

Chapter 26 – Surgery of the Soft Palate

Jonas T. Johnson

Squamous cell carcinoma is the most commonly encountered neoplasm in the soft palate. These tumors develop on the surface epithelium.^[1–3] Epidemiologically, they are closely associated with the use of tobacco and alcohol (Fig. 26-1). Patients with squamous cell carcinoma of the palate are at high risk for the development of a second primary carcinoma of the aerodigestive tract, including the lung and esophagus, as well as other head and neck primaries.^[4–6] Accordingly, all patients with squamous cell carcinoma of the palate must be carefully evaluated for a potential synchronous primary carcinoma, including thorough imaging and endoscopic evaluation.

The next most commonly encountered tumors originate from the minor salivary glands, which are distributed in abundance throughout the soft palate. The most common benign tumor is pleomorphic adenoma. Adenoid cystic carcinoma is the most frequently encountered malignant tumor. Mucoepidermoid and low-grade polymorphous adenocarcinoma (Fig. 26-2A) and lymphoma (Fig. 26-2B) are encountered less often. Various studies have estimated that approximately 50% to 70% of tumors arising in the minor salivary glands are malignant.^[7–9] Cancer of the minor salivary glands is manifested as a submucosal mass that when small, is almost invariably asymptomatic. These tumors may first be noticed on routine dental examination. Occasionally, the tumors interfere with the fit of dental appliances or ulcerate and cause pain, thus bringing the patient to the dentist. The usual referral route is from the family dentist to the oral maxillofacial surgeon for treatment. Referral is then made to a head and neck surgeon for definitive management.

