

# Stylo-Transverse Clamp And Eagle Syndrome, A Rare Association of Vascular Compression : A Case Report

Amadou Banao Maimouna<sup>1</sup>, Merzem Aicha<sup>2</sup>, Belgadir Hasnaa<sup>3</sup>,  
Moussali Nadia<sup>4</sup>, El Benna Naima<sup>5</sup>

<sup>1</sup>Resident in 4th Year of Radiology, CHU Ibn Rochd, Casablanca, Morocco

<sup>2,3</sup>Associate Professor, CHU Ibn Rochd, Casablanca, Morocco

<sup>4,5</sup>Higher Education Professor, CHU Ibn Rochd, Casablanca, Morocco

## Abstract :

**Introduction :** Eagle's syndrome and stylo-transverse clamp are rare causes of cervical vascular compression.

**Clinical observation :** A 58-year-old patient presented with chronic bilateral neck pain for several months. CT scan showed vascular compression related to the association of Eagle's syndrome and stylo-transverse clamp.

**Discussion :** Eagle's syndrome refers to symptomatic elongation of the styloid process. It may also be secondary to calcification of the stylohyoid ligament. Its frequency in the general population is estimated at 4%, but only 4% of its ossifications are symptomatic. Stylo-transverse clamp is a still poorly understood entity, responsible for cervical vascular compression that can sometimes be complicated by venous thrombosis. Their pathogenesis is still poorly elucidated, but genetic origin with inter-individual variations is accepted.

**Conclusion :** The stylo-transverse clamp is still poorly understood and little described in the literature, and its association with Eagle's syndrome is exceptional.

**Keywords :** Eagle's Syndrome, Styloid Elongation, Stylo-Transverse Clamp, Neck Pain.

## Introduction

Eagle's syndrome, also known as styloid process syndrome or elongated styloid process syndrome, is a little-known common cause of neck pain. It is a group of clinical signs associated with abnormal elongation of the styloid process or ossification of the stylohyoid ligaments. A rare cause of compression of the internal jugular vein between the styloid process and the transverse process of C1 has recently been described. It results from a shortening of the distance between the styloid process and the transverse process of C1, which can lead to compression of the internal jugular vein and thus potentially contribute to a thrombotic phenomenon. The association between Eagle's syndrome and stylo-transverse clamp is exceptional, and we will illustrate it through the original case of a patient who presented with unexplained chronic bilateral neck pain.

### Radio-clinical observation

Patient L.B, aged 58, who had no particular pathological antecedents, presented for several months with spontaneous bilateral high cervicalgias which were exacerbated during swallowing and head movements, and which were resistant to usual analgesics. Clinical examination revealed bilateral cervicalgia exacerbated by dynamic flexion-extension of the cervical spine, abrupt head movements and palpation of the upper anterolateral neck regions. The patient was afebrile and had no mass syndrome on palpation. The cervical CT scan, which was performed after injection of iodinated contrast media in the context of suspected Eagle's syndrome, revealed bilateral elongation of the styloid processes, which were measured at 48 mm on the left (Figures 1 and 2) and 34 mm on the right (Figures 3 and 4). There was also extensive calcification of the stylohyoid ligaments (Figures 1 and 3). These abnormalities were accompanied by elongation of the two transverse processes of C1, which measured 12.8 mm on the left and 12 mm on the right, with a shortening of the distance between the latter and the styloid processes measured at 3.8 mm on the left and 5.2 mm on the right (Figures 5 and 6). The internal jugular veins were reduced in caliber as they passed between the clamp formed by the transverse processes of C1 and the styloid processes, with no evidence of venous thrombosis (Figures 5 and 6).

### Discussion

Eagle's syndrome, first described in 1937 by Eagle, is a set of symptoms associated with elongation of the styloid process or calcifications of the stylohyoid ligament, or a combination of both<sup>(1)</sup>. The finding of styloid process hypertrophy on radiology depends on the definition and varies from 1.4% to 84.4% of patients, but only 4% to 10% of these patients present with symptomatology<sup>(2)</sup>. This syndrome is more frequently described in women with an increase in incidence with age. The pathogenesis of Eagle syndrome is still poorly understood, but several hypotheses attempt to explain it. The first hypothesis suggests an embryological origin in which the formation of a long styloid process is linked to increased calcification of the stylo-hyal ossification center. The second hypothesis suggests post-traumatic ossification. Studies seem to confirm that these are more calcifications of the stylohyoid ligament than true elongations of the styloid processes. Other authors suggest styloid process elongation secondary to interindividual variations, of genetic<sup>(3)</sup> origin. The diagnosis of Eagle's syndrome is based on clinical signs and imaging, which reveals elongation of the styloid process with values greater than 2.5 cm or calcification of the stylohyoid ligaments<sup>(4)</sup>. Stylo-transverse clamp is a new syndrome recently described. Pokeerbux et al. reported in 2019 a case of thrombosis of the internal jugular vein in a 19-year-old patient, secondary to a vascular compression syndrome between the styloid process and the transverse process of the first cervical vertebra, with a distance between the styloid process and the transverse process of C1 that was measured at 3.9mm<sup>(5)</sup>. Our patient's case shows a shortening of the distance between the styloid process, elongated in Eagle's syndrome, and the transverse process of C1, which may lead to compression of the internal jugular vein, a risk factor for jugular venous thrombosis. Computed tomography (CT), with the option of three-dimensional reconstruction, remains the examination of choice for exploring the styloid process, calcified stylohyoid ligaments and evaluating the stylo-transverse clamp. It can also be used to assess their relationship with surrounding vascular structures.

