International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2015): 78.96 | Impact Factor (2015): 6.391

Incidental, Bilateral Elongated Styloid Process in Head Injury – A Case Report and Review of Literature

Dr Aditendraditya Singh Bhati[1], Dr Tasneem Shaheda[2], Dr Pranav Kumar[3]

[1]Consultant Neurosurgeon, Indraprastha Apollo Hospital, New Delhi, India

[2]Resident, Department of Surgery, Indraprastha Apollo Hospital, New Delhi, India

[3]Consultant Neurosurgeon, Indraprastha Apollo Hospital, New Delhi, India

Abstract: ***Enlarged styloid process producing various symptoms has been described in literature. We report a case of asymptomatic, bilateral elongated styloid process found incidentally during computed tomography scans in a patient with head injury.***

Keywords: Styloid process, Eagle's syndrome, Elongated, Stylohyoid ligament, Head injury

1. Introduction

Styloid means a pen. Styloid process arises from the inferior surface of the temporal bone and lies anterior to the stylomastoid foramen. It's length ranges from 25 to 30 mm[1]; anything longer than this is considered an elongated styloid process[2,3]. Between 2-30% of people may be having an elongated styloid process. It's attachment to various ligaments and muscles and the presence of several neurovascular structures (including the facial nerve) make it clinically important. Compression of these neurovascular structures can sometimes produce symptoms. We present a case of asymptomatic, bilateral, elongated styloid process along with review of literature.

2. Case Report

A 62 years old Canadian gentleman sustained multiple intracranial contusions following a road traffic accident. He has had pulmonary embolism in the past and was on anticoagulant. He was conscious and alert with stable vitas and had mild left hemiparesis and facial paresis (supranuclear). He was managed conservatively and showed excellent improvement. The CT scan of head and neck had revealed, apart from the intracranial contusions, an elongated styloid process. The right-sided styloid process measured 42.8 mm and the left one 40 mm. On retrospective questioning he denied any symptom related to the elongated styloid process.

The idea of reporting this case is that elongated bilateral styloid process are so common and often detected while screening for other causes. They often remain asymptomatic and require intervention only when symptomatic.

3. Discussion

Elongated styloid process was noticed way back in 17th century, but Watt W. Eagle, an Otorhionologist in 1937 described this as stylalgia which was later called Eagle syndrome[1,4]. The abnormal length of styloid process is secondary to mineralisation of ligaments and/or calcification of digastric muscles[4,5].

Most of the patients with elongated styloid process are asymptomatic; symptoms are seen in only 4-10 % of such cases. Women, older than 40 years are more likely to be symptomatic[6]. The symptoms could vary from neck pain, facial pain, difficulty in swallowing, earache or foreign body sensation in throat[6,9]. Constellation of these symptoms is known as Eagle's syndrome. Length of the styloid process has no relation to the presence or severity of symptoms[7]. The symptoms are secondary to compression of surrounding neurovascular structures. Watt Eagle in his original report had suggested the clinical symptoms could either be secondary to tonsillectomy and consequent scar formation or a manifestation of carotid artery syndrome due to mechanical irritation of sympathetic nerves[7,10,11,12].

They are diagnosed during radiologic studies (x-ray or CT scan of neck/skull) for cervical/base-of-skull pathology or at post- mortem[7,8]. A 3D CT shows the styloid process in its entirety. Management would depend upon the nature and severity of symptoms. Needless to say, the asymptomatic cases need, at the most, regular follow-up as these may increase in size. Patients with pain as the only symptom can be managed conservatively with either analgesics or by injection of steroid locally. Surgery is reserved for patents who fail to improve following conservative approach[7,13,14]. Surgery involves excision of the styloid process. Surgical risk includes injury to the adjacent neurovascular structures[15,16]. Excision is carried out either through intra- or extra-oral approach; each of these approaches have their own advantages and disadvantages[6,7,16,17]. The intra-oral approach is quicker and avoids an external scar. Inadvertent opening of the retropharyngeal space increases risk of infection. An extra-oral approach has good anatomic exposure; however, it entails more manipulation of the neurovascular structures with attendant higher risk of injury[18,19].

What constitutes an elongated styloid process? There is no unanimity in literature. The length varies in different reports.

Licensed Under Creative Commons Attribution CC BY

Moffat et al[20] in their cadaver study have concluded that the normal length ranges between 15.2 mm and 47.7 mm. Kolagi et al[22] have reported an elongated styloid process with a length of up to 80 mm in an adult human dry skull. Kaufman et al[2] in their study reported 30 mm as the upper limit for normal styloid process. Most of the case reports labeled styloid process between 3.0 cms to 4.0 cm; there however is no clear definition for the same. According to Monsour and Young[21], styloid process longer than 40 mm is considered elongated. In contrast to these case reports, Montalbetti et al[23] in their radiological study have suggested 25 mm as the normal length of styloid process. Okabe et al[24] have reported the length of the bilateral styloid processes ranging from 0.0 to 153.0 mm. In a recent study by Krishnasamy et al[25] in 2012, they reported styloid process of 65 mm in a symptomatic patient. They also mentioned increase in its size with age. In the present case, the length of the styloid process was 40.6 mm on the left and 42.8 mm on the right side. It however was asymptomatic and was picked up incidentally.

