Tonsils and Adenoids and the Professional Musician

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Tonsil and adenoid surgery—tonsillectomy and adenoidectomy—has a bad reputation among professional musicians, albeit ill-deserved. This is not to deny that, in the past, some tonsil and adenoid surgery has had adverse effects on the voice of a number of professional singers, and on the ability to maintain air pressure within the respiratory tract in some wind musicians. These problems are, for the most part, preventable.

Disease

Waldeyer's ring consists of the adenoid, the lateral bands, the (faucial) tonsils, and the lingual tonsils. The two disturbances of these tissues with which we are concerned in this review are infection and hypertrophy.

Infection

Many individuals suffer from recurrent acute tonsil and adenoid infections, both in childhood and again in the late teens and early twenties. In time, recurrent acute infections may evolve into a chronic infection, which in turn may wax and wane, resulting in chronic mild and recurring acute symptoms. These situations can be quite disabling to the singer, both medically and professionally.

After embarking on a singing career, use of the voice and throat for singing adds additional strain to the system. The throat tends to become dry, the mucus stagnant, and infection may develop. In the presence of tonsils and adenoid tissue, the infection may settle into these organs resulting in acute tonsillitis and adenoiditis, which again may evolve into the chronic fluctuating variety.

Once at this stage, the natural history of the disease is discouraging. It may take years or decades for the disease to "burn out." The choice of treatment often lies between long-term prophylactic antibiotic treatment (not always successful) and surgery.

Hypertrophy

Enlargement of the tissues of Waldeyer's ring is associated with numerous adverse effects (Table 1).

TABLE 1. **Adverse Effects of Enlargement of Adenoid and Tonsils***

Sleep disturbances
Chronic daytime fatigue
Personality changes
Depression
Hostility
Paranoia
Morning headaches
Excessive sleepiness
Snoring
Nocturnal choking spells
Frequent awakenings
Decreased exercise tolerance
Shortness of breath with exertion
Mouth breathing
Decreased appetite
Growth arrest
Failure to thrive
Lessened sense of smell
Difficulty eating and swallowing
Denasal speech ("talks through nose")
Chronic nasal drainage
Frequent or persistent colds
Enlarged heart
High blood pressure
Heart failure

*Modified from Thurston et al.[1]

For the singer, impairment of respiratory function is a significant factor in itself, but the effect of this obstruction on the quality of the voice is also a prime consideration.

Upper respiratory obstruction usually results in a hyponasal (denasal) voice. This can be approximated by speaking with the nose pinched shut (usually occurs with a head cold). Hyponasality is extremely undesirable for the singer; the voice lacks nasal resonance, sounds constricted or "flat," and does not project well. These changes result because the resonance or amplification characteristics of the vocal tract are altered by the nasal obstruction. The harmonics in the vocal tone are not resonated normally.

Velopharyngeal Incompetence

Closure of the velopharyngeal port into the nasal cavity requires a functional soft palate in normal proportion to the posterior pharyngeal wall. The adenoid pad, if enlarged, may contribute to velopharyngeal closure by protruding toward the soft palate. The soft palate will then contact the adenoid pad rather than the posterior pharyngeal wall.

Infection and/or hypertrophy are well accepted indications for tonsillectomy and adenoidectomy. A major concern is whether or not the patient's status might change from hyponasality (denasal) to the hypernasality of velopharyngeal insufficiency (rhinolalia aperta) because of the surgical removal of an adenoid pad, which is necessary to accomplish velopharyngeal closure. In addition to the possible adverse effect of the surgery upon the speaking and singing voice, velopharyngeal insufficiency can interfere with the maintenance of sufficient air pressure within the respiratory tract to enable the playing of wind instruments. These undesirable effects may arise under three different circumstances.

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Congenital Palatal Insufficiency

The soft palate may be too short or too weak to make closure against the posterior wall of the pharynx (the upper margin of the superior constrictor muscle), resulting in incomplete closure of the velopharyngeal sphincter. Such incomplete closure results in a hypernasal voice quality and the inability to build up normal air pressure in the mouth during speech and other activities.

Congenitally Enlarged Nasopharynx

Once the adenoid is out, the distance between the back of the soft palate and the posterior nasopharyngeal wall may be too great to allow closure. After adenoid removal, the soft palate should adapt in about six weeks by moving further to contact the pharyngeal wall. If the palate is too small to reach the posterior pharyngeal wall, the individual may remain hypernasal.

Less-than-Desirable Surgical Technique

Tonsillectomy should be performed with a high degree of precision, taking special care not to remove any of the palatal/faucial mucosa other than that immediately covering the tonsil proper. Also, care must be taken to stay precisely in the peritonsillar fascial plane, and not to damage the muscles in the tonsil bed. Muscles in the faucial arches are important contributors to movement of the soft palate. If these muscles are damaged, the closure of the velopharyngeal port may no longer be adequate.