### Conclusion

Stylo-transverse clamp is still poorly understood and poorly described in the literature, and its association with Eagle's syndrome is rare. Imaging, and in particular CT scans, can be used to assess elongation of the

styloid process and transverse processes of the first cervical vertebra. It is also essential for assessing the stylo-transverse distance (between the styloid process and the transverse process of C1).

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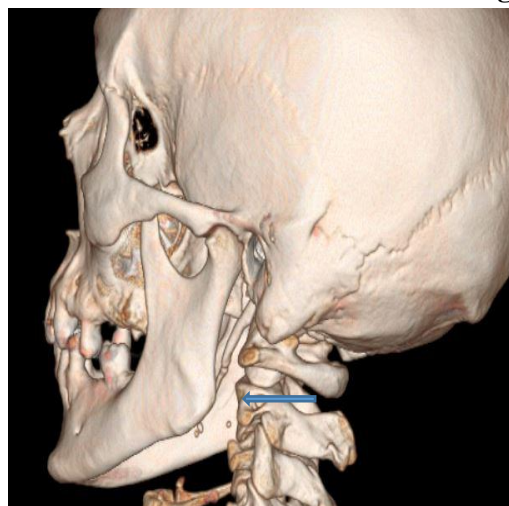
### Titles and captions:

**Figure 1: cervico-facial CT scan in coronal MIP section.**



Abnormally elongated appearance of the left styloid process measuring 48 mm long with extensive calcifications of the ipsilateral stylohyoid ligaments.

**Figure 2: cervico-facial scanner in volume rendering reconstruction.**



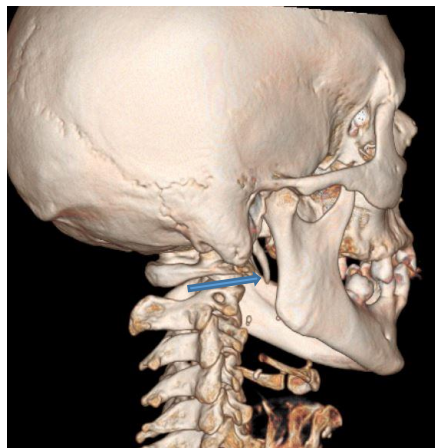
Abnormally elongated appearance of the left styloid process measuring 48 mm long.

**Figure 3: cervico-facial CT scan in coronal section reconstruction in bone window.**



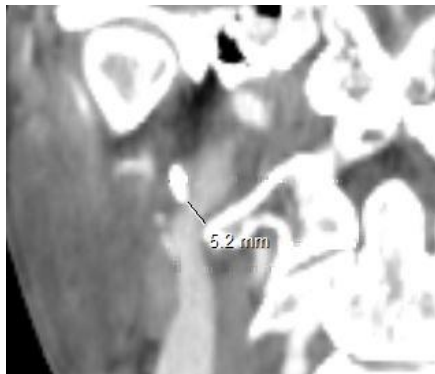
Elongation of the right styloid process measuring 34 mm in length with extensive calcifications of the ipsilateral vite-hyoid ligaments.

**Figure 4: cervico-facial scanner in volume rendering reconstruction.**



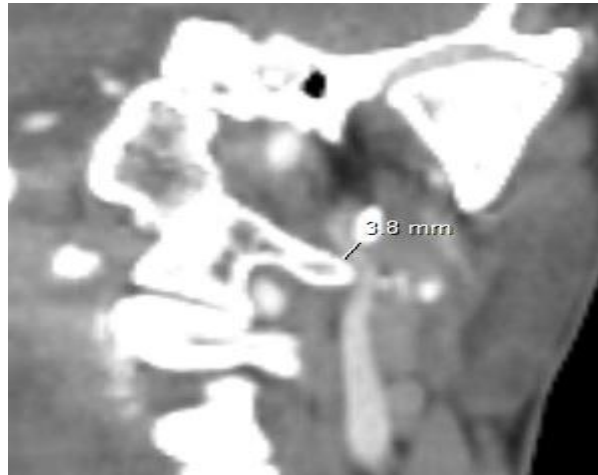
Elongation of the right styloid process measuring 34 mm long.

**Figure 5: cervico-facial scanner in coronal reconstruction: right stylo-transverse clamp.**



Shortening the distance between the transverse process of C1 and the right styloid process, measuring 5.2 mm in diameter. The right internal jugular vein is reduced in size as it passes between the clamp formed by the transverse process of C1 and the right styloid process.

**Figure 6: cervico-facial scanner in coronal reconstruction: left stylo-transverse clamp.**



Shortening of the distance between the transverse process of C1 and the left styloid process, measuring 3.8 mm in diameter. The left internal jugular vein is reduced in size as it passes between the clamp formed by the transverse process of C1 and the left styloid process.