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The lingual tonsil. A neglected symptomatic structure?

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Abstract
Surgical treatment of the lingual tonsil is seldom performed because problems attributable to chronic lingual tonsillar hypertrophy are infrequently diagnosed. We have reviewed a series of 25 patients with symptoms from enlarged lingual tonsils. The variety of presentation of lingual tonsillar lessions and the methods of surgical treatment are discussed.

Introduction

The lingual tonsil is often overlooked as a cause of symptoms but, although out of sight, it should not be out of mind.

This often neglected structure may be responsible for a variety of pharyngeal symptoms. Treatment is frequently simple and the results gratifying to both patient and surgeon. Diagnosis only requires an index of suspicion and careful observation with a laryngeal mirror.

We present a retrospective analysis of all patients seen at our hospital with a diagnosis of 'lingual tonsillitis'. An extended search was made through the hospital records and a total of 25 patients treated for this condition were found. Interestingly all these cases were treated in the last ten years. The relative rarity of cases offered surgical treatment may indicate a general lack of awareness of this condition for which good results can be readily achieved. This report was also prompted by the interesting variety of presenting features attributable to the lingual tonsil.

Materials and methods

A careful retrospective analysis was undertaken of the records of all patients presenting to our hospital between 1962-1988 with a diagnosis of lingual tonsillitis, or those of any patient subjected to a surgical assault upon the tongue base for the purpose of reducing the lingual tonsil. Specific attention was paid to the presenting symptoms, previous adenotonsillectomy, atopic status, occupation and professional voice use.

Positive clinical findings were documented, together with the results of all routine and special investigations, the mode of treatment adopted and the outcome.

Results

Our series comprised 25 cases, of whom 14 were male and 11 female. The majority were Caucasian with two Asian and two Negro. The average age of the group was 48.6 years with a range from 18 to 70 years. The presenting symptoms averaged 31 months and ranged from three weeks to 20 years. The main symptoms in these patients with chronic lingual tonsillar hypertrophy are shown in Table 1.

There was no consistent association with either a smoking habit (11 patients), nasal symptoms (five patients) or symptoms of reflux (two patients).

Previous adenotonsillectomy in childhood was found in 12 cases, (48% of the total) with equal distribution throughout the symptomatic groups. Pharyngeal signs were apparent in six cases, two showed evidence of parapharyngeal bands, three a granular posterior pharyngeal wall and a further case had a large tonsillar remnant.

The positive finding of large lingual tonsils were recorded in 20 cases, with moderate enlargement in three more patients. The two remaining patients did have tender lingual tonsils on palpation without enlargement.

Haematological tests were helpful in three cases when both the white cell count and sedimentation rate were elevated by acute on chronic lingual tonsillitis.

Analysis of the treatment methods to which our group was submitted show that two patients benefitted by anti-reflux therapy. Antibiotics given to two patients were

TABLE I
THE SYMPTOMS OF CHRONIC LINGUAL TONSILLAR HYPERTROPHY IN 25 PATIENTS

Symptom	No. patients	%
Sore throat	15	60
Dysphagia	4	16
Fever	1	4
Lethargy	2	8
Globus sensation	9	36
Speech change	5	20
Otalgia	3	12
Submandibular referred pain	1	4
Obstructive sleep apnoea	1	4
Chronic cough	2	8
Dyspnoea	2	8
Choking on food	1	4

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largely unhelpful. Full endoscopy with post-operative reassurance helped improve mild symptoms in a further seven patients but without complete relief.

Surgical treatment was accepted by 17 patients. Cryotherapy was applied in 11 cases in whom the subjective improvement was good in five patients, fair in four, and two noticed little change. The laser was used in two cases to good effect and surgical excision was performed in three cases with fair improvement. The complications included a brisk rectionary haemorrhage in one patient who had the lingual tonsils excised, requiring a major transfusion with suture of the bleeding point and a protective tracheostomy. A minor secondary haemorrhage was sustained by one patient after cryotherapy. One further patient continued to have pain projecting her voice six months after laser treatment.

The overall follow up for each patient averaged four months ranging from 1 to 14 months.