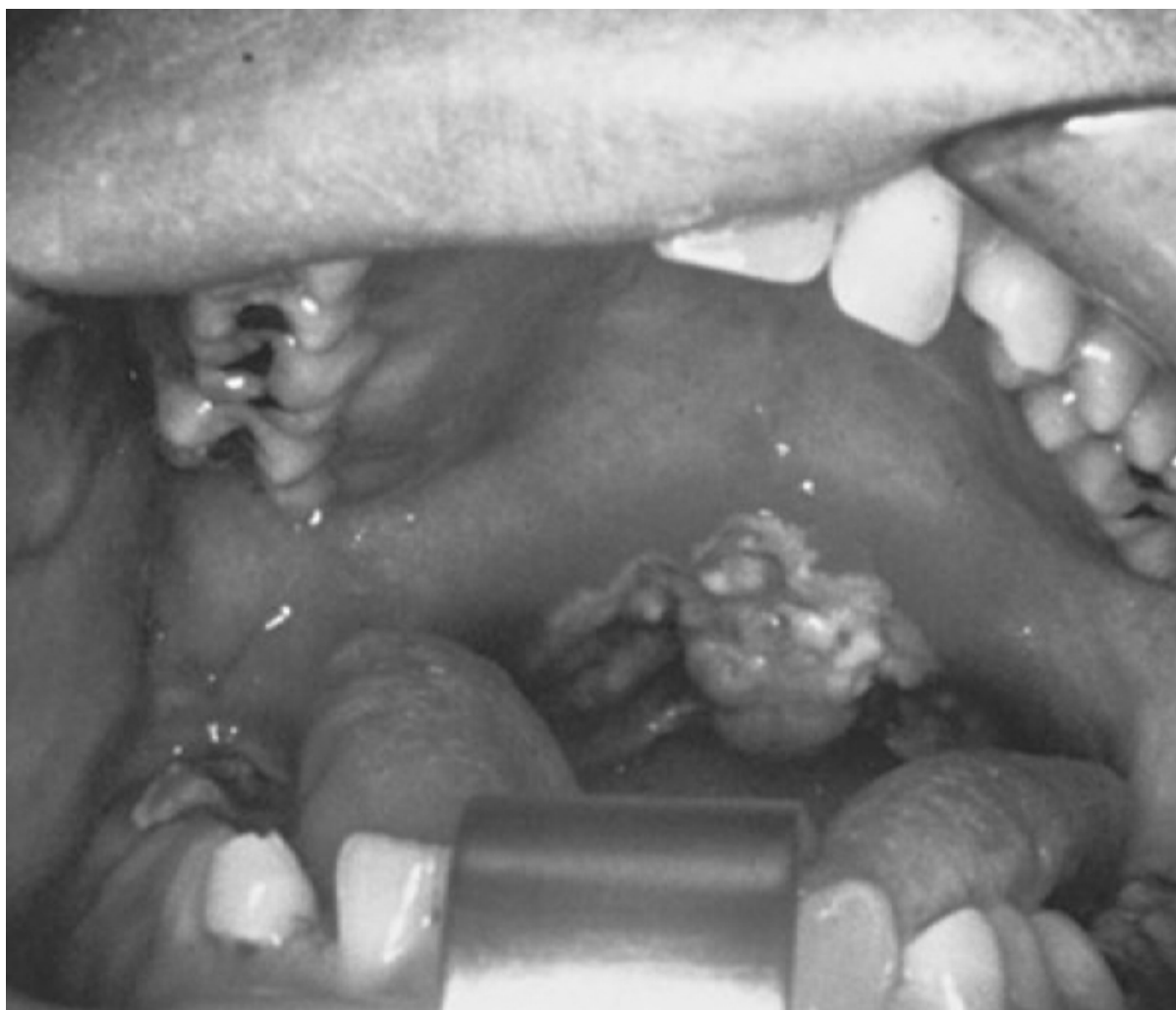


Figure 26-1 A destructive lesion of the uvula and soft palate is demonstrated. Biopsy confirmed squamous cell carcinoma.

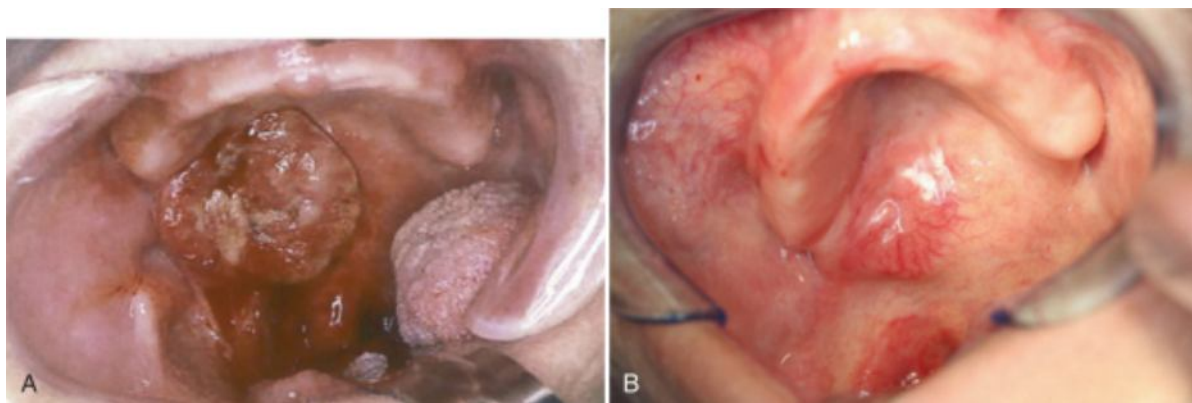


Figure 26-2 A, Patient with low-grade polymorphous adenocarcinoma. B, Patient with a lymphoma of the soft palate.

PATIENT SELECTION

In the past, surgical management of squamous cell carcinoma of the soft palate was limited to biopsy of the primary cancer and management of neck disease not controlled with radiation therapy.^[10–12] Cure rates of approximately 30% to 40% were reported.^[13,14] The relatively poor outcome reported in patients treated with primary radiation therapy for squamous cell carcinoma of the soft palate suggests that some of these patients may benefit from a combined program of surgery and postoperative radiation therapy.^[15] A more recent report from the University of Florida suggests that for limited carcinoma of the soft palate, radiation therapy alone or followed by planned neck dissection results in relatively high local-regional control and survival rates. For advanced cancer of the soft palate, local-regional control and survival rates are low and chemoradiation therapy is indicated.^[16,17]

The radiation therapist is limited in treating lesions of the soft palate because of the proximity of the cancer to the spinal cord. Radiation-induced transverse myelitis may occur if doses in excess of 4500 cGy are administered to the spinal cord inasmuch as it is generally accepted that at least 5000 cGy is required to control microscopic disease. Treatment of the retropharyngeal lymph nodes is a fundamental part of the treatment program because of the potential for metastases from cancer of the soft palate.^[18,19] This poses a legitimate practical challenge that has been improved with modern radiation techniques such as intensity-modulated radiotherapy (IMRT).

