

# ACCIDENTAL DIAGNOSIS OF EAGLE'S SYNDROME: A CASE REPORT

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## ABSTRACT

Eagle's syndrome is an infrequent disorder caused by an elongated and disfigured styloid process leading to craniofacial pain. Eagle syndrome may manifest a range of symptoms, none of which is pathognomonic. Here we present a case report of a 42 years old male patient presented in the Oral and Maxillofacial Surgery department of Pakistan Institute of Medical Sciences, Islamabad presenting a complaint of facial pain secondary to facial fractures in a road traffic accident. CT scan of head and neck with 3D reconstruction was carried out revealing panfacial fracture. In Accordance to Langlais classification and patient's previous symptoms, the diagnosis of Eagles Syndrome was established. Due to the lack of severe symptoms no surgical intervention was advised. Only symptomatic treatment was recommended beginning with painkillers.

**Keywords:** Eagle's syndrome, craniofacial, fracture, diagnosis.

## INTRODUCTION

Eagle's syndrome, also called stylohyoid syndrome first comprehensively illustrated by American otolaryngologist Dr. Watt Weems Eagle in 1973 but was first reported in the literature as anatomical variation by Pietro Marchetti of Padua in 1652<sup>1-3</sup>. Eagle syndrome is an infrequent disorder caused by an elongated and disfigured styloid process leading to craniofacial pain<sup>4</sup>. Around 4-7% of the population has an elongated styloid process but most of them remain asymptomatic<sup>5</sup>. Symptoms if present are usually unilateral, although elongation is commonly bilateral. Female predilection is noted by 3:1, and it usually affects individuals in the 3<sup>rd</sup> and 4<sup>th</sup> decade of life<sup>6</sup>. Eagle syndrome may manifest a range of symptoms, none of which is pathognomonic. The most common symptoms include neck throat pain, and worsening neck pain with head-turning has also been noticed. Other findings include Headache, otalgia, dysphagia, and carotidynia<sup>6</sup>.

A thorough history, clinical and radiographic assessment can be used for diagnosis. However, the gold standard is a CT scan<sup>7</sup>. Both invasive and non-invasive treatments are available, but surgery remains the treatment of choice<sup>8</sup>.

## CASE DISCUSSION

A 42 years old male patient presented in the Oral and Maxillofacial Surgery department of Pakistan Institute of Medical Sciences, Islamabad presenting a complaint of facial pain secondary to facial fractures in a road traffic accident. In medical history, the patient revealed a complaint

of throat discomfort and neck and shoulder pain in his routine life.

There was no history of previous trauma or surgery. Examination revealed no pain while moving head or opening mouth. The Styloid process could not be palpable clinically neither extraorally nor intraorally. CT scan of head and neck with 3D reconstruction was carried out revealing panfacial fracture. Moreover, the scan clearly showed marked elongation of the styloid process. The right process measured 4.43 cm in length (**Figure 8**) and 4.9 mm in anterior-posterior dimension and 7.1 mm in mesiodistal dimensions (**Figure 9**) and the left process was 4.73 cm in length (**Figure 83**), 6.8 mm, and 7.2 mm in anterior-posterior and mesiodistal dimensions respectively (**Figure 94**). In Accordance to Langlais classification and patient's previous symptoms, the diagnosis of Eagles Syndrome was established with reference to **Table 15**<sup>5</sup>.

The patient was explained treatment options. Due to the lack of severe symptoms no surgical intervention was advised. Only symptomatic treatment was recommended beginning with painkillers. Antiepileptic and steroid medications were advised to be added in cases of persistent symptoms. The patient is being monitored for the effectiveness of analgesics.