Preoperative Evaluation

A very careful evaluation, along the lines outlined below, is extremely important for all patients in whom surgery of the adenoids and/or tonsils is contemplated.

History

Congenital defects, especially of the palate or face, in the patient and/or the family is an important consideration, as are adverse effects of tonsil and adenoid surgery in other members of the family.

Examination

The soft palate. Evaluate the strength of the palate by asking the patient to say a prolonged "Ah." Saying "Ah" elevates the palate and moves the posterior and lateral walls inward. In normal velopharyngeal closure the palate makes complete contact with the posterior and lateral pharyngeal walls. The degree of development of the uvula muscle can be determined by direct transnasal nasopharyngoscopy using either a rigid or a flexible nasopharyngoscope. When the patient says "Ah," the soft palate should elevate and the anterior-posterior ridge of the uvula muscle should be readily visible.

The thickness of the soft palate may be estimated by transillumination. A fiberoptic light source is passed along the floor of the nose so that it comes to lie on the dorsum of the soft palate. The transilluminated palate is then viewed transorally in a darkened room.

A bifid uvula may indicate an insufficiency in the soft palate or abnormal muscle function in velopharyngeal closure.

The hard palate. Congenital deformity may result in a high-arched palate. A submucous cleft may be identified by palpating the middle of the hard palate. An occult submucosal cleft may be determined by palpation of the area of the posterior bony palatal spine.

Tests

A lateral x-ray of the nasopharynx, at rest, will usually give a good idea of the general morphology of the area, including the position and thickness of the velum, the size of the nasopharyngeal vault, and so forth.

An x-ray with phonation will evaluate the velum and show it in action, including the degree of elevation, development of the velar "knuckle," ability to close the velopharyngeal gap, and the presence of veloadenoidal rather than velopharyngeal closure. The best velopharyngeal closure will be obtained during production of the prolonged /s/ sound.

Xerograms, permissible in the adult (they involve a slightly larger x-ray dosage), give even a better definition than plain x-rays.

Finally, from a functional perspective, cineradiography has a place when there still remains an element of doubt regarding the adequacy of soft palate movement during speech and other activities.

The Team Approach

Although most patients may be adequately evaluated by the surgeon alone, for the professional musician a preoperative consultation with a voice/speech pathologist may be warranted. The voice/speech pathologist evaluates velopharyngeal function during a variety of activities while the patient is employing various articulation patterns. Occasionally, velopharyngeal problems may reveal themselves to be coordination problems between the palate and other articulators.

Many adult professional singers, especially those with preoperative hypertrophy of the tonsils and adenoids, comment favorably on the improvement in the quality of their voice following surgery.

For many years now, patients with known or suspected palatal problems have been evaluated, and when appropriate, managed by Cleft Lip and Palate Clinics. Members of such a team include surgeon (plastic or otolaryngologist), otologist (otolaryngologist), voice/speech/language pathologist, dentist/pedodontist, orthodontist, and prosthodontist.

When a patient, especially a musician, is suspected of having a palatal problem, either congenital or acquired, any or all of the team should be consulted.

Surgical Technique

Tonsillectomy

The anterior, superior, and posterior junctions between the tonsils and the palate actually consist of three folded mucosal layers (Figure 1). Before making the incision, the tonsil should be grasped with a tenaculum and pulled anterosuperomedially in order to unfold the mucosa (Figure 2).

Adenoidectomy

Many people, including some physicians, labor under the illusion that all adenoids atrophy by puberty, and that one need not concern oneself with them when performing a tonsillectomy in the adult. Although it is quite true that the adenoids do tend to shrink in time, and examination of the normal

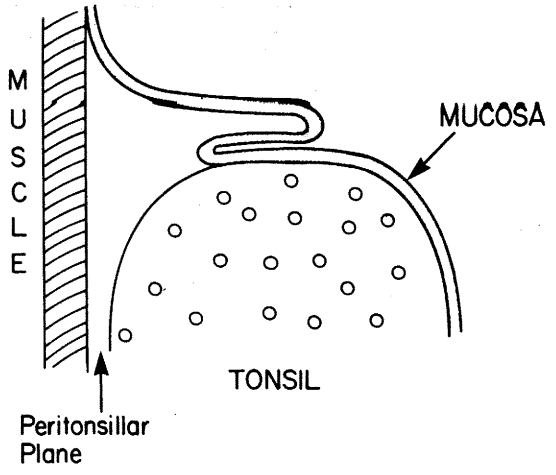

FIGURE 1. Mucosal flap surrounding tonsil.