Discussion

Problems attributable to the lingual tonsil have attracted sporadic interest over the years. The historical perspectives relating to the lingual tonsil have been well described by Cohen (1917) and Jesberg (1956). They indicate that Vesalius in 1543 was the first to draw attention to the structure. A full anatomical description was given by Kolliker (1852) and the first clinical aspects were detailed by Lewis (1863) although this is generally credited to Betz (1879). Contributions since that time have detailed the various clinical manifestations and have been concerned with refining methods of surgical treatment.

The presenting clinical features of this structure are directly related to its lymphoid tissue composition and its anatomical position. The pathological processes that may affect the lingual tonsil bear comparison with those that also affect the palatine and nasopharygeal tonsils.

The lingual tonsil comprises a lymphoid tissue mass resting on a thin layer of fibrous tissue insufficient to be a definite capsule. There is substantial individual variation in the size and disposition of lymphoid tissue in this location, although not usually clinically obvious in the asymptomatic patient. Most commonly two lateral masses are symmetrically placed on either side of the midline divided by the glosso-epiglottic fold. The lingual tonsil is often intimately related to the inferior pole of the palatine tonsil and it may be so prominent as to fill the vallecula and impinge against the epiglottis displacing it posteriorly, so that the epiglottic tip is buried in the lingual tonsil. It tends to involute with advancing years, but may occasionally increase in size.

Cohen (1917) quotes studies by Piersol who found that the lingual tonsil develops in the last two months of fetal life and Bickel who showed that the lingual tonsil is the last of the oropharyngeal lymphoid structures to atrophy.

Hyperplasia is the most common abnormality, but is rare in children. It may often follow adenotonsillectomy and in these instances is thought to represent a compensatory hyperplasia (Elfman, 1949). Enlargement may also be seen in extremely atopic individuals (Elia, 1959). Clinically, hyperplasia of the lingual tonsil may present with symptoms attributable to its anatomical position. These may include globus sensation, alteration of voice, chronic cough, choking, dyspnoea and obstructive sleep apnoea. Discomfort may arise on swallowing as a result of hyperplasia as distinct from odynophagia and pharyngeal symptoms secondary to inflammatory conditions. There are no consistent symptoms attributable to the lingual tonsil (Elia, 1959) and one should be suspicious of this condition in patients with vague pharyngeal symptoms (Browne, 1893).

Acute lingual tonsillitis as a distinct entity was uncommon in this series, but is characterized by acute pain at the level of the hyoid, most marked on swallowing and accompanied by fever and an elevated white cell count. The tonsil itself is red, swollen and with an accompanying exudate. As with similar inflammatory processes the condition responds to analgesia, rest, and appropriate antibiotic therapy.

Inflammation of the lingual tonsil readily causes sore throat, fever, dysphagia and referred pain. Adjacent inflammation of the pharynx may affect the larynx and cause vocal change. Intimate contact with the epiglottis may provoke coughing and interfere with the normal swallowing mechanism to induce globus symptoms or uncommonly a foreign body sensation. A rare consequence of a large lingual tonsil when associated with nocturnal pharyngeal collapse is obstructive sleep apnoea (Olsen *et al.*, 1981).

The variety of presenting symptoms is interesting. The relative rarity of problems in children seems to parallel an inverse relationship with those of the palatine tonsil. However children may be affected, most dramatically with airway problems. Cohen (1917) cites a report by Hickman of neonatal asphyxia as a consequence of massive enlargement of the lingual tonsils.

Differential diagnosis of tongue base masses will include benign or malignant growths of any element within the tongue base. Congenital abnormalities including dermoid cysts, thyroglossal duct cysts and lingual thyroid tissue must be borne in mind. The symmetry of the lingual tonsil and its midline division usually simplify the diagnosis. A thyroid scan should be performed if there is any suspicion that the mass might be lingual thyroid tissue.

A diagnosis can almost always be made upon the history and examination. Invariably this can be made simply with indirect laryngoscopy. Patients with symptoms of an inflammatory nature may have the root of the problem seated within even a small lingual tonsil. Pain mimicking that of the dominant symptom maybe induced by palpation to confirm the diagnosis. An unsuspected malignancy may often only be diagnosed at a readily treatable stage by palpation comparable with anterior tongue lesions. The value of palpation in routine examination is apparent and should not be neglected (Jesberg, 1956).

