Stylalgia- A Clinical Study

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Abstract:

Objective: To study the relevance of stylalgia in adult patients, the age of presentation, sex distribution and prognosis after surgery.

Methods: A prospective study was conducted among patients who attended the ENT department of a tertiary care centre with throat pain or cervico-facial pain. Diagnosis was based on symptoms and palpation of elongated styloid process intra-orally which reproduced the symptoms. Transtonsillar styloidectomy was done in patients willing for surgery.

Results: Stylalgia is seen more in females. It is seen in the age group of 25- 45 years. Condition was unilateral in majority of cases. Towne’s view is a better radiological view for confirmation of diagnosis, measurement of styloid process and comparison.

Conclusion: Stylalgia is important in the differential diagnosis of cervico-facial pain. The diagnosis brings immense relief to the patient and of course to the clinician desperate for a diagnosis.

Key words:
Stylalgia, Eagle’s syndrome, elongated styloid process, styloidectomy.

ntroduction:

“The definitive diagnosis of facial pain is not always easy and indeed, if it were the subject would lack its clinical interest.”

- Henry Miller.
Multitude of pain syndromes are described from the head and neck region. Many of them are devoid of definite physical signs. Several specialities overlapping in the head and neck area complicate the scenario. The vague nature of the complaints prevents the patient from describing the symptoms satisfactorily. Similar situation associated with an elongated styloid process is slowly gaining proper recognition. The condition is known under various synonyms - Eagle’s syndrome, stylalgia, styloid process neuralgia etc\(^1,2\). The anatomy, embryology, clinical features, management and prognosis of this condition are discussed.

Typically, styloid process neuralgia is a dull nagging pain in throat often localised to tonsillar fossa and sometimes radiating to ear\(^3\). Since all parts of the hyoid apparatus are embryologically and phylogenetically related, symptoms could be related to the more inclusive hyoid syndrome (Kopstein)\(^4\). Stylalgia is a subdivision of hyoid syndrome. The classic Eagle’s syndrome and Eagle’s carotidynia are included in this subdivision\(^5,6\). Unlike the classic form, in carotidynia, patient has cervical pain in the pattern of distribution of external or internal carotid artery.

Initial description of ossification of stylohyoid ligament is by Marchetti of Padua (Gruber, 1869)\(^7\). Eagle (1937) focussed attention on styloid process and described it as Eagle’s syndrome which is distinguishable from primary glossopharyngeal neuralgia. In 1942, Loeser and Cardevell removed the styloid process via an external approach\(^8\). An interesting example of “recurrent stylalgia” was described by Steinmann (1968)\(^9\). An elongated styloid process stretching the mucosa during mastication can cause a similar syndrome but with involvement of 5\(^{th}\), 7\(^{th}\), 9\(^{th}\) and 10\(^{th}\) cranial nerves (Donohue)\(^10\). Embryologically, styloid apparatus has four parts namely tympanohyale, stylohyale, ceratothyale and hypothyale. The styloid process itself takes origin from stylohyale, a portion of Reichert’s cartilage. Tympanohyale represents the upper part of Reichert’s cartilage. The stylohyoid ligament and the hyoid bone (lesser cornu and upper part of body of hyoid bone) develop from ceratothyale and hypothyale respectively. The ossification starts in the first year of life. As long as the fibrinous connections between the four aforementioned portions remain intact, the process will be symptomless. Ossification of these joints will make this a stiff bony rod extending from the skull to the hyoid bone\(^11\). Since swallowing is a complex sequence of movements involving the pharyngeal constrictor activity and hyoid elevation, it is easy to see how superior constrictor spasm and impaired hyoid movement occur with a bony stylohyoid bar\(^12\).

Moffat et al has classified the aetiopathogenesis into two main groups: the factors concerned with the elongation of the styloid process and local factors which may contribute when the length of styloid process is normal\(^13\). Former could be due to abnormally
long stylohyale or a complete ossification of stylohyoid ligament at the expense of the ligament. Complete ossification could be a theromorphic manifestation (Dwight)\textsuperscript{11}. The junction of stylohyale and tympanohyale may remain as embryological remnants like syndesmoses or arthroses; they may ossify later to cause elongation\textsuperscript{14}.

Styloid process of normal length can undergo medial angulation and displacement due to fracture\textsuperscript{9}. The fracture can occur before ossification is complete. The proximal part of stylohyoid ligament may undergo calcification. Variations in the anatomy of cervical spine and mandible could be a contributory factor\textsuperscript{8}. The pain following tonsillectomy could be due to scarring and fibrosis. The styloid process irritates the sympathetic plexus over external or internal carotid artery in carotidynia\textsuperscript{5}.

