IMAGES

Experience of Adult-Onset Velopharyngeal Insufficiency after Tuberculosis of the Soft Palate

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Velopharyngeal insufficiency (VPI) is a condition in which the velopharyngeal structures fail to close the nasal cavity while the patient is speaking. VPI usually presents in association with cleft palate, submucous cleft palate, palatal fistulae, adenoidectomy, and neuromuscular disorders; after cleft palate surgery; or after the removal of tumors. Adult onset VPI is uncommon, and relatively few cases of this condition have been reported. Approximately 2% of patients with active pulmonary tuberculosis show evidence of upper respiratory tract involvement [1]. Although the most common site is the larynx, other structures, such as the tongue, palate, tonsils, pharynx, and buccal mucosa, may be involved. Primary tuberculosis of the upper respiratory tract in the absence of active pulmonary tuberculosis is exceptional. Here, we present a rare case of oronasal fistula, which occurred after tuberculosis of the soft palate in an adult.

A 41-year-old woman presented at our institution's Ear, Nose, and Throat Department with an ulcerative mass and an oronasal fistula of the soft palate. She had complained of hypernasality, nasal air emission, and nasal regurgitation for five days. The result of a mass biopsy of the ulcerative lesion on the soft palate (Fig. 1) revealed chronic granulomatous inflammation with caseous necrosis. There was no evidence of any primary focus in the body. Therefore, the patient was diagnosed as having oropharyngeal tuberculosis, and antituberculosis treatment based on isoniazid (300 mg), pyrazinamide (1,500 mg), ethambutol (800 mg), rifampicin (600 mg), and pyridoxine (50 mg) was started.

One month later, the patient was referred to plastic surgery for the management of an oronasal fistula. She presented with a 10×10 mm oronasal fistula of the soft palate, presumed to be due to ulceration and contracture (Fig. 2). The remainder of the oral cavity was grossly normal. To assess nasality and velopharyngeal closure, a nasometer was utilized. A single speech therapist reviewed phonation results and scored speech acuity and intelligibility by using



Fig. 1. Finding after mass biopsy of the ulcerative lesion.



Fig. 2. Preoperative finding of oronasal fistula.





Fig. 3. Immediate postoperative view.

Fig. 4. Six months after surgery, the flaps were well maintained.



Fig. 5.

Preoperative and postoperative mean nasalance scores. This figure represents improved hypernasality as determined by speech assessment tools 1 week after surgery. At 6 months after surgery a satisfactory level of nasalance remained. POD, postoperative day.

> the Korean Simplified Nasometric Assessment Procedures. The mean nasalance scores were 59.8% for the syllable-repetition subtest, 47.4% for the simple vowel subtest, and 55.3% for the speech production subtest, which determined the presence of severe hypernasality. To achieve the two-layer repair of the fistula, a combination of the posterior pharyngeal flap for the nasal side and the palate mucosal flap for the oral side was performed. The donor site defect of the palate was covered with a buccal fat pad flap (Fig. 3).

A week after surgery, the donor site defect had completely epithelialized. The mean nasalance scores were 7.3% for the syllable-repetition subtest, 36.1% for the simple vowel subtest, and 7.3% for the speech production subtest, which represented a substantial improvement in hypernasality. Six months after surgery, the flaps were well maintained (Fig. 4), and the mean nasalance scores had minimally decreased 16.7% for the syllable-repetition subtest, 44.3% for the simple vowel subtest, and 25.0% for the speech production subtest, which represented nasalance in the normal range (Fig. 5). No recurrence of tuberculosis or of oronasal fistula at the primary site occurred over 18 months of follow-up.

Although tuberculosis affects the lungs in most cases, it can also affect any other part of the body. Studies by Faber et al. [2] indicated that less than 0.1% of tuberculosis cases exhibit oral lesions. According to Tieche [3], the prevalence of oral manifestations in patients with pulmonary tuberculosis ranges from 0.8% to 3.5%. Tuberculosis of the oral cavity is often a consequence of active pulmonary tuberculosis. Tuberculosis of the oral cavity may occasionally result from a hematogenous spread of mycobacteria [1]. However, in the described patient, tuberculosis was not detected at any other body site.

Although the larynx is commonly involved in upper respiratory tract tuberculosis, the anterior pillar of the fauces and the adjoining soft palate are the most common sites of oral tuberculosis [4]. Deposits usually take place in the form of discrete nodules with yellowish apple jelly-like centers. These nodules may ulcerate leaving radiating scars, which are reasonably characteristic. However, no such gross pathology was observed in our case.

The soft palate is a dynamic muscular structure that effectively separates the oral and nasal cavities. Soft palate defects may cause hypernasal speech and food reflux into the nose upon swallowing. Thus, a functional mucomuscular soft palate structure and the removal of oronasal obstruction are the goals of palate reconstruction. In our case, the oronasal fistula was reconstructed using a posterior pharyngeal flap, and after surgery, the patient's hypernasality scores improved. Furthermore, no complication was encountered, and neither the tuberculosis nor the oronasal fistula recurred.

In conclusion, we used a posterior pharyngeal flap to reconstruct a rare soft palate defect that occurred after the tuberculosis of the soft palate, and achieved excellent functional outcomes.

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Clinical Experience of Morel-Lavallee Syndrome

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Morel-Lavallee syndrome is closed internal degloving of subcutaneous tissue from the underlying fascia by trauma. It was first described in 1848 by French physician Victor Auguste Francosis Morel-Lavallee [1]. The cavity developed and filled with fluid such as hematoma or liquefied fat etc. It was associated with significant soft tissue injury and frequently occurred on the greater trochanter [2]. Although not common, it can be very severe with infection.

The first case was a 70-year-old man who had