Patients found to be having such large styloid process on imaging studies should be asked about relevant symptoms. It is possible they have had the symptoms which were either not investigated or they were ascribed to be of idiopathic nature. A correct diagnosis in such cases may offer these patients freedom from such symptoms.

4. Conclusion

Elongated styloid process is not uncommon and is often overlooked. It is essential that clinicians should be aware of the anatomical variations of the styloid process and should have a thorough knowledge of the associated symptoms so as to differentiate it from atypical facial pain or pain of dental origin. Complete clinical and radiological examination help to reach at a proper diagnosis. Some of these patients can be offered help.

Abbreviations:
CT – computed tomography
3D – three dimensional

Source of Support: NIL

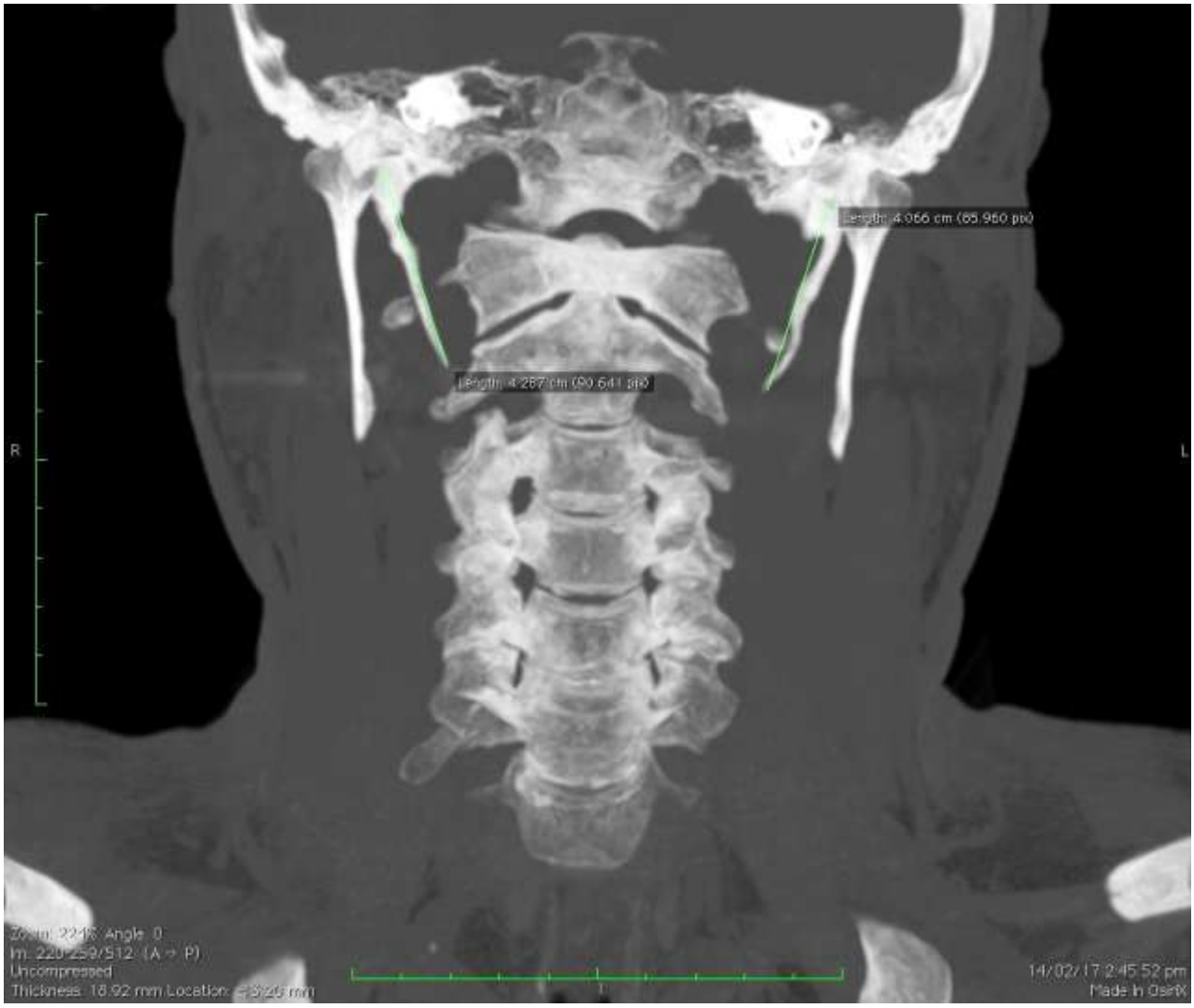
Conflict of Interest: All authors report no conflict of interest related to this study.

