



Eagle Syndrome: A Case Series and Review of Diagnostic and Therapeutic Considerations

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How to cite this paper: Ihoume, I., Mouhibi, A., Eddaouri, K., Chafii, A. and Bennani, A. (2026) Eagle Syndrome: A Case Series and Review of Diagnostic and Therapeutic Considerations. *Open Access Library Journal*, **13**: e14803. <https://doi.org/10.4236/oalib.1114803>

Received: December 23, 2025

Accepted: January 16, 2026

Published: January 19, 2026

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Abstract

Background: Eagle syndrome is a rare clinical entity related to elongation of the styloid process and/or ossification of the stylohyoid ligament complex. Because of its nonspecific symptoms, it is frequently underdiagnosed. **Objective:** To highlight Eagle syndrome as a differential diagnosis in cervico-orofacial pain and to describe its clinical and radiological characteristics through a series of four cases. **Methods:** Four patients aged between 19 and 78 years presenting with cervico-facial or otological symptoms were evaluated clinically and radiologically. Panoramic radiography and complementary imaging were used to identify elongation or ossification of the stylohyoid complex. **Results:** All patients showed radiological evidence of elongation of the styloid process or ossification of the stylohyoid ligament, with heterogeneous clinical presentations ranging from incidental findings to symptomatic cervicofacial pain and otalgia. **Conclusion:** Eagle syndrome should be considered in patients with unexplained cervical, temporomandibular joint, pharyngeal or otological pain. Careful clinical examination combined with appropriate imaging allows accurate diagnosis and guides therapeutic decision-making.

Subject Areas

Dentistry, Radiology & Medical Imaging

Keywords

Eagle Syndrome, Styloid Process, Cervicofacial Pain, Case Series, Panoramic Radiography

1. Introduction

Eagle syndrome was first described in 1937 by Watt W. Eagle as a set of symptoms associated with elongation of the styloid process or calcification of the stylohyoid ligament complex [1]. Although elongation of the styloid process may be observed radiographically in a significant proportion of the population, only a small subset of patients becomes symptomatic. It is important to distinguish between an elongated styloid process as a radiological or anatomical finding and Eagle syndrome, which refers specifically to the presence of related clinical symptoms.

The clinical presentation is highly variable and depends on the anatomical relationships between the stylohyoid complex and adjacent neurovascular structures. As a result, Eagle syndrome may mimic temporomandibular disorders, otological diseases, cervical spine pathology or neuralgias, leading to delayed or missed diagnosis [2].

The aim of this case series is to emphasize the clinical diversity of Eagle syndrome, underline the importance of imaging in its diagnosis, and review current diagnostic and therapeutic approaches through four illustrative cases.

2. Case Reports

2.1. Case 1

A 46-year-old male with no significant medical history presented with chronic bilateral laterocervical pain, more pronounced on the right side, evolving over several years. Clinical examination revealed a right sub-angulomandibular swelling. Bidigital palpation of the tonsillar region elicited discomfort and revealed a firm structure on the right side. Panoramic radiography demonstrated bilateral elongation of the styloid processes, consistent with Eagle syndrome (See **Figure 1**).



Figure 1. Panoramic radiography of case 1.

The patient was managed conservatively with non-steroidal anti-inflammatory drugs and analgesics, resulting in partial symptom improvement at short-term follow-up.

2.2. Case 2

A 19-year-old female with no relevant medical history was referred for persistent right-sided otalgia lasting three months. Otolaryngological examination was unremarkable. Panoramic radiography revealed ossification of the right stylohyoid ligament, giving the appearance of an elongated styloid process. The clinical and radiological findings supported the diagnosis of Eagle syndrome.

A conservative approach was adopted, including analgesic medication, with significant reduction of otalgia during follow-up (See **Figure 2**).



Figure 2. Panoramic radiography of case 2.

2.3. Case 3

A 78-year-old female presented with right-sided laterocervical pain evolving over 18 months. The pain was described as a pharyngeal paresthesia exacerbated by swallowing and head rotation and was associated with ipsilateral otalgia. Panoramic radiography showed unilateral elongation of the right styloid process, confirming the diagnosis.

Given the patient's age and symptom severity, conservative management was preferred, leading to satisfactory symptom control during follow-up (See **Figure 3**).



Figure 3. Panoramic radiography of case 3.