Investigation may often be helpful. An indication of an inflammatory condition can be confirmed by a full blood count and sedimentation rate. Radiology is important as a baseline study to indicate the size of the lingual tonsil and correlates well with the subjective impression of indirect examination. Lateral soft tissue X-ray is the simplest and most valuable (Welin, 1948; Forrest and Lester, 1973). There seems little advantage in the use of high kV examination or xeroradiography. Lateral

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cephalometry does allow a truer comparison for assessment between different individuals and treatment groups. Nasendoscopy is valuable in viewing the tongue base for patients with intractable gagging and is important when obstructive sleep apnoea is suspect (Sher *et al., 1985*).

The lingual tonsil is by virtue of its position susceptible to irritation and inflammation by chemical agents. The suppression of atopy and avoidance of chemical irritants such as dusts, tobacco smoke and industrial compounds is important. Attention to aggravating factors must always be the first principle in treatment. Their suppression may control the symptoms and should improve the prospects of success from further intervention. A careful search should be made for evidence of nasal sepsis or gastro-oesophageal reflux to the pharynx and these conditions treated. Local muscular factors pertaining to vocal misuse particularly in professional voice users can be assessed and treated by speech therapy (Cohen, 1917).

Treatment of the acutely inflamed lingual tonsil rarely requires surgery. However, the possibility of a foreign body causing inflammation lodged in the lingual tonsil should be considered (Joseph *et al.*, 1984). A recurrently infected lingual tonsil unresponsive to antibiotic therapy may require removal and an abscess will need to be drained (Waugh, 1923; Newman and Johnson, 1979).

Surgery should also be considered for persistent symptoms and their recurrence attributable to lingual tonsil hyperplasia. Reduction of the lingual tonsil by surgical means is rendered hazardous by the copious blood supply to the tongue base. Excision by sharp dissection, snare or adenoid curette have all been practised in the past and some current advocates remain despite the risk of haemorrhage (Joseph *et al.*, 1984).

Electrocautery is readily available to almost all surgeons and its use has stood the test of time (Foster, 1928; Hollender 1932; Joseph *et al.*, 1984). Tissue reduction is caused by fibrosis following electrocautery with minimal risk of post-operative haemorrhage. Spatulate diathermy points applied to the surface and needle points inserted into the lingual tonsil have each been used with good results.

Reliable reduction of tissue mass can also be achieved by lingual cryotonsillectomy (Brain, 1974), the tissues are swept through temperature gradients by repeated freezing. At least three successive applications of a suitable cryoprobe for 40 seconds at a temperature of −80C or less will cause iceball formation and subsequent cell death within the target area. Good probe contact to the treated area is important for good results and it is essential to thaw the probe before withdrawal because of the risk of haemorrhage if tissue is broken off. Care must be taken to avoid freezing of the epiglottis because of the risk of oedema and a compromised airway. The immediate appearance is one of failure but necrosis follows within two to three weeks, approximately 75 to 95 per cent of lymphoid tissue being destroyed as a result of the first treatment (von Leden and Rand, 1967). Lymphoid remnants may have a reduced liability to further infection (Rabkin, 1968). Some tissue may persist to warrant further treatment which is easily reapplied.

The CO_2 laser has become a favoured modern instrument because it facilitates excision with immediate haemostasis. Excisional techniques clearly allow an immediate assessment of the final result and also provide tissue for histological examination. The complication of haemorrhage is rendered less likely by tissue reduction from either electrocautery or cryotherapy. Although revision procedures may be required as the final result cannot be accurately anticipated at the time of surgery, these methods are frequently less painful than those involving tissue resection.

A cautious attitude exists in the older literature toward lingual tonsillectomy, because of the risk of haemorrhage (Sluder, 1917; Elfman, 1949). However, it is recommended as the best form of treatment by Jesberg (1956), and practised by Joseph *et al.*, (1984). Indeed excision biopsy does allow for histological examination of resected tissue not available from those patients treated by cryosurgery or electrocautery.

The symptoms attributable to inflammatory causes were most frequent in our series but a variety of different presenting symptoms were noted in broad agreement with the findings of other authors. Our results indicate favourable experience with the use of cryotherapy which seems to cause less post-operative pain than the laser. Excisional techniques do have their advocates but they confer a substantial hazard in treating benign disease and they should be used with caution.

The lingual tonsil is not responsible for all pharyngeal ails but a variety of pharyngeal symptoms may result from various lingual tonsillar pathologies. Symptomatic relief may frequently follow control of irritative factors but severe symptoms merit surgical treatment.

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