Conversely, the surgeon's ability to effectively resect the lymphatics in the retropharyngeal and skull base areas to which cancer of the palate may spread is technically limited. In the absence of identifiable metastases, we recommend wide resection of the primary cancer with bilateral selective neck dissection in zones 2 and 3. If metastases are palpable or visualized on scan, more comprehensive neck dissection should be undertaken, including excision of the retropharyngeal lymph nodes. Postoperative radiation therapy requires close collaboration with the radiation therapist in an effort to comprehensively cover the tissue at risk while sparing the spinal cord.

Reconstruction of the ensuing soft palate defect is problematic. In this region, re-establishment of “normal” soft tissue anatomy is not currently possible. Patients with small lesions of the uvula or posterior aspect of the palate accommodate nicely to surgical resection, with little or no residual defect. Patients who require major soft tissue resection will benefit from the use of a prosthetic speech appliance fabricated by a maxillofacial prosthodontist (Fig. 26-3). When prosthetic rehabilitation is planned, patients should be evaluated preoperatively by a dental consultant. Installing the prosthesis at the time of surgery with a lag screw through the prosthesis enables the patient to speak and swallow in the immediate postoperative period.

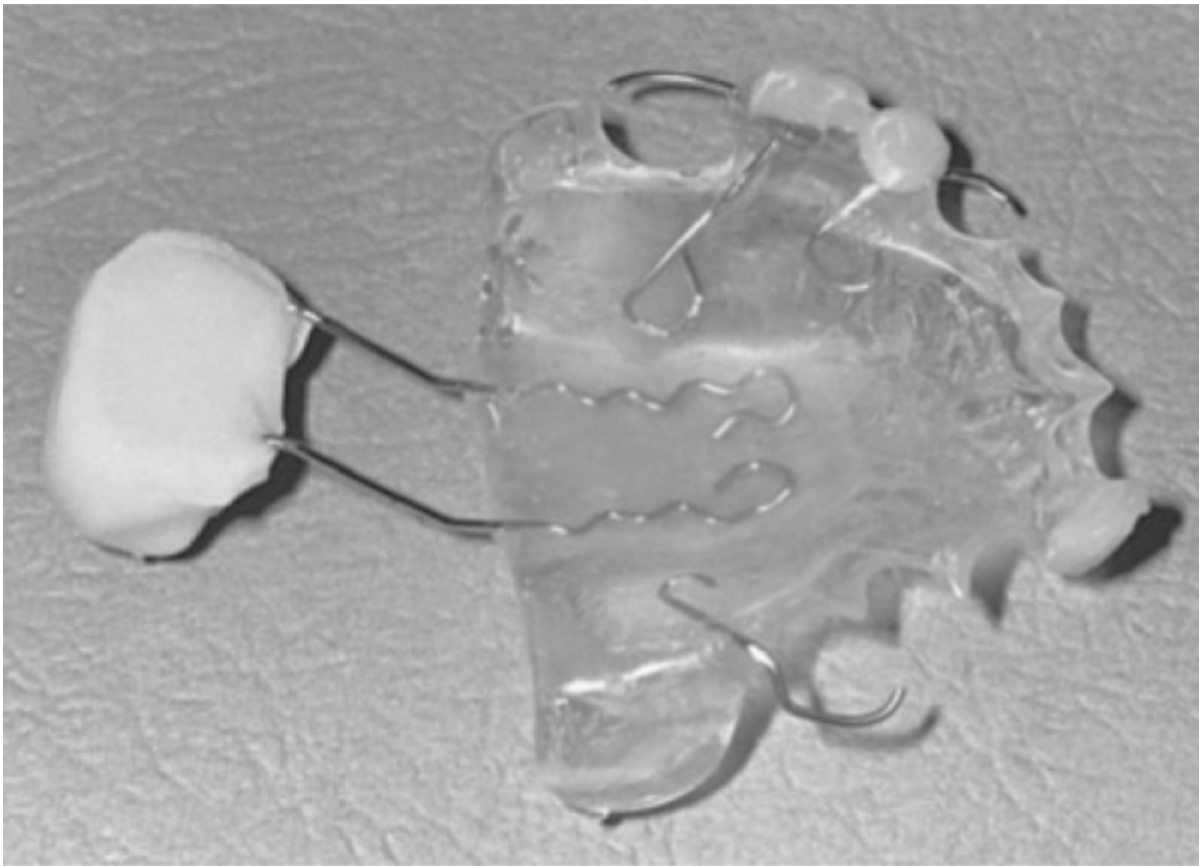


Figure 26-3 This temporary prosthesis demonstrates the clasps used for fixation in a patient with stable dentition. The posterior extension serves to replace tissue that was surgically removed. When the patient has healed and wound contracture is deemed complete, a final prosthesis is fabricated.

PREOPERATIVE EVALUATION

Squamous cell carcinoma of the soft palate is associated with a high (greater than 30%) frequency of metastatic disease to the retropharyngeal and upper deep jugular nodes.^[17,18] Accordingly, preoperative evaluation should include imaging with either computed tomography or magnetic resonance imaging to determine the depth of invasion of the primary tumor, as well as the presence of metastatic disease. The extent of soft tissue to be resected should be estimated preoperatively. If resection requires removal of only the uvula and the posterior aspect of the soft palate, reconstruction is unnecessary (Fig. 26-4). Temporary velopharyngeal insufficiency ordinarily corrects spontaneously as the patient convalesces.