Eagle’s syndrome is seen in 4\% of population. Radiological diagnosis is about 28\%\textsuperscript{15}. The condition is usually seen after 35 years of age with the youngest and oldest age of presentation reported being 14 and 72 years respectively\textsuperscript{16}. Females are commonly affected. Negroes are found to have longer styloid process in the dissecting rooms though racial distribution of stylalgia has not been described. The typical syndrome presents as a nagging dull ache in the pharynx, referred otalgia, increased salivation, dysphagia, gagging, globus pharyngis and even dysgeusia. Ninth nerve is the cranial nerve commonly involved. In Eagle’s carotidynia, involvement of the internal carotid artery causes pain in the distribution of ophthalmic artery only, with little or no pain below the eye. This pattern differs from the external carotid artery involvement where the facial pain is generally below the eye. Tinnitus is occasionally complained.

The diagnosis is typically made by the palpation of the styloid process in the tonsillar fossa. The patient immediately confirms when his symptoms are reproduced. Relief of symptoms on local infiltration of Lignocaine into the tonsillar fossa further helps in confirmation. Bidigital palpation with one index finger on the tonsil palpatting the styloid process and the other on the neck elicits severe pain in carotid artery syndrome. Pinching of carotid artery may reproduce the pain in the pattern of distribution of the artery. A clinical grading has been suggested based on the palpation of the tip of the styloid process in tonsillar fossa (Ravinder Verma)\textsuperscript{16}.

Grade I- tip of styloid process palpable in the superior pole of tonsil

Grade II- styloid tip palpable in the middle of tonsillar fossa

Grade III- styloid tip palpable in the lower pole of tonsil or in the base of tongue.
Useful radiological projections are skull – postero-anterior view, lateral view of skull with neck extended, odontoid view for hyoid apparatus and Towne’s view. Generally, an elongated styloid process is considered if the length is longer than 30 mm.

Medical treatment:

Patients are treated with Oxyphenbutazone, Carbamazepine and local infiltration of steroids. Surgeries described in connection with stylalgia include transtonsillar styloidectomy, styloidectomy through external approach, digital outfracture of styloid process, glossopharyngeal neurectemy and excision of greater cornu of hyoid bone. Transtonsillar styloidectomy is the most popular till date. Alleviation of symptoms is usually dramatic following surgical excision. An attempt has been made to discuss the relevance of stylalgia in clinical practice. The need to emphasize the importance of recognising this entity in adults presenting with vague cervico-facial pain has been stressed upon. Towne’s view can be used as a single modality investigation in such cases.

Materials and methods:

Source of data:

The study was conducted in the Department of Otorhinolaryngology of a tertiary care centre. The study was over a period of two years and one month. The number of out-patients during this period was approximately 126,000 of which throat pain accounted for approximately 25-30%. Cases as and when detected and diagnosed as stylalgia were included in the study since it was impossible to screen all cases. However, there was increased awareness created among doctors, through constant reminders. 25 cases of symptomatic elongated styloid process were included in the study. Patients who did not respond to the standard medical treatment were taken up for transtonsillar styloidectomy. In our study 16 patients underwent surgery. Patients were followed up for six months. All the cases were tabulated depending on symptoms, age group, grading of styloid process, results of treatment and follow up.

Inclusion critera:

The styloid process should be palpable in the tonsillar fossa and the palpation should reproduce the symptoms. Towne’s view should show an elongated styloid process which should be more than 30mm (Figure- 1). Cases with any other obvious pathology which could be related to symptoms were excluded from the study. Patients with similar symptoms but with normal length of styloid process were not included.
Statistical analysis:

The dichotomous variables such as sex distribution, unilaterality and sidedness were tested using null hypothesis. The condition is found to be higher in females (P value- 0.0217). The P value for unilaterality and bilaterality is 0.0539. The left side is found to be more symptomatic. To grade the styloid process and to evaluate the age distribution, Chi square test was used. It is found that the incidence of Grade II is more \( x^2_{cal} > x^2_{2}(0.05) \). To evaluate any pattern of age distribution above 25 years, three groups were considered (25-35 years, 36-45 years, more than 46 years). It is seen that \( x^2_{cal} = 5.1202 \) against a critical value of 5.991. Since \( x^2_{cal} < 0.05 \), at 5% level of significance, it is seen that there is no preponderence among the groups.

