Original Research Article

DOI: http://dx.doi.org/10.18203/issn.2454-5929.ijohns20182036

The incidence of elongated styloid process in chronic tonsillitis

Santosh Uttarkar Pandurangarao*, Raga Panicker, Dheeraj Kumar Jonnalagadda, Aravind Darga Ramachandra, Sridurga Janarthanan

Department of ENT, JJM Medical College, Davangere, Karnataka, India

Received: 20 April 2018 Revised: 06 May 2018 Accepted: 08 May 2018

*Correspondence:

Dr. Santosh Uttarkar Pandurangarao, E-mail: drsantoshup@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: The styloid process is a conical projection of the temporal bone lateral to the jugular foramen, and is of variable length. The objective of this study is to know the incidence of elongated styloid process in patients presenting with chronic tonsillitis, and whether x-ray Towne's view should be part of preoperative evaluation.

Methods: A prospective study was conducted on 160 patients who attended ENT OPD with symptoms of chronic tonsillitis. Towne's view x-rays were taken and elongated styloid process looked for.

Results: 73.4% of patients with chronic tonsillitis have associated elongated styloid process.

Conclusions: X-ray Towne's view should be considered as part of routine preoperative evaluation in patients with chronic tonsillitis.

Keywords: Throat pain, Pricking sensation, Dysphagia, Odynophagia

INTRODUCTION

The styloid process is a conical projection of the temporal bone lateral to the jugular foramen, and is of variable length. It develops from two centres at the cranial end of the second arch (Reichert's cartilage). Ossification of the part close to the base of skull starts before birth, and that of the styloid process, after birth and fusion of the two parts occur after puberty. From the tip of styloid process, the stylohyoid ligament passes downwards and forwards to the lesser cornu of the hyoid bone.

An apparent elongation of the styloid process is observed on x-ray due to calcification of the stylohyoid ligament in some patients, this is usually asymptomatic, but in some, cause symptoms like throat pain, foreign body sensation in the throat, neck pain and otalgia, when it is referred to as Eagle syndrome. Eagle syndrome was described in 1937 by Dr Watt W. Eagle, an otolaryngologist at Duke University, who used it to refer to patients with specific orofacial pain secondary to calcification of stylohyoid ligament or elongated styloid process. The syndrome was originally characterized by symptoms occurring after tonsillectomy or pharyngeal trauma, but is now being used to describe dull, nagging, long term pain in the throat, which can be referred to the ipsilateral ear, and foreign body sensation in the throat even in the absence of pharyngeal trauma. Other possible symptoms include painful swallowing, change in voice, headache and increased salivation.

The normal length of styloid process, as described by Eagle, is 2.5 cm. A styloid process longer than 3cm is considered as elongated styloid process.^{2,3}

Approximately 4% of the general population have an elongated styloid process, with a female preponderance, but most are asymptomatic. Bilateral involvement is more

common, but symptoms may be completely absent or limited to one side.

Radiographic studies like x-ray Towne's view, Orthopantomogram and lateral view of the skull and upper neck are useful in confirmation of an elongated styloid process. CT scan is preferred if the length of the styloid process has to be accurately measured.

The objective of our studyis to know the incidence of elongated styloid process in patients presenting with chronic tonsillitis, and whether X-ray Towne's view should be part of preoperative evaluation.

METHODS

This is a prospective study conducted on patients who presented to the ENT Department in a tertiary care centre in central Karnataka between June 2015 and July 2017. After institutional ethical committee clearance, One hundred and sixty (160) patients who were clinically diagnosed as chronic tonsillitis were included in this study. These patients were further evaluated for elongated styloid process with X-ray (digital X ray) Towne's view. And the radiographic length of the styloid process in digital X-ray was measured using the measurement toolbars on the accompanying analysis software. In our study elongation of styloid process, more than 3 cm, either on one side or both sides was looked for (Figure 1, 2 and 3).



Figure 1: X-ray Towne's view without styloid process elongation.



Figure 2: X-ray Towne's view showing bilateral elongated styloid process.



Figure 3: X-ray Towne's view showing elongation of right styloid process.

Statistical analysis was done using SPSS Software.

RESULTS

A total of 160 patients aged between 18 to 68 years of either sex were evaluated of which, 52 patients were males and 108 patients were females. Among 160 patients, Elongated styloid process was found to be present in 119 patients which amounts to 73.4% (Table 1).

Table 1: Shows gender distribution, percent of patients with elongated styloid process and laterality.

Characteristics		Frequency (N=160)	Percent
Gender	Male	52	32.5
	Female	108	67.5
Elongated styloid	Positive	119	73.4
	Negative	41	25.6
Laterality	Unilateral	46	38.6
	Bilateral	73	61.4

Among 52 male patients, 39 had elongated styloid process and among 108 female patients, 80 had elongated styloid process, a chi square test performed found that association between gender and elongated styloid process was insignificant (Table 2).