Financial disclosure – Nil

References

[1] Eagle WW. Elongated styloid process. Arch Otolaryngol 1937; 25:584-587.
[2] Kaufman SM, Elzay RP, Irish EF. Styloid process variation: radiologic and clinical study. Arch Otolaryngol. 1970; 91: 460-463.
[3] Keur JJ, Campbell JP, McCarthy JF, Ralph WJ. The clinical significance of the elongated styloid process. Oral Surg Oral Med Oral Pathol 1986. 61: 399–404.
[4] Fini G, Gasparini G, Filippini F, Becelli R, Marcotullio M. The long styloid process syndrome or Eagle's syndrome. Journal of Cranio-Maxillofacial Surgery 2000; 28: 123-127.
[5] Mortellaro C, Biancuccci P, Picciolo G, Vercellino V. Eagle's syndrome. Importance of a corrected diagnosis and adequate surgical treatment. Journal of Craniofacial Surgery 2002; 13:755-758.
[6] Miller DB. Eagle's syndrome and the Trauma patient. Funct Ortho. 1997; 2264: 916-925.
[7] Murtagh RD, Caracciolo JT, Fernandez G. CT Findings Associated with Eagle Syndrome. Am J Neuroradiol. 2001; 22: 1401-1402.
[8] Rechtweg JS, Wax MK. Eagle's syndrome: a review. Am J Otolaryngol. 1998; 19: 316-32.
[9] Feldman V. Eagle's syndrome: A case of symptomatic calcification of stylohyoid ligaments. JCan Chiropr Assoc 2003; 47:21-27.
[10] Dolan EA, Mullen JB, Papayoanou J. Styloid stylohyoid syndrome in the differential diagnosis of atypical facial pain. Surg Neurol. 1984; 21: 291-294.
[11] Eagle WW. Elongated styloid process: symptoms and treatment. Arch Otolaryngol. 1958; 64: 172-6.
[12] Balbuena L, Hayes D, Ramirez SG, et al. Eagle's syndrome (elongated styloid process). South Med J. 1997; 90: 331-334.
[13] Baugh RF, Stocks RM. Eagle's syndrome: a reappraisal. Ear Nose Throat J. 1993; 72: 341- 344.
[14] Beech TJ, McDermott A. An Interesting Presentation of Eagle Syndrome: Internet J Otorhinolaryng. 2006; 5(2).
[15] Nickel J, Sonnenburg M, Scheufler O, et al. Eagle's syndrome: diagnostic imaging and therapy. Rontgenpraxis.2003; 55: 108-13.
[16] Chase DC, Zarmen A, Bigelow WC, et al. Eagle's syndrome: a comparison of intraoral versus extra oral surgical approaches. Oral Surg Oral Med Oral Path. 1986; 62: 625-629.
[17] Strauss M, Zohar Y, Laurian N. Elongated styloid process syndrome: intraoral versus external approach for styloid surgery. Laryngoscope. 1979; 95: 976-979.
[18] Yavuz H, Caylakli F, Erkan AN, Ozluoglu LN. Modifed intraoral approach for removal of an elongated styloid process. J Otolaryngol Head Neck Surg 2011;40:86-90.
[19] Leclerc JE. Eagle syndrome: teaching the intraoral surgical approach with a 30 degrees Endoscope. J Otolaryngol Head Neck Surg 2008; 37:727-9
[20] Moffat DA, Ramsden RT, Shaw HJ. The styloid process syndrome: aetiological factors and surgical management. J Laryngol Otol 1977; 91:279-294.
[21] Monsour P.A., Young W.G., Barnes P.B. Styloid–stylohyoid syndrome: a clinical update. Aust. Dent. J. 1985; 30:341–345
[22] Kolagi SI, Herur A, Mutalik A. Elongated styloid process- Report of two rare cases. Int J Anat Var 2010; 3:100-2
[23] Montalbetti L, Ferrandi D, Pergami P, Savoldi F, Elongated styloid process and Eagle's syndrome. Cephalagia 1995; 15:80-93.
[24] Okabe S, Morimoto Y, Ansai T, Yamada K, Tanaka T, Awano S, et al. Clinical significance and variation of the advanced calcified stylohyoid complex detected by panoramic radiographs among 80-year-old subjects. Dentomaxillofac Radiol 2006; 35:191-9.
[25] Krishnasamy S. Elongated styloid process- A case report. Online J Otolaryngol 2012;2.

Licensed Under Creative Commons Attribution CC BY



Legends:
Figure 1: CT coronal view showing elongated styloid process measuring 40.6 mm on the left and 42.8 mm on the right.

Licensed Under Creative Commons Attribution CC BY