2.4. Case 4

A 55-year-old male was referred for extraction of third molars. He reported no cervicofacial symptoms. Routine panoramic radiography incidentally revealed bilateral ossification of the stylohyoid ligaments. Although asymptomatic, the radiological findings were consistent with an anatomical elongation of the stylohyoid complex, without clinical features of Eagle syndrome (See **Figure 4**).



Figure 4. Panoramic radiography of case 4.

3. Discussion

3.1. Anatomical Considerations

The stylohyoid complex consists of the styloid process, the stylohyoid ligament and the lesser horn of the hyoid bone. It originates embryologically from Reichert's cartilage of the second branchial arch. The styloid process extends from the temporal bone and lies near critical neurovascular structures, including the internal and external carotid arteries, the internal jugular vein, and cranial nerves VII, IX, X and XII [3].

The normal length of the styloid process is generally considered to be between 25 and 30 mm. Although exact measurements were not available for all cases.

Elongation beyond this range or partial to complete ossification of the stylohyoid ligament may result in mechanical irritation or compression of adjacent structures [4] (See **Figure 5**).

3.2. Classification

According to Langlais *et al.*, elongation of the styloid process can be classified into three radiological types: 1) elongated type, characterized by continuous mineralization; 2) pseudo-articulated type, where the styloid process appears jointed to a partially ossified ligament; and 3) segmented type, consisting of discontinuous ossified segments (See **Figure 6**).

3.3. Clinical Presentation

Eagle syndrome classically presents in two forms. The classic stylohyoid form is

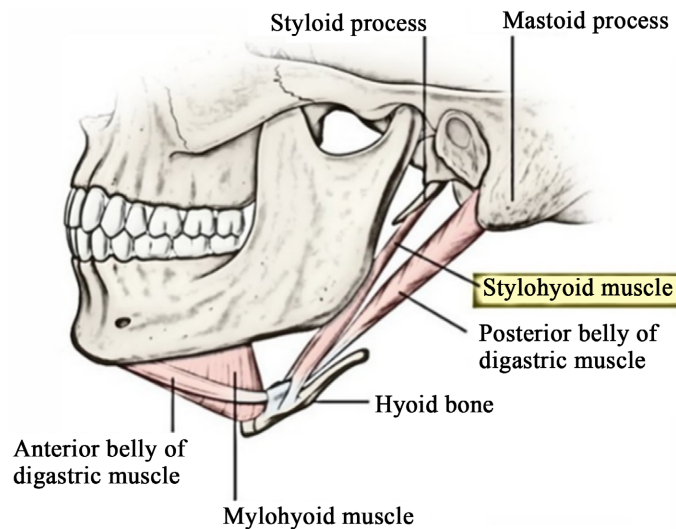


Figure 5. Anatomy of the stylohyoid complex (Bensimon *et al.* 2005; Norton and Netter 2012).

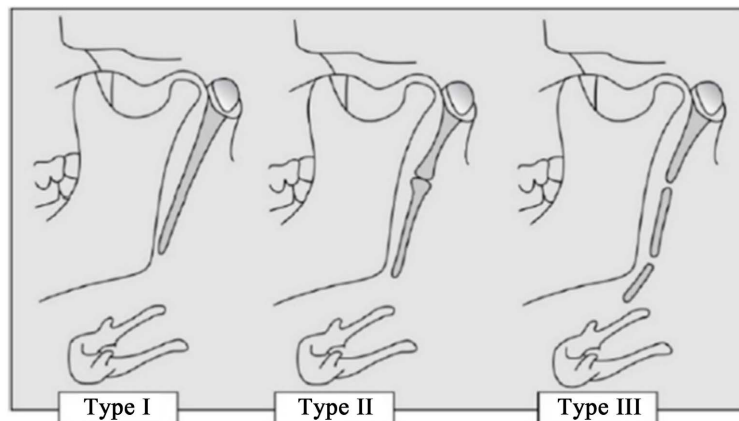


Figure 6. Classification of styloid process elongation (Ilgüy *et al.* 2005, after Langlais *et al.* 1986).

characterized by unilateral cervicofacial pain, dysphagia and a foreign-body sensation in the tonsillar fossa. The stylocarotid form is associated with cervical pain radiating to the temporal or orbital regions, related to irritation of the carotid artery and surrounding sympathetic fibers.

