

İntraoral Tümör Cerrahisinde Yumuşak Damak Rekonstrüksiyonu İçin Palatal Ada Flebi

Palatal Island Flap for Soft Palate Reconstruction Following Intraoral Tumor Surgery

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Özet

Tümör rezeksiyonu sonrası oluşan retromolar trigon ve palatal defektlerin rekonstrüksiyonu zorlu olabilmektedir. Küçük defektler primer olarak kapatılabilir, sekonder iyileşmeye bırakılabilir veya kısmi kalınlıkta cilt grefti ile kapatılabilir. Bununla birlikte, velofarengeal yetmezliğe yol açan veya sinonazal kaviteye açılan defektlerde daha ileri rekonstrüksiyon yöntemleri gerekir. Ağız içi defektlerin rekonstrüksiyonunda hedef; duyu hissinin korunduğu iyi vaskülarize olan, ince ve katlanabilir bir dokunun transfer edilmesidir. Oral kavite rekonstrüksiyonunda çeşitli lokorejyonel flepler tanımlanmıştır. Oral kavite rekonstrüksiyonunda palatal ada flebi ilk olarak 1977 yılında Gullane ve Arena tarafından tanımlanmıştır. Sert damak mukoperiostiumunun hemen hemen tamamı tek bir nörovasküler pedikülle bağlı olarak defekt alanına transfer edilir ve sekonder defekt olarak açığa çıkan palatal kemik birkaç hafta içerisinde herhangi bir fonksiyonel morbidite olmadan yeni mukozayla kaplanır.

Anahtar Kelimeler: orofaringeal kanser; palatal ada flebi; yumuşak damak rekonstrüksiyonu

Abstract

Reconstruction of the palate or retromolar trigone following tumor resection can be a challenging problem. Smaller defects can be closed primarily or left to heal by secondary intention, or repaired with a split-thickness skin graft. However, defects leading to velopharyngeal insufficiency, or those that enter the sinonasal cavity requires advanced reconstruction options. The transfer of well vascularized, pliable, thin tissue with preservation of sensation is the goal of reconstruction in intraoral defects. Various locoregional flaps have been described for oral cavity reconstruction. Palatal island flap is described in 1977 by Gullane and Arena as a versatile option for oral cavity reconstruction. The entire hard palate mucosa pedunculated on a neurovascular pedicle is transferred to the defect and the donor site of exposed palatal bone is resurfaced by new mucosa over several weeks without functional morbidity. Herein, we report two cases in which the palatal island flap was used for the single-staged reconstruction of palatal defect following tumor surgery of tonsil carcinoma.

Key words: oropharyngeal cancer; palatal island flap; soft palate reconstruction

Introduction

The oropharynx is one of the most difficult region to reconstruct and, most importantly, to rehabilitate. Seventy to

eighty percent of oropharyngeal carcinomas occur in the tonsillar complex and wide resection of soft palate is inevitable in advanced stage tumors. Reconstruction of the oropharynx is always challenging due to its complex anatomy and function. Especially, reconstruction of the soft palate is a challenging problem because of the dynamic nature of the soft palate.

Smaller defects may be closed primarily or left to granulate if there is no bone exposure. Transfer of local flap is an versatile option for reconstructing soft palate defects in which less than 50% of the soft palate is resected. However, in advanced stage tumors, extensive resection of the soft palate and pharyngeal wall resulted in large-sized defects and microvascular free flap transfer is an excellent alternative for reconstruction of these defects (1).

Reconstruction using 'like tissue' such as oral cavity mucosa provides well vascularized, sensate and thin donor tissue. The mucoperiosteal palatal island flap (MPIF) is a versatile option that based on a single neurovascular pedicle which exits from the greater palatine foramen. The vascular supply is derived from the descending palatine artery. Sensorial innervation of the palatal mucosa is emanate from the branches of the maxillary nerve, a branch of the trigeminal nerve. The sensorial innervation of the palatal island flap

provides an functional benefit to oral cavity reconstruction (2).

We report two cases in which the mucoperiosteal palatal island flap was used for reconstruction of palatal defect secondary to ablative surgery for tonsil carcinoma.

Case Presentations

Case Report 1

This patient was a 64-year-old woman with complaint of a sore in the throat and pain with swallowing. Physical examination revealed a left-sided 4x4 cm

left tonsil mass with extension onto the soft palate (Figure 1a). Neck examination revealed a ipsilateral 2x2 lymph node at level 2. A biopsy specimen of the lesion revealed squamous cell carcinoma and the tumor stage was T3N1M0 (American Joint Committee on Cancer AJCC,2002). The lesion was excised via lip split with midline mandibulotomy approach in combination with bilateral selective neck dissection. Ipsilateral soft palate and partial posterior pharyngeal wall was excised with tonsil carcinoma (Figure 1b).



Figure 1. (a) Left-sided 4x4 cm left tonsil mass with extension onto the soft palate is shown. (b) The defect following excision of ipsilateral soft palate, posterior pharyngeal and tumor is shown.

The palatal defect measured 3x3 cm. A superiorly based pharyngeal flap was elevated and sutured to superior margin of the defect (Figure 2a). A left-sided palatal

island flap was designed and used to reconstruct the soft palate defect (Figure 2b).



Figure 2. (a) A superiorly based pharyngeal flap was sutured to superior margin of the defect and a left-sided palatal island flap was elevated. (b) The palatal island flap was sutured to the defect. Lateral and posterior pharyngeal wall defects allow to heal by secondary intention.

