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# Eagle Syndrome: The Huge Socioprofessional Impact of a Minor Lengthening of the Styloid Process

**Amen Moussa*[1], Marwa Bouhoula[1], Samia Ayachi[2], Maher Maoua[1], Houda Kalboussi[1], Nejib Mrizak[1]**

*1. Department of Occupational Medicine, Farhat Hached Academic Hospital, Sousse, Tunisia*
*2. Maxillofacial surgery department, Sahloul Academic Hospital, Sousse, Tunisia*

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**Running Title** Socioprofessional Impact of Eagle Syndrome: A Case Study



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## ABSTRACT

Eagle Syndrome (ES) is a rare clinical condition presenting with anterolateral neck pain and potential serious complications.

This case report details a head nurse in the emergency room (ER) with a severe throbbing headache, trismus, left-sided dysphagia, left otalgia, gum pain, and a very intense left-sided headache, associated with ipsilateral facial hypoesthesia. The patient met the International Classification of Headache Disorders (ICHD-3) criteria for headaches attributed to inflammation of the stylohyoid ligament, establishing the diagnosis of Eagle syndrome. Chronic headaches associated with ES, as observed in this case, can impact concentration, comprehension, communication, and work performance, leading to economic loss. This prompts the question: Are individuals with ES capable of working under intense physical and psychological conditions? The paper proposes a management strategy for ES patients, emphasizing the need for further research on the impact of ES on occupational fitness, as no published studies currently address this concern.

## Introduction

Eagle Syndrome (ES), also termed stylohyoid syndrome or styloid syndrome, is a rare and largely unknown clinical condition that presents with numerous symptoms, typically including pain in the anterolateral neck [1]. An otorhinolaryngologist named Watts Weems Eagle initially described a pain syndrome associated with an elongated styloid process (SP) in 1937 as “stylalgia” [2].

Eagle syndrome is an important clinical condition for otolaryngologists to recognize, given the variety of presentations, potentially serious complications, and the fact that it can lead to profound personal, social, and economic consequences [3, 4]. In this paper, we report the case of a nurse suffering from a severe throbbing headache revealing Eagle’s syndrome and discuss its potential social and professional implications.

## Observation

We report the case of Mrs. L.D., a 59-year-old head

*** Corresponding Author:**
***Amen Moussa***
***Address:*** *Department of Occupational Medicine, Farhat Hached Academic Hospital, Sousse, Tunisia*
***E-mail:*** *moussa.amen@gmail.com*

nurse working exclusively the night shift in the emergency room (ER) of a university teaching center for thirty years.

Her job consists of handling the patients who are admitted to the emergency room and partaking in first aid. She ensures that their needs are met by managing the staff and the unit under her charge. She coordinates nursing care by allocating resources where they are needed. Her work entails long hours, night shifts, a high level of stress, and a high level of responsibility.

She has no notable pathological history except for a penicillin allergy.

She presented with trismus, left-sided dysphagia, left otalgia, gum pain, and a very intense left-sided headache. The headache was described as a severe throbbing pain lasting a few hours, occurring from once every other day to multiple times a day, and was associated with ipsilateral facial hypoesthesia. It increased when she mobilized her neck or lifted heavy objects (such as handling patients) and under intensive stress conditions.

The ENT examination showed no abnormalities, and the neurological examination led to the diagnosis of left Trigeminal Neuralgia V3.

An orthopantomogram revealed an increase in the length of the SP on the left side.

A cerebral CT scan was performed, evidencing an elongated SP measuring 33 mm on the left side, and a normal SP measuring 19 mm on the right side (Figure1).

The patient met the International Classification of Headache Disorders (ICHD-3) clinical and radiological criteria for headache or facial pain attributed to inflammation of the stylohyoid ligament [5]. The diagnosis of Eagle syndrome was established.