Figure 8: Length of right and left styloid process



Figure 10: 3D model showing right elongated styloid process

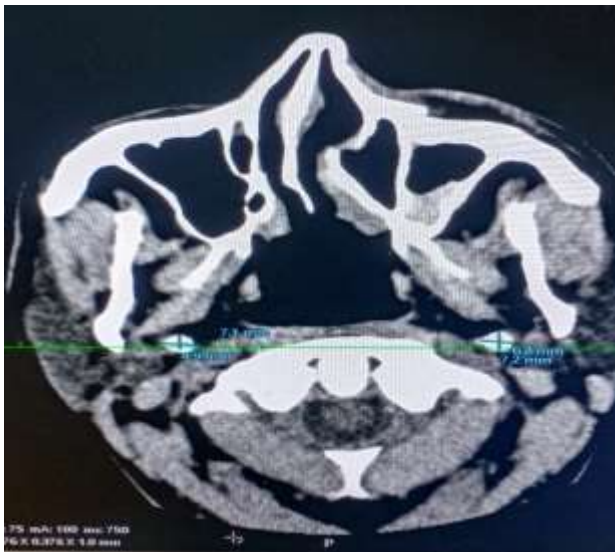


Figure 9: Mesiodistal dimension of right and left styloid process



Figure 11: 3D model showing left elongated styloid process

## DISCUSSION

Anterior to stylo mastoid foramen on either side of the skull base presents styloid processes, as two tapered and elongated temporal bone projections, giving attachment to three muscles (naming stylohyoid, stylopharyngeus, and styloglossus) and two ligaments (naming stylohyoid and stylomandibular)<sup>9</sup>. The average length of the Styloid Process is <3cm (Kaufman), or 1.52-4.77 cm (Moffat) or <2.5cm(Langlais) or <4cm(Monsour) given in **Table 15**<sup>5</sup>.

The mechanism of eagle's syndrome has been the subject of numerous speculations, including endocrine disorder in menopausal women, trauma resulting in hyperplasia or metaplasia, and unrestrained ossification during development, but the exact mechanism is still unknown<sup>2</sup>.

Dr. Watt eagle divided this entity into two syndromes; **Classic stylohyoid syndrome** as constant pharyngeal pain, intensified by swallowing, etiology of which was attributed to the scar tissue around the styloid process secondary to tonsillectomy. This type presents classical symptoms of sore throat, foreign body sensation, and dysphagia. **Stylo-carotid artery syndrome** is depicted as lightheadedness, transient ischemic attacks resulting from impingement of carotid arteries irrespective of prior tonsillectomy<sup>2,8,10</sup>.

Langlais classification uses a radiographic assessment of the styloid process as a basis for categorization into three groups. Type 1 (elongated): extension of styloid process > 3cm. Type 2 (pseudoarticulated): extension of styloid

process > 3cm and division into two parts joined with pseudo articulation. Type 3 (segmented): multi-sectioned styloid process, having two or more divisions. Furthermore, the location of the styloid process tip with mandibular foramen is also used as a method of categorization in O'Carroll's classification. Type A – A tip of the styloid process is above the mandibular foramen. Type B - A tip of the styloid process is in between the mandibular foramen and mandibular angle. Type C – A tip of the styloid process is below the mandibular angle border<sup>2</sup>.

History, Clinical examination, and imaging are used for diagnosis. The history involved questioning about prior trauma or surgery and pain on turning the neck. Physical examination includes palpation of styloid process in tonsillar fossa which is not possible for normal styloid process. A simple lidocaine test can also be used, 1 cc of 2 percent lidocaine is administered by palpating the styloid process in the tonsillar fossa. If the patient's complaint diminishes the test is said to be positive for Eagles Syndrome<sup>1,6</sup>. Panoramic, lateral head and neck, and Towne's radiographs are useful radiographic views. However, Anteroposterior views can be used to evaluate bilateral involvement and the existence of lateral deviation, lateral views are the best for showing the length of the styloid process. However, the gold standard imaging technique is CT-scan with 3D reconstruction<sup>7</sup>.

Treatment can be done with both Medical and Surgical methods. Medical management includes transpharyngeal injection of steroids and lignocaine, antiepileptics, heat treatment,

analgesics, and transpharyngeal manipulation to fracture the styloid process manually<sup>7</sup>.

Surgery is the most successful treatment option, shortening the process can be done in both intraoral and extraoral approaches. Intraoral surgery involves a vertical incision over mucosa and underlying superior constrictor muscle, dissecting out the styloid process and breaking it down using a bone ronger. The intraoral approach has the advantage of causing no extraoral scar however it gives poor access and has a danger of deep cervical infection and neurovascular damage<sup>3,7,11</sup>. The extraoral procedure involves a cervical incision extending from Sternocleidomastoid muscle to hyoid bone, dissecting out styloid process and resecting it, it has the advantage of good access, and reduced risk of infection but produces an extraoral scar.

**Table 15: Normal Measurement of Styloid Process (extension/length)**

<b>Kaufman</b>	<3 cm
<b>Moffat</b>	1.52 – 4.77 cm
<b>Langlais</b>	<2.5 cm
<b>Monsour</b>	<4 cm

## CONCLUSION

Eagle syndrome is a rare condition. But it should be considered in the differential diagnosis of craniofacial pain. Imaging like a CT scan is most accurate for diagnosis and treatment planning.

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