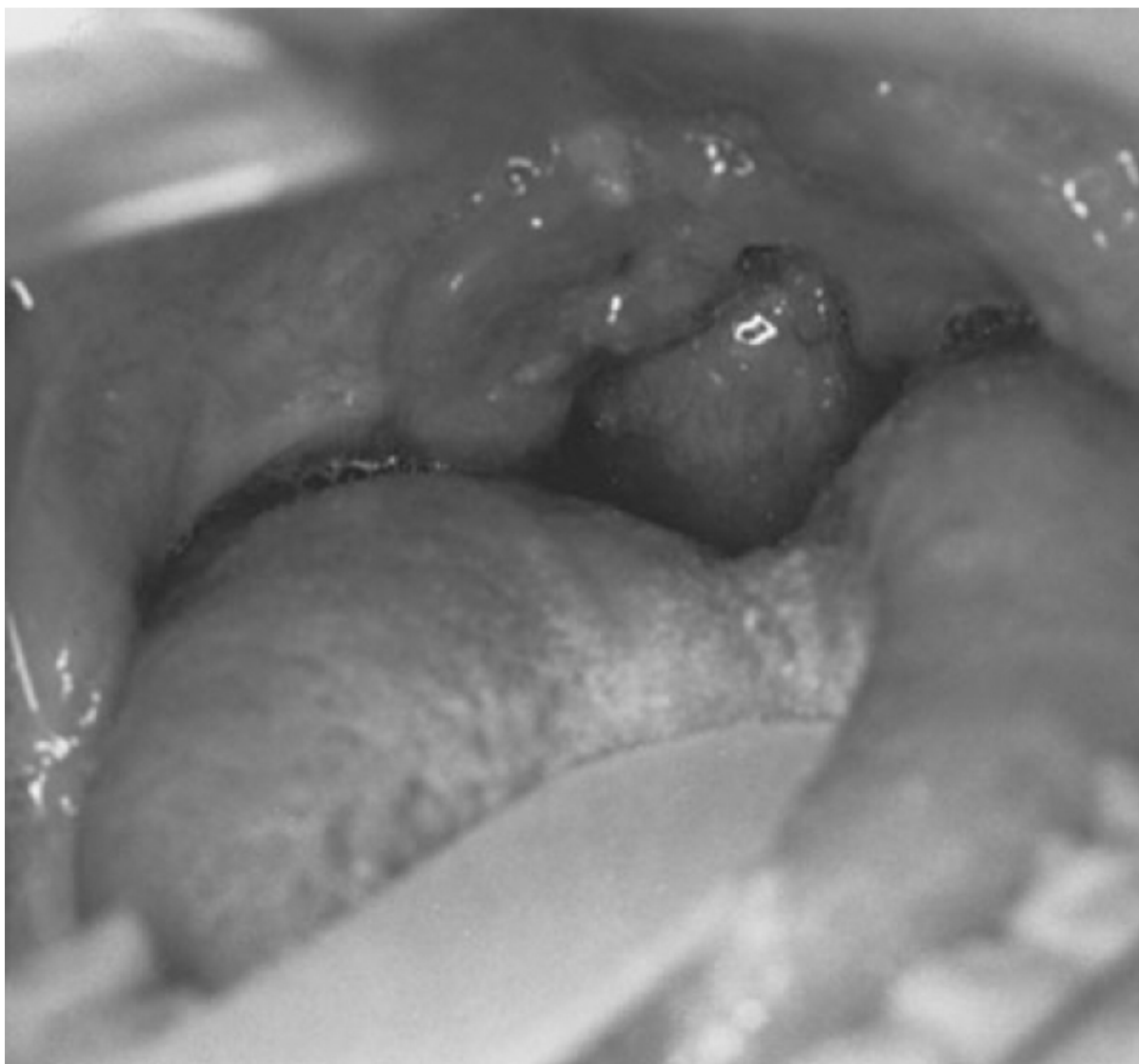


Figure 26-4 This squamous cell carcinoma of the soft palate has extended anteriorly almost to the junction with the hard palate. A temporary prosthesis may be required.

Resection requiring removal of the muscle of the soft palate will result in troublesome velopharyngeal insufficiency, as well as eustachian tube dysfunction and middle ear effusion, inasmuch as the tensor veli palatini is actively engaged in the normal physiology of the eustachian tube. Bilateral myringotomy with placement of ventilating tubes is advised.

Preoperative consultation with a maxillofacial prosthodontist will allow proper assessment such that a speech prosthesis, if needed, may be fabricated for use at the time of surgery. We prefer prosthetic reconstruction to use of the various pharyngeal flaps because prosthetic rehabilitation affords good functional performance and maintains the operative field so that continued visual inspection and follow-up are possible. Retention of these prostheses is invariably better in patients with residual maxillary dentition.

TECHNIQUES

Tumors arising in the soft palate should undergo biopsy before definitive surgery. If the tumor is benign, muscle and mucosa on the nasal side of the soft palate may be preserved, which eliminates the need for a prosthesis. Surgery on the soft palate is generally accomplished transorally (Fig. 26-5). The extent of disease is determined by direct inspection, palpation, and correlation with imaging studies. Resection is undertaken either with a knife or with an electrocautery unit (Fig. 26-6). Control of margins is ensured by frozen section, and the ensuing defect is closed primarily by approximating the mucosa on the nasal side of the defect to the mucosa on the oral side (Fig. 26-7). Minor salivary gland tumors may occasionally be excised with preservation of enough mucosa to allow primary closure. The high frequency of malignant disease encountered in these tumors dictates that the lesion be removed with an adequate cuff of normal tissue. Careful evaluation plus an understanding of the three-dimensional structure of the tumor is required to ensure complete excision.