Postoperatively, enteral nutrition was ordered via nasogastric tube for 10 days. The patient began a jelly diet on day 11 and advanced to a regular diet by postoperative day 14. After 4 weeks patient tolerated a regular diet. However, nasopharyngeal regurgitation was reported by patient occasionally. The patient was treated with postoperative adjuvant radiation therapy on the oropharyngeal region and the lymph node level 2 and 3 in the neck on both sides during 6 weeks. At a 4-week follow up evaluation the secondary defect of exposed palatal bone was well healed. Routine follow-up examinations showed that patients remained disease-free for 18 months. The patient was informed about prosthetic rehabilitation in the event of nasal regurgitation and she gave an informed consent for this case report.

Case Report 2

This patient was a 52-year-old man complaint of sore in the throat. Physical examination revealed a left-sided 4x3 cm right tonsil mass with extension onto the soft palate. Neck examination revealed a ipsilateral 2x2 cm lymph node at level 2. A biopsy specimen of the lesion revealed squamous cell carcinoma and the tumor stage was T3N1M0 (American Joint Committee on Cancer AJCC,2002). The lesion was excised via lip split with midline mandibulotomy approach in combination with bilateral selective neck dissection. Ipsilateral soft palate and partial posterior pharyngeal wall was excised with tonsil carcinoma. The palatal defect measured 3x2.5 cm. A right-sided palatal island flap was designed and used to reconstruct the soft palate defect (Figure 3).

Postoperatively, the enteral nutrition was ordered via nasogastric tube for 10 days. The patient began a jelly diet on day 8 and advanced to a regular diet by postoperative day 12. Patient tolerated a regular diet with unremarkable nasopharyngeal regurgitation. The patient was treated with postoperative adjuvant radiation therapy on the oropharyngeal region and the lymph node level 2 and 3 in the neck on both sides during 6 weeks. After adjuvant radiotherapy

nasopharyngeal regurgitation with fluid was occurred. Therefore, jelly diet and oral nutritional supplements were used for 3 weeks. After 3 weeks the patient tolerated regular diet. Routine follow-up examinations showed that patients remained disease-free for 12 months. The patient was informed about prosthetic rehabilitation in the event of nasal regurgitation and he gave an informed consent for this case report.



Figure 3. Palatal view of the second case at first month following palatal reconstruction.

Discussion

Most palatal defects are attributable to ablative cancer surgery. Palatal defects are occasionally in conjunction with lateral tongue base defect or tonsillar and pharyngeal defects. The targets of palate reconstruction include; separation of the oral and sinonasal cavities, intelligible speech, efficient swallowing, and mastication. The

transfer of well vascularized, pliable, thin, tissue with preservation of sensation is the goal of reconstruction in intraoral defects. The success of reconstruction depends on the dimension of defect, skill and availability of reconstructive surgeon, prosthodontists and speech pathologists (3,4).

Kimata et al. (5) classified the superolateral oropharyngeal defects into three types: type 1: lateral oropharyngeal wall defect including palatopharyngeal, palatoglossal, and superior pharyngeal constrictor muscles; type 2: defects extending to the ipsilateral soft palate; and type 3: defects extending to the contralateral soft palate. They reported that the type of defect was correlated with postoperative velopharyngeal function. The velopharyngeal function was worse in type 3 defects than in patients with type 1 and 2 defects. Velopharyngeal space is important for effective swallowing and intelligible speech. Therefore, narrowing the velopharyngeal space is necessary for obtaining satisfactory functional results. According to this classification, our both cases had type 2 defects. In case 1, a superiorly based pharyngeal flap was combined with left-sided palatal island flap for narrowing the velopharyngeal space. In case 2, wide posterior pharyngeal wall resection was performed during tumor resection and so, only right-sided palatal island flap was performed. In both patients, prosthetic rehabilitation did not require following palatal reconstruction.

Soft palate and lateral wall defects are the most challenging to treat with prostheses. Yoshida et al. have proposed that these defects are best managed with surgical

repair followed by the fitting of prostheses. Although surgical reconstruction including free flap can be transferred by microvascular techniques, the goal of reconstructive surgery should be to perform the simplest technique that accomplishes the desired goal with the least amount of secondary morbidity. The reconstruction of this area starts at primary closure and left to heal by secondary intention followed by skin graft, local flaps, regional flaps, and finally microvascular flaps. However, local flaps are usually preferable to more complex reconstruction techniques (6,7).

The palatal island flap is the most preferable local flap for the following reasons. It transfers a well vascularized and sensate tissue. It provides large tissue and allows good coverage without excessive bulk. It is easily harvested and provides single stage reconstruction. Moreover, there is very little donor site morbidity. In addition, superiorly based pharyngeal flap can be combined to this flap in larger defects. Lateral port size is important in the adjustment of hyponasality or hypernasality. The aim is to constitute a subtotal obstruction that provides resonance but avoids airway morbidity. Defects of the lateral and posterior pharynx were left to granulate by secondary intention such as in tonsillectomy defect (8). In case 1, left-sided pharyngeal flap was performed to narrow the velopharyngeal space. A minimal

velopharyngeal insufficiency was observed with liquids in the early period following the surgery. However, after 4 weeks patient tolerated a regular diet and prosthesis did not required.

Surgical reconstruction of the oropharynx has made remarkable advances. However, simple, single-staged local flaps should not be forgotten. The palatal island flap was used in two patients with acceptable functional results.

Conclusion

Palatal island flap should be keep in mind for soft palate defects following intraoral tumor surgery. This single-staged mucoperiosteal flap may obviates the need for prosthetic palatal rehabilitation in selected cases.

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