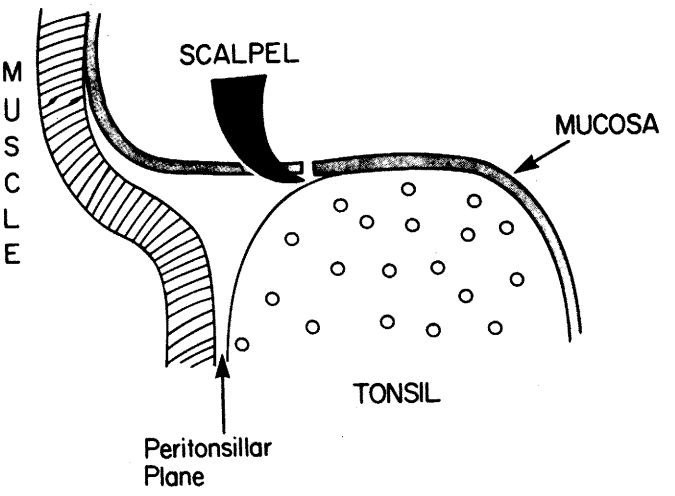

FIGURE 2. Mucosal flap unfolded and site of incision.

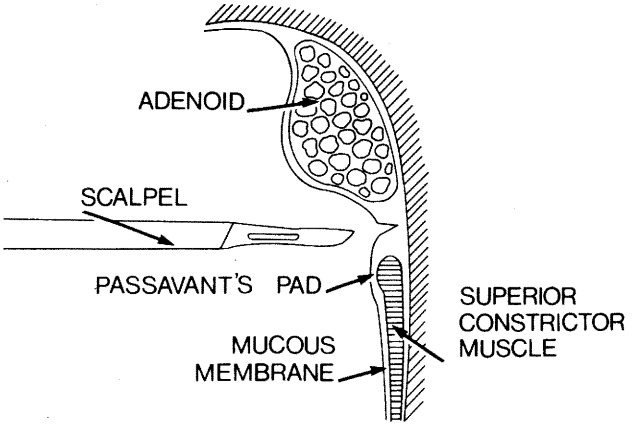

FIGURE 3. Infra-adenoidal incision to protect Passavant's pad.

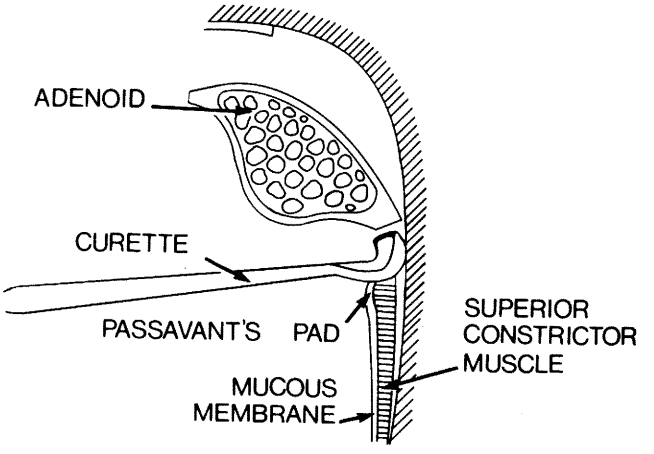

FIGURE 4. Excision of adenoid, using the curette, down to the infra-adenoidal incision.

adult patient may reveal very little residual tissue, it is quite common to find a significant amount of adenoid tissue in patients with tonsil problems.

When removing the adenoid, the lower margin should first be demarcated by a horizontal incision (Figure 3), just above Passavant's pad (the upper margin of the superior constructor muscle), so that the circumferential constrictor/palatal sphincter action is not impaired (Figure 4).

Anesthesia

In adults, tonsillectomy may be performed under either general or local anesthesia and adenoidectomy under general anesthesia only. Physician preferences vary widely. In Europe, most patients usually undergo both tonsillectomy and adenoidectomy under general anesthesia. In North America, many surgeons perform only tonsillectomy, for whatever reason(s), under local anesthesia.

Postoperative Course

It is normal for the patient to notice significant deterioration in the quality of the voice immediately following surgery because of swelling of the soft palate; stiffness as well as pain on swallowing and speaking, may also be noted. This normally resolves within 3 to 10 days, rarely persisting for 2 to 3 weeks. It is also normal for wind instrument players to have problems with maintaining airway pressure for some weeks, usually 3 to 6, rarely for up to 3 months, for the same reasons.

Many adult professional singers, especially those with preoperative hypertrophy of the tonsils and adenoids, comment favorably on the improvement in the quality of their voice following surgery. In my experience, none has been dissatisfied. Most notice no real appreciable change.

Some popular singers may "capitalize" on their denasality, developing a distinctive denasal voice for which they are admired, and therefore may be reluctant to have a more natural voice restored by surgery. Insofar as possible, obviously, their preferences must be respected.

Conclusion

Tonsillectomy and adenoidectomy, in the carefully selected and evaluated professional singer, is a relatively safe and medically effective treatment for chronic infection and/or hypertrophy, and occasionally results in significant improvement in the voice. For wind instrument players, there are usually no long-term adverse effects.

Reference

1. Thurston JB, Larson DL, Shanks JC, et al: Nasal obstruction as a complication of pharyngeal flap surgery. Cleft Palate J 17:148–154, 1980.