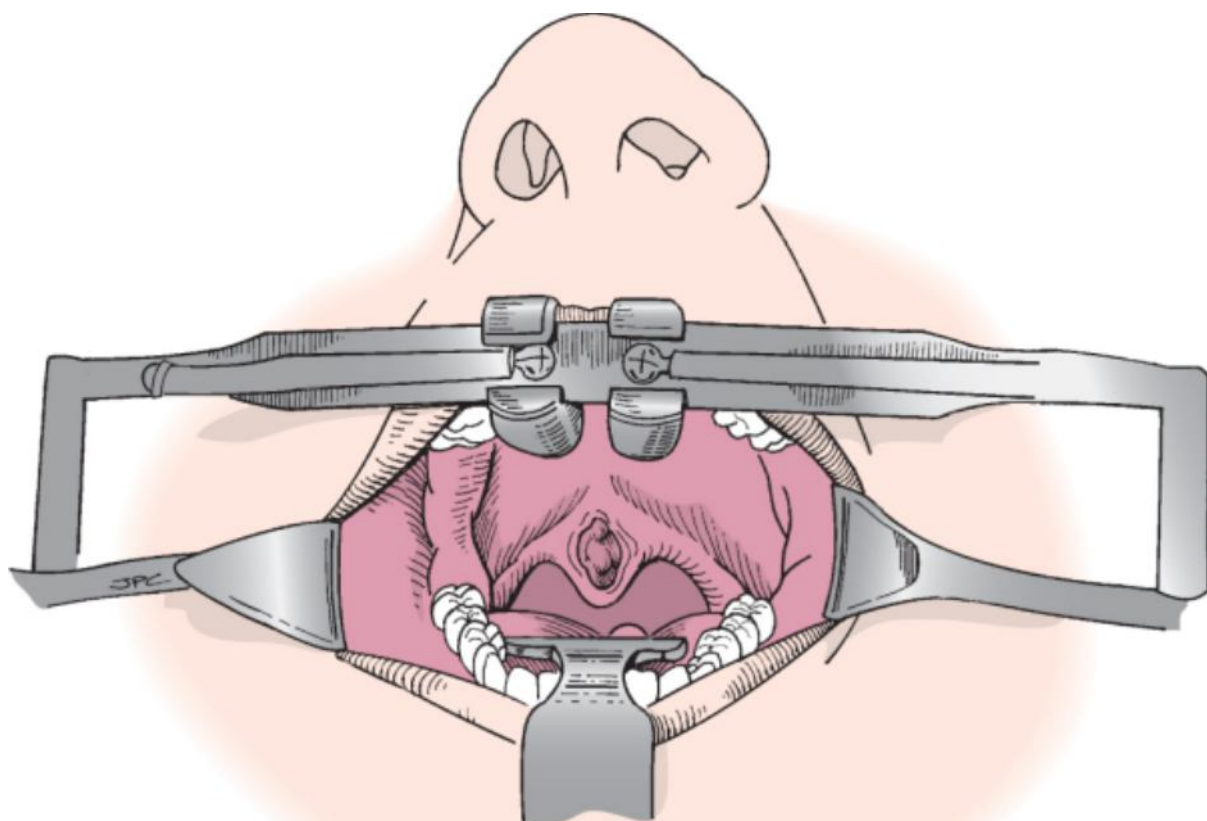


Figure 26-5 The Dingman mouth retractor affords good exposure of the soft palate.