In our series, symptoms ranged from chronic cervicofacial pain and otalgia to incidental radiological findings, illustrating the wide clinical spectrum of the condition [4] [5]. In Case 4 represents an incidental anatomical elongation of the stylohyoid complex rather than true Eagle syndrome, as no related symptoms were present.

3.4. Diagnosis

Diagnosis relies on a combination of clinical suspicion and imaging. Palpation of the tonsillar fossa may reproduce symptoms. Panoramic radiography is a useful screening tool, while computed tomography with three-dimensional reconstruc-

tion remains the gold standard for precise measurement and evaluation of the stylohyoid complex and its relationship with adjacent structures [5].

Differential diagnoses include temporomandibular joint disorders, glossopharyngeal neuralgia, cervical spine pathology, otitis, salivary gland diseases and neoplastic conditions.

3.5. Treatment

Management may be conservative or surgical. Conservative treatment includes analgesics, non-steroidal anti-inflammatory drugs, corticosteroid or local anesthetic injections, anticonvulsants and physiotherapy. Surgical treatment consists of styloidectomy performed via intraoral or extraoral approaches [6].

Both surgical techniques have high success rates. The intraoral approach avoids external scarring but offers limited exposure, whereas the extraoral approach provides better visualization at the cost of a cervical incision and potential facial nerve risk. Treatment choice should be individualized based on symptom severity, anatomical considerations and patient preference [7] [8].

4. Conclusion

Eagle syndrome is an uncommon but important cause of cervicofacial and pharyngeal pain. Its polymorphic clinical presentation often leads to diagnostic delay. Awareness of this entity, combined with thorough clinical examination and appropriate imaging, is essential for accurate diagnosis. Case series such as ours help illustrate the clinical variability of Eagle syndrome and support a tailored diagnostic and therapeutic approach.

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] Bouguila, J., Khonsari, R.H., Pierrefeu, A. and Corre, P. (2011) Eagle Syndrome: A Rare and Atypical Pain! *Revue de Stomatologie et de Chirurgie Maxillo-faciale*, **112**, 348-352. <https://doi.org/10.1016/j.stomax.2011.08.007>
- [2] Prasad, K.C., Kamath, M.P., Reddy, K.J.M., Raju, K. and Agarwal, S. (2002) Elongated Styloid Process (Eagle's Syndrome): A Clinical Study. *Journal of Oral and Maxillofacial Surgery*, **60**, 171-175. <https://doi.org/10.1053/joms.2002.29814>
- [3] Badhey, A., Jategaonkar, A., Anglin Kovacs, A.J., Kadakia, S., De Deyn, P.P., Ducic, Y., *et al.* (2017) Eagle Syndrome: A Comprehensive Review. *Clinical Neurology and Neurosurgery*, **159**, 34-38. <https://doi.org/10.1016/j.clineuro.2017.04.021>
- [4] Rechtweg, J.S. and Wax, M.K. (1998) Eagle's Syndrome: A Review. *American Journal of Otolaryngology*, **19**, 316-321. [https://doi.org/10.1016/s0196-0709\(98\)90005-9](https://doi.org/10.1016/s0196-0709(98)90005-9)
- [5] Bizet, A., Margottin, C., Lagarde, A., Malard, O., Corre, P. and Lesclous, P. (2016) Oral Approach for Surgical Treatment in a Patient Affected by Eagle Syndrome: Case Report and Review of the Literature. *Médecine Buccale Chirurgie Buccale*, **22**, 63-75. <https://doi.org/10.1051/mbcb/2016003>

- [6] Aravindan, V., Marimuthu, M., Krishna, V.K., Sneha, A. and Menon, V. (2023) Extraoral versus Intraoral Approach for Removal of Styloid Process in Treatment of Eagle's Syndrome: A Report of Two Cases. *Cureus*, **15**, 1-8. <https://doi.org/10.7759/cureus.38720>
- [7] Dulguerov, P., Kohler, R. and Becker, M. (2011) Carotidynia and Eagle Syndrome: Two Syndromes Classics to Rediscover. *Revue Médicale Suisse*, **7**, 1929-1934. <https://doi.org/10.53738/revmed.2011.7.311.1929>
- [8] Kapoor, S., Gupta, A., Satya, S., Saidha, P.K., Saini, U. and Singh, A. (2024) Role of the Surgical Approach in the Treatment of Eagle Syndrome. *International Archives of Otorhinolaryngology*, **28**, e400-e406. <https://doi.org/10.1055/s-0043-1776717>