Observation, results and analysis:

A total of 25 cases which satisfied the inclusion criteria were studied. Stylalgia was seen more in females (18 patients) – Table I. Maximum cases were seen between the age group of 26 to 45 years. Stylalgia was seen unilaterally in 68% of cases – Table II. Previous history of tonsillectomy was seen in 24%. Throat pain and odynophagia accounted for 68% of cases and 40% presented with referred otalgia. Grade II styloid process was more common (70.58%) and Grade I and III were uncommon- Table III. Previous history of tonsillectomy was present in 24% of our patients. Of the 9 patients who opted for medical management, only 4 of them had some relief of symptoms. On the other hand, of the 16 patients who underwent surgery, 13 patients had complete relief of symptoms. Of the 3 patients with partial relief after surgery, one patient underwent transtonsillar glossopharyngeal neurectemy with complete relief of symptoms. Other two are being managed conservatively since they declined a second surgery.

Limitations of study:

The possibility of stylalgia with normal length of styloid process was not considered in the study. The inclusion of the above mentioned factor might show a further increase in the incidence of this condition. Besides, the chewing habits of the patients were not taken into consideration as there was a definite sidedness to the symptoms. The incidence of coexisting glossopharyngeal neuralgia was not studied. Further studies may be planned including these variables.

Discussion:

The observations are comparable to data available in literature\(^{16}\). The reason for left sidedness is not forthcoming though chewing habits have been suggested. From the high incidence of stylalgia in tonsillectomised patients, the relevance of this clinical study
has been proved beyond doubt. So, it is mandatory to rule out an elongated styloid process in all adult patients presenting with chronic tonsillitis. Towne’s view is a better radiological view since it combines the advantages of other views in a single image. Nevertheless, further studies are required to find out the incidence of coexisting glossopharyngeal neuralgia since 3 out of 16 patients who underwent surgery did not have complete relief of symptoms.

Conclusion:

- Incidence of stylalgia is two and half times more in females than in males.

- The condition is seen maximally in the age group 25-45 years.

- Minimal age of Eagle’s syndrome was 25 years and maximum age 65 years.

- In majority of cases, the condition was unilateral and left sided.

- Grade II styloid process was the commonest finding.

- Vague throat pain and odynophagia were the commonest symptoms.

- Towne’s view is a better view to diagnose, compare and to measure.

- Medical line of management did not relieve the symptoms completely.

- Recurrence can be due to glossopharyngeal neuralgia and neurectomy can be done by transtonsillar approach.

- Failure of peripheral glossopharyngeal neurectomy may have to be dealt with intracranially.

- None of the recurrences were due to regrowth of the styloid process.

- The length of styloid process excised is not important. Excision of 20-30 mm generally suffice.

- Palpation of the tonsillar fossa after tonsillectomy is advisable in all patients above 25 years of age.

- Stylalgia is definitely relevant in the differential diagnosis of chronic cervico-facial pain.
Acknowledgements:

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References:


Table 1: Sex and age group distribution in stylalgia.

<table>
<thead>
<tr>
<th>No.</th>
<th>Male</th>
<th>Female</th>
<th>Age in years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>0-25</td>
</tr>
<tr>
<td>25</td>
<td>7</td>
<td>18</td>
<td>nil</td>
</tr>
</tbody>
</table>

| %   | 28%  | 72%   | 0%   | 44%   | 44%   | 12% |

Table 2: Incidence of unilaterality / bilaterality and various symptoms.

<table>
<thead>
<tr>
<th>No.</th>
<th>unilateral</th>
<th>bilateral</th>
<th>right</th>
<th>left</th>
<th>symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>17</td>
<td>8</td>
<td>4</td>
<td>13</td>
<td>Throat pain odynophagia</td>
</tr>
</tbody>
</table>

| %   | 68%         | 32%       | 23.5% | 76.5% | 68%      | 68% |

Table 3: Grading of styloid process.

<table>
<thead>
<tr>
<th>No</th>
<th>Unilateral-17cases</th>
<th>Bilateral-8 cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grade I</td>
<td>Grade II</td>
</tr>
<tr>
<td>25</td>
<td>3</td>
<td>12</td>
</tr>
</tbody>
</table>

| %  | 17.64% | 70.58% | 11.76% | 12.5% | 81.25% | 6.25% |
Figure 1: Bilateral styloid process depicted by block arrows.