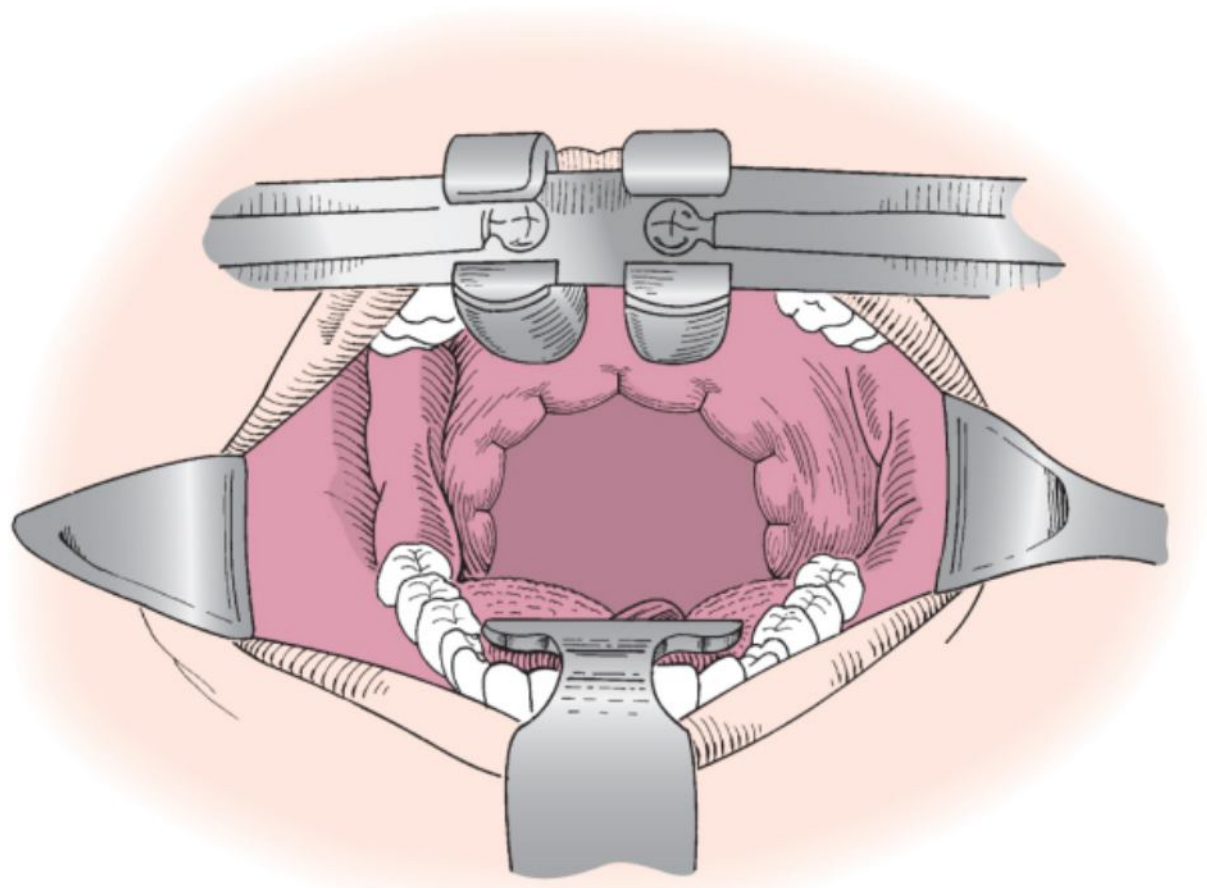


Figure 26-6 In resecting tumors involving the soft palate, the surgeon must take care to achieve margins in both the oropharynx and the nasopharynx.