An oral treatment with carbamazepine was initiated. The patient noted a partial improvement in the symptoms. After a few doses, the patient experienced the onset of lacunar amnesia, confusion, and dizziness, impairing her daily life with repercussions on her professional performance. She reported having concentration problems and a decline in her cognitive capacities, thus being no longer able to fulfill her professional duties as usual. Most of these symptoms were thought to be due to the carbamazepine. The pharmacological treatment had to be discontinued due to these presumed side effects. Consequently, the patient underwent surgery involving the removal of the 3 cm-long calcification of the left stylohyoid ligament, and a clear clinical improvement was noted (Figure2).

After a few months, the patient relapsed, experiencing the resurgence of symptoms on both sides. A CT of the facial bones showed an SP measuring 22 mm on the left and 44 mm on the right. She underwent surgery on the right side, which resolved the symptoms, and was put back on carbamazepine for the recurrence of trigeminal neuralgia on the left side.

Although her occupational physician suggested a job station with less psychological and physical stress, and avoidance of night shifts, taking into account her medication, the patient insisted on keeping her current job.

## Discussion

Eagle's syndrome (ES) is a rare condition characterized

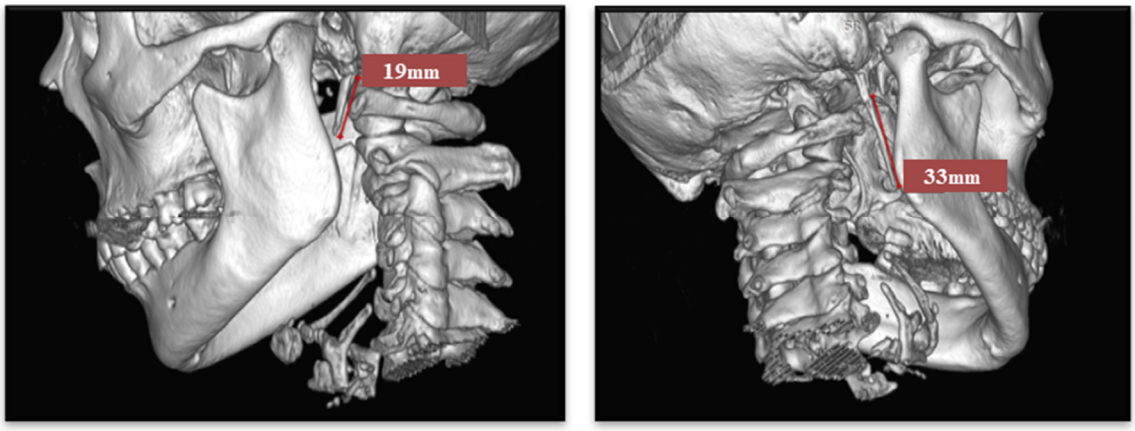


**Fig. 1.** 3D volume-rendering reconstruction of a computed tomogram shows the elongation of the stylohyoid ligament from the base of the skull on the left side

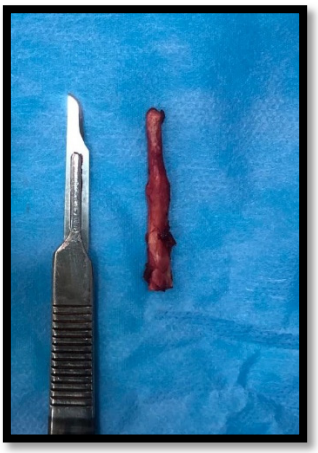

**Fig. 2.** Intraoperative view of the excised styloid process

by a cluster of symptoms related to calcification of the stylohyoid ligament complex or the elongation of the styloid process (SP) of the temporal bone [1]. Although the usual length of the SP is not constant in the literature, more than 30 mm is usually considered excessive [6].

Badhey et al. found incidences of ES varying from 4% to 7.3%, but only a small fraction (4%–10%) of these patients would suffer from its symptoms [7], meaning that the large majority of elongated SPs are asymptomatic [2]. Little is known in the literature about the actual cause of the disease. Possible factors such as congenital elongation and ossification of the tendon-like ligament are suspected. Other theories discuss bone fractures due to trauma, which is not the case for our patient who has no history of trauma or surgery [8].

