



## **CASE REPORT**

### **EAGLE'S SYNDROME (ELONGATED STYLOID PROCESS): A CASE REPORT**

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#### **Abstract**

Eagle's syndrome is a rare condition which is due to the elongation of styloid process or calcification of the stylohyoid ligament, characterized by craniofacial or cervical pain. The symptoms related to this condition can be confused with those attributed to a wide variety of facial neuralgias, oral, dental and temporomandibular diseases. Radiologic imaging helps in identifying the elongated styloid process. The treatment of Eagle's syndrome is primarily surgical. The styloid process can be shortened through an intraoral or external approach. In this paper a case of Eagle's syndrome exhibiting unilateral symptoms with elongation of styloid process, shortened through intra-oral approach is reported.

**KEYWORDS:** Eagle's syndrome, Ear ache, Elongated styloid process.

#### **INTRODUCTION**

Styloid process length ranges from 5 mm to 50 mm.<sup>1</sup> The normal length of the styloid process ranges from 25 mm to 30 mm.<sup>2</sup> The elongated styloid process and the ossified stylohyoid ligament can compress the structures in close vicinity, leading to symptoms like sore throat, dysphasia, ear ache, sensation of a foreign body in the throat, facial pain radiating to the ear or along the mandible, and head and neck.<sup>3</sup> A styloid process is considered to be elongated when it is longer than 30.0 mm.<sup>4</sup> This anomaly appears in adults with varying frequency, ranging from 2% to 30%.<sup>5</sup>

#### **CASE REPORT:**

A 33 year old male patient presented in Otorhinolaryngology outpatient department on 02/02/2015 with complaint of pain in the left upper neck region for about five years. The pain was aggravated by swallowing and neck movements. He also complained of foreign body sensation in the throat, throat pain and left ear ache. There was history of neck trauma 5 years ago.

General physical examination of the patient was normal. On Otorhinolaryngological examination the ear and nose were normal. Extra-oral physical examination revealed a tender, small bony hard projection in left submandibular area at anterior border of sternocleidomastoid muscle, circular in shape and approximately 4 mm in diameter. Digital palpation of the left tonsillar fossa was tender and a bony hard projection was palpable.

Radiologic investigations - plain x-ray cervical spine lateral view was done which showed elongated styloid process on left side. (Figure 1)

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Fig 1.Plain x-ray cervical spine lateral view-preoperative showing elongated styloid process left side

The patient was diagnosed as elongated styloid process on left side. Patient's surgical profile was normal. The elongated styloid process of the left side was excised surgically by intraoral approach under general anaesthesia on 04/02/2015 (Figure 2, Figure 3).Tonsillectomy was done on left side by dissection and snare method, superior constrictor muscle is separated, tendinous attachments over the styloid process released and styloid process is skeletonised and resected.

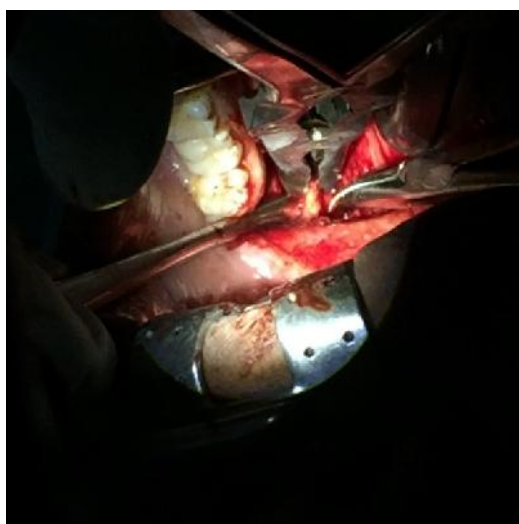


Fig 2. Surgical excision of left styloid process- Intraoperative picture



Fig 3.Excised styloid process (Left side)

Cefotaxime and diclofenac were administered preoperatively and postoperatively. The patient was discharged on the third post-operative day. The patient was asymptomatic at follow up at 1 week.

#### DISCUSSION:

The association of cervicofacial pain and other symptoms with an elongated styloid process was described by Eagle in a pair of case reports <sup>6</sup> in 1937 and this association is now known as Eagle's syndrome. Subsequent investigation by Eagle<sup>7</sup> and others revealed that pathology attributable to an elongated styloid process may be divided into 2 groups, with differing aetiologies.