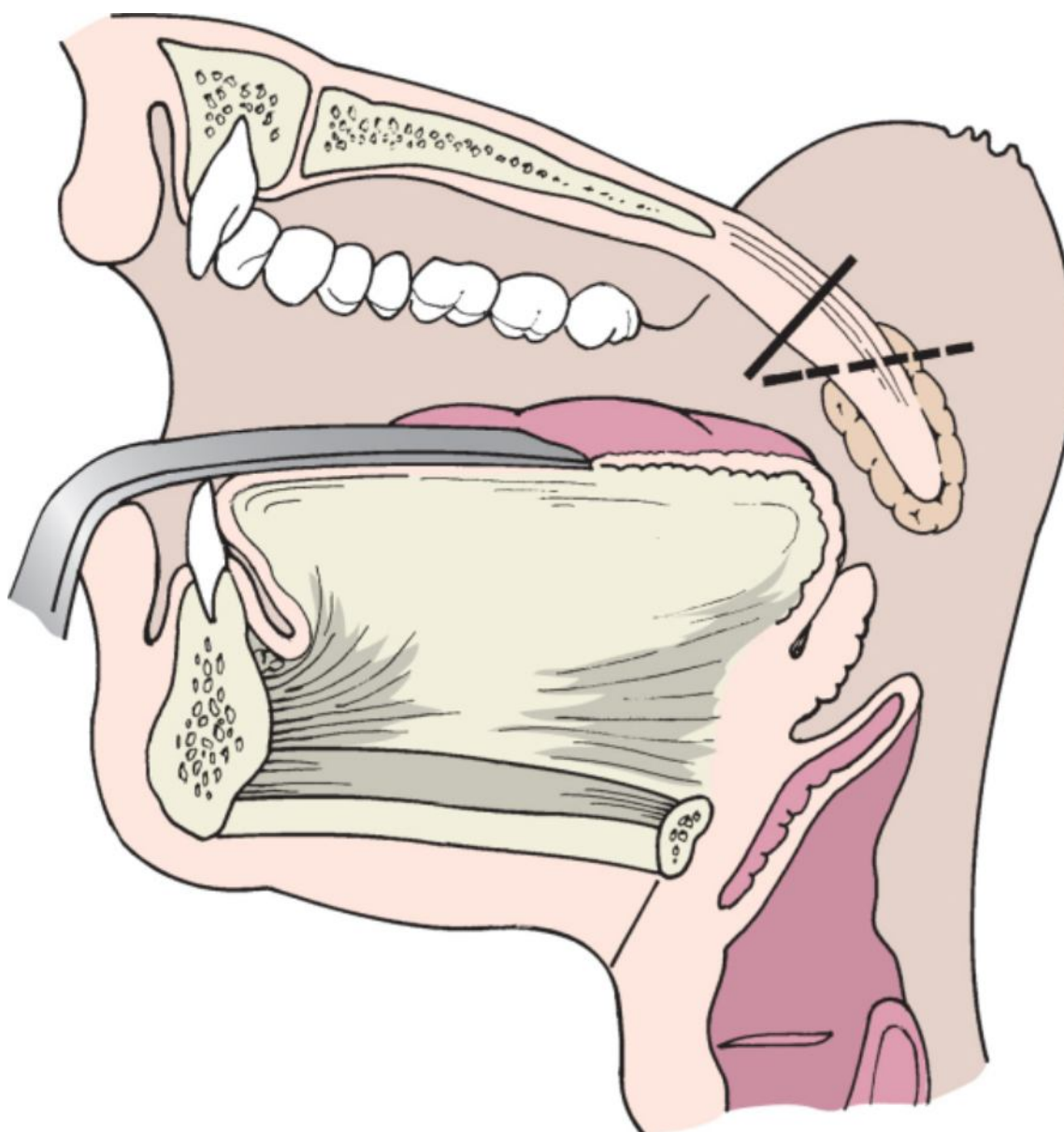


Figure 26-7 At the completion of the procedure, the nasopharyngeal mucosa should be sutured to the oropharyngeal mucosa if possible. If oral-nasal separation is a problem, a prosthesis (see Fig. 26-2) can be inserted.

A variety of techniques are available for tissue reconstruction of major soft palate defects. A simple approach to limited defects is to use the uvula.^[20] Larger defects have been reconstructed with pedicled flaps such as the temporalis muscle.^[21] Free tissue transfer, such as the radial forearm flap, has also been described.^[22,23]

POSTOPERATIVE MANAGEMENT

Pain and swelling may limit oral alimentation. Because velopharyngeal closure is a dynamic process, prosthetic rehabilitation takes advantage of residual mobile structures. The prosthesis is an extension of a maxillary splint. It is configured to allow nasal breathing at rest. During swallowing, the superior constrictor muscle (Passavant's ridge) makes contact with the prosthesis, thereby establishing velopharyngeal closure. We insert this appliance at the time of surgical resection. A lag screw is placed through a hole provided in the prosthesis to fix it to the hard palate. This eliminates the need for a nasogastric tube and allows immediate oral alimentation. The prosthesis may be removed in 1 week so that areas that heal by secondary intention can be kept clean.

Postoperative radiation therapy should be considered in almost all patients with squamous cell carcinoma of the soft palate. The primary sites of nodal metastasis are the retropharyngeal nodes and skull base, which do not lend

themselves to elective neck dissection. Inability to control disease in these sites is the primary cause of failure.

PEARLS

- Cervical metastasis from soft palate lesions may include the retropharyngeal nodes.
- Adenoid cystic carcinoma is the most commonly encountered minor salivary gland tumor.
- A prosthodontist may facilitate rehabilitation by fabricating a speech prosthesis.
- Prosthetic management of a patient with an edentulous maxilla is often a challenge. Maxillary implants may need to be considered in an edentulous patient.

PITFALLS

- Major soft palate defects result in velopharyngeal insufficiency.
- Middle ear effusion commonly occurs if the levator and tensor veli palatine are affected.
- Edentulous patients retain a speech prosthesis poorly.
- Failure to secure hemostasis along the cut edge of the palate may result in postoperative hemorrhage.
- Recurrent disease may commonly be due to “geographic miss” of the combined efforts of the surgeon and radiation therapist. Accordingly, it is critical to discuss the important of at-risk areas of the skull base and retropharyngeal soft tissue.

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