Table 2: Chi square test.

	Elongated styloid		Chi
Gender	Positive	Negative	square
	(N=119)	(N=41)	test
Male (N=52)	39 (32.7)	13 (31.7)	0.016,
Female (N=108)	80 (67.3)	28 (68.3)	p<0.900, NS

Among the ESP positive cases, 46 patients had unilateral ESP and 73 patients had bilateral ESP and this association was also insignificant (Table 3).

Table 3: Chi square test for laterality.

ESP Positive cases					
	Laterality		Ch: a arrana		
Gender	Unilateral	Bilateral	Chi square test		
	(N=46)	(N=73)	test		
Male (N=39)	12 (26.1)	27 (36.98)	1.52,		
Female (N=80)	34 (73.9)	46 (63.02)	p<0.217,		
			NS		

DISCUSSION

Eagle syndrome remains a widely under diagnosed entity, mostly due to its vague symptoms. In the rare, symptomatic patient, many theories have been considered to explain causation of pain by elongation of styloid process, some of which are resultant stretching of glossopharyngeal nerve and fracture and medialisation of the ossified styloid ligament with incomplete repair due to continuous hyoid bone movements and formation of excessive granulation tissue. There are two varieties of this syndrome, as described by Eagle - the classic Eagle syndrome, which is classically described as a dull and persistent pain in the tonsillar fossa following tonsillectomy or ipsilateral pharyngeal trauma, and the stylocarotid syndrome, which presents as pain along the distribution of internal or external carotid artery, provoked and exacerbated by rotation and compression of the neck and unrelated to tonsillectomy.

In our study, we chose 160 patients clinically diagnosed as chronic tonsillitis and studied with their X-ray Towne's view for an elongated styloid process. These patients were analyzed.

Singh et al have shown in their study that 60% of their study population who had elongated styloid process presented with chronic tonsillitis. Naik et al observed in their study that elongated styloid process and chronic tonsillitis were co-existent in all their cases. 5

In our study out of 160 chronic tonsillitis patients 119 had elongated styloid process which accounts to 73.4%.

Mohanty et al in their study have observed that out of 92 patients who presented to them with complaints of throat pain and difficulty in swallowing, 28 patients had a clinically detected and radiologically proven elongated styloid process.⁶

In our study, out of 160 patients with symptoms of throat pain and painful swallowing, 119 had elongated styloid process.

Faizal has observed in their study, that 24% of their study population had a previous history of tonsillectomy and

hence have concluded that it is mandatory to rule of elongated styloid process in all adult patients presenting with chronic tonsillitis.⁷

In our study, 73.4% patients with chronic tonsillitis were found to have elongated styloid process.

Rechtweg et al, in their study, observed that this condition is seen more in females than in males.⁸

Our results have been similar, with 67.3% of the cases being females.

CONCLUSION

We conclude that out of 160 patients with chronic tonsillitis 119 (73.4%) have an elongated styloid process, hence X-ray Towne's view should be considered as a part of routine preoperative evaluation in chronic tonsillitis.

Funding: No funding sources
Conflict of interest: None declared

Ethical approval: The study was approved by the

Institutional Ethics Committee

REFERENCES

- 1. Eagle WW. Elongated styloid process: report of two cases. Arch Otolaryngol. 1937;25:584-7.
- 2. Eagle WW. Elongated styloid process: Arch Otolaryngol. 1948;47:630-40.
- 3. Eagle WW. Elongated styloid process, symptoms and treatment. Arch Otolaryngol. 1958;67:172–6.
- 4. Singh R, Galagali JR. Tonsillostyloidectomy for Eagle's syndrome: a study of 20 cases. Int J Otorhinolaryngol Head Neck Surg. 2016;2:22-5.
- Naik SM, Naik SS. Tonsillo-Styloidectomy for Eagle's Syndrome: A Review of 15 Cases in KVG Medical College Sullia. Oman Med J. 2011;26(2):122-6.
- 6. Mohanty S, Thirumaran NS, Gopinath M, Bambha G, Balakrishnan S. Significance of styloidectomy in Eagle's syndrome: an analysis. Indian J Otolaryngol Head Neck Surg. 2009;61(4):262-5.
- 7. Faizal B. Stylalgia- a clinical study. International journal of emerging technology and research. 2015;2(4).
- 8. Rechtweg JS, Wax MK. Eagle's syndrome: a review. Am J Otolaryngol. 1998;19:316-21.

Cite this article as: Pandurangarao SU, Panicker R, Jonnalagadda DK, Ramachandra AD, Janarthanan S. The incidence of elongated styloid process in chronic tonsillitis. Int J Otorhinolaryngol Head Neck Surg 2018;4:927-9.