ES can present with a variety of manifestations. The two most common are the "Classic Eagle Syndrome," caused by the compression of the nearby cranial nerves, and the "styloid carotid syndrome," due to the pressure on the surrounding carotid arteries.

The diagnosis of ES is based on ICHD-3 [5] diagnostic criteria. These criteria consist of any head, neck, pharyngeal, and/or facial pain with at least two of the following four signs: (1) pain provoked or exacerbated by digital palpation of the stylohyoid ligament, (2) pain provoked by head turning, (3) pain improved by injection of a local anesthetic agent into the stylohyoid ligament or by styloidectomy, and (4) pain ipsilateral to the inflamed stylohyoid ligament, in addition to radiological evidence of a calcified or elongated stylohyoid ligament.

The most reliable diagnostic method has proven to be the three-dimensional CT scan of the cervical cranial region, which can provide exact information about the actual length of the bony processes and their angulation [4].

If the conservative management of pain is not efficient, surgical removal or shortening of the overlong bone or the ossified ligament is appropriate [4, 6, 7]. The recurrence of pain after surgery has been mentioned in previously reported cases, which may be due to intraoperative injury and subsequent fibrous entrapment syndrome [8].

Previous observations found that chronic headaches, such as those resulting from ES, can cause difficulties in concentration, comprehension, and communication. These interfere with interpersonal relations and performance at work, leading to economic loss [9].

Moreover, findings suggested that chronic pain dominated every aspect of the sufferers' lives, not only physically but also psychosocially. While experiencing intense facial pain, their chief complaint is usually the psychosocial effects, such as distress, poor sleep quality, isolation, and declining quality of life [10].

Additionally, ES patients very often experience stigmatization and negative effects on social life as a result of the chronicity, duration of pain, and waiting time until diagnosis [3]. The creation of support groups for ES sufferers can help them cope with the social repercussions. One of the most important factors for an improved ability to cope with pain is to accept the pain. This could be achieved when talked about with people going through the same experience.

Among the complications of ES, an interruption in blood flow can take place, causing transient cerebral ischemia or even carotid dissection if the pressure is very strong on the carotid [11]. This can lead to a

supplementary amount of stress, anxiety, and fear of the occurrence of these eventual complications.

Last but not least, chronic pain has a large impact on work performance related to reduced performance while working with pain [12] which raises the following question: Are sufferers from ES fit to work under intense physical and psychological conditions, or should they benefit from special rearrangement to meet their health condition requirements?

We suggest a multidisciplinary care strategy for patients suffering from ES, with coordination between different professionals, including surgeons, occupational practitioners, and psychologists. It has to provide the patient with the tools to deal with chronic pain and stress and try to rearrange the professional activity to avoid situations that may aggravate the pain. For instance, it has been suggested that our patient avoids situations of stress, sudden movements of the neck, and the lifting of heavy objects.

## Conclusion

Living with chronic pain is a daily challenge. Professionals should be trained to manage these types of cases to prevent complications, alleviate pain, and improve patients' quality of life.

To the best of our knowledge, there are no published studies on the impact of ES on fitness for work. Further interest is needed in this area.

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the authors declare that they have no conflicts of interest in relation to this relation with this article.

The patient provided their consent for publication.

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### Author's contributions

AM and MB: collected data and designed the case report

AM, MB, SA, HK and NM: provided the acquisition of the data

AM, MB, AC, MM: analysed the data

AM, MB, AA and MM: drafted the manuscript

IK, MM, HK, AB, OE, SC, NM revised the manuscript critically for important intellectual content

Approval of the version of the manuscript to be published:

AM; MB; SA; MM; AA; AC; IK; AB; HK; OE; SC; NM

## Ethical Considerations

### Compliance with ethical guidelines

There were no ethical considerations to be considered in this article.

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### Conflict of Interests

The authors have no conflict of interest to declare.

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