The first of these, the classic Eagle's syndrome, is typically seen in patients after tonsillectomy, though it can occur in patients without history of pharyngeal surgery. The patient generally presents with ipsilateral cervicofacial pain, often centered on the angle of the mandible, which may be referred to the ear and exacerbated on rotation of the head. Frequently, a mass or bulge may be felt on palpation of the ipsilateral tonsillar fossa, and this palpation may exacerbate the patient's symptoms. Symptoms also frequently include dysphagia, the sensation of a foreign body in the throat, tinnitus, or otalgia.<sup>8</sup>

These symptoms are attributed to varying impingement of cranial nerves V, VII, IX, or X, all of which pass in close proximity to the styloid process. The appearance of this impingement following tonsillectomy or minor trauma has been hypothesized to be due to 1 or more of a number of causes, including entrapment in granulation tissue following surgery or minor trauma, direct irritation of tissues and structures surrounding the tip of the elongated styloid process, fracture of an ossified stylohyoid ligament due to sudden head movement and subsequent nonunion, and degenerative changes affecting the insertion of the stylohyoid ligament and leading to an insertion tendinosis.<sup>9</sup>

The second form of the syndrome, also described by Eagle, is attributed to impingement of the internal or external carotid artery by a laterally or medially deviated styloid process. This may be accompanied by referred pain along the distribution of the artery, caused by stimulation of the sympathetic nerve plexus associated with the artery. In the case of impingement of the internal



carotid artery, pain is referred along the course of the ICA and includes eye pain as well as parietal headache. The patient may be diagnosed with cluster headache or migraine.<sup>10</sup>

Eagle's syndrome is diagnosed by both radiographical and physical examination. Styloid process palpation in the tonsillar fossa is indicative of elongated styloid process which are not normally palpable. Palpation of the tip of the styloid process should exacerbate existing symptoms. If highly suspicious for Eagle's syndrome, confirmation can be done by radiographical imaging.<sup>11</sup>

The elongated styloid process syndrome can be treated conservatively or surgically. The most satisfactory and effective treatment is surgical shortening of the styloid process through either an intraoral or external approach.<sup>12,13</sup>

The most significant advantage of an external approach is enhanced exposure of the styloid process and the adjacent structures, and this outweighs all other considerations. It also facilitates the resection of a partially ossified stylohyoidligament. Transoral resection causes no outside scars, but involves the risk of deep cervical infection and possible neurovascular injury.<sup>12,13</sup> The reported case was successfully treated using intraoral approach.

#### REFERENCES:

1. Standing S: Skull and Mandible. In Gray's Anatomy. The Anatomical basis of clinical practice. 39th edition. Elsevier, Edinburg; 2005:470.
2. Eagle WW: The symptoms, diagnosis, and treatment of elongated styloid process. *Am Surgery* 1962; 28:1-5
3. Feldman V. Eagle's syndrome: A case of symptomatic calcification of stylohyoid ligaments. *J Can Chiropr Assoc* 2003; 47:21-27.
4. Kaufman SM, Elzay RP, Irish EF. Styloid process variation: radiologic and clinical study. *Arch Otolaryngol*. 1970; 91: 460-463.
5. Zaki HS, Greco CM, Rudy TE, Kubinski JA. Elongated styloid process in a temporo- mandibular disorder sample: prevalence and treatment outcomes. *J Prosthet Dent* 1996; 75: 399-405.
6. Eagle WW. Elongated styloid processes: report of two cases. *Arch Otolaryngol* 1937; 47:584-87
7. Eagle WW. Elongated styloid process: further observations and a new syndrome. *Arch Otolaryngol* 1948;47:630-40
8. Eagle WW. Symptomatic elongated styloid process: report of two cases of styloid process-carotid artery syndrome with operation. *Arch Otolaryngol* 1949;49:490-503
9. Bafaqeeh SA. Eagle syndrome: classic and carotid artery types. *J Otolaryngol* 2000; 29:88-94
10. Zuber M, Meder JF, Mas JL. Carotid artery dissection due to elongated styloid process. *Neurology* 1999;53:1886-87
11. Rechtweg JS, Wax MK. Eagle's syndrome: a review. *Am J Otolaryngol*. 1998;19: 316-321.
12. Chase, D.C., Zarmen, A., Bigelow, W.C., and McCoy, J.M. Eagle's syndrome: a comparison of intraoral versus extraoral surgical approaches. *Oral. Surg. Oral. Med. Oral. Pathol*. 1986; 62: 625-629
13. Ceylan, A., Köybaşıoğlu, A., Celenk, F., Yilmaz, O., and Uslu, S. Surgical treatment of elongated styloid process: experience of 61 cases. *Skull Base*. 2008; 18:289-295