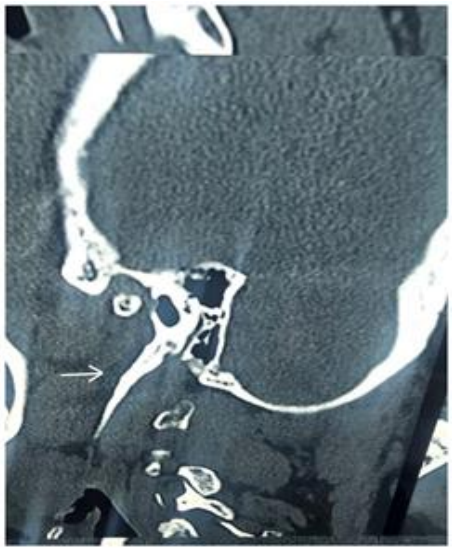

Figure 1. Ct Scan Sagittal View

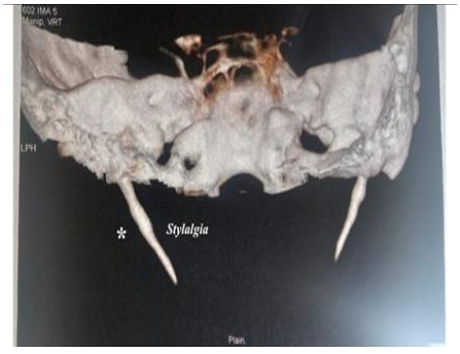

Figure 2. 3d Reconstruction Showing Right Sided Elongated Process

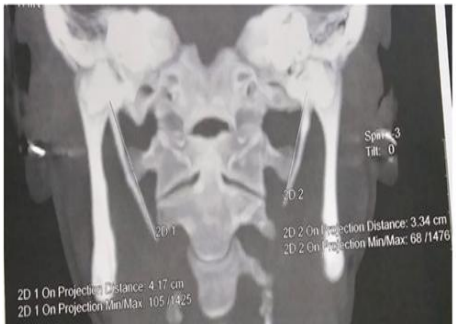

Figure 3. Coronal CT Showing Bilaterally Enlarged Styloid Process Approximately 4.17 cm on the Right and 3.34 cm on the Left

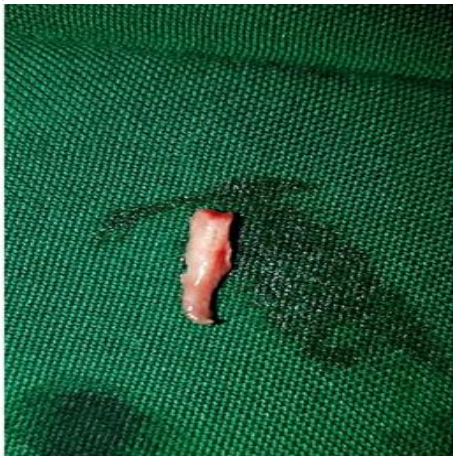

Figure 4. Post Styloidectomy Specimen

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