·专家共识·
Expert Consensus

颏下岛状瓣修复口腔颌面部缺损专家共识

陈传俊[1*],陈伟良[2*],孙长伏[3],何悦[4],蒋灿华[5],彭歆[6],尚政军[7],韩正学[8],李劲松[2],侯劲松[9],林李嵩[10],韩新光[11],魏建华[12],王志勇[13],吴煜农[14],郑家伟[4],李龙江[15],王慧明[16],李祖兵[7],郭传瑛[6],杨驰[4],石冰[15],张志愿[4]

(1.中国科学技术大学附属第一医院 口腔颌面外科,安徽 合肥 230001;
2.中山大学孙逸仙纪念医院 口腔颌面外科,广东 广州 510120;
3.中国医科大学附属口腔医院 口腔颌面-头颈外科,辽宁 沈阳 110002;
4.上海交通大学医学院附属第九人民医院 口腔颌面-头颈肿瘤科,上海 200011;
5.中南大学湘雅医院 口腔颌面外科,湖南 长沙 410008;
6.北京大学口腔医学院 口腔颌面外科,北京 100081;
7.武汉大学口腔医院 口腔颌面外科,湖北 武汉 430070;
8.首都医科大学附属北京口腔医院 口腔颌面-头颈肿瘤科,北京 100050;
9.中山大学光华口腔医学院附属口腔医院 口腔颌面外科,广东 广州 510055;
10.福建医科大学第一附属医院 口腔颌面外科,福建 福州 350005;
11.郑州大学附属第一医院 口腔颌面外科,河南 郑州 450000;
12.空军军医大学附属口腔医院 口腔颌面外科,陕西 西安 710032;
13.南京大学医学院附属口腔医院 口腔颌面外科,江苏 南京 210008;
14.南京医科大学附属口腔医院 口腔颌面外科,江苏 南京 210029;
15.四川大学华西口腔医院 头颈肿瘤外科,四川 成都 610041;
16.浙江大学口腔医学院,浙江大学医学院附属第一医院 口腔颌面外科,浙江 杭州 310006)

[提要] 颏下岛状瓣(submental island flap, SMIF)是面动脉分支颏下动脉恒定供血的轴型皮瓣,与口腔颌面部缺损区相邻,其质地、色泽与头面部相似,血运充分。该组织瓣制备较简单,且成活率高,适用于修复口腔颌面部中型缺损。然而,国内外对于SMIF的应用仍然存在争议,主要集中在颈淋巴转移患者使用该皮瓣的肿瘤安全性、皮瓣的制备方法等方面。为统一和规范SMIF在口腔颌面-头颈部缺损修复中的应用,本文集中国内多家医学院校口腔颌面外科专家的智慧,达成专家共识,供同道参考。

[关键词] 颏下岛状瓣;缺损;口腔颌面部;修复重建;专家共识
[中图分类号] R782.2 [文献标志码] A DOI: 10.19438/j.cjoms.2021.05.001

Expert consensus on application of submental island flap in oromaxillofacial head and neck defect reconstruction

CHEN Chuan-jun[1], CHEN Wei-liang[2], SUN Chang-fu[3], HE Yue[4], JIANG Can-hua[5], PENG Xin[6], SHANG Zheng-jun[7], HAN Zheng-xue[8], LI Jin-song[2], HOU Jin-song[9], LIN Li-song[10], HAN Xin-guang[11], WEI Jian-hua[12], WANG Zhi-yong[13], WU Yu-nong[14], ZHENG Jia-wei[4], LI Long-jiang[15], WANG Hui-ming[16], LI Zu-bing[7], GUO Chuan-bin[6], YANG Chi[4], SHI Bing[15], ZHANG Zhi-yuan[4]. *(1. Department of Oral and Maxillofacial Surgery, The First Affiliated Hospital of University of Science and Technology of China. Hefei 230001, Anhui Province; 2. Department of Oral and Maxillofacial Surgery, Sun Yat-sen Memorial Hospital, Sun Yat-sen University. Guangzhou 510120, Guangdong Province; 3. Department of Oromaxillofacial Head and Neck Surgery, School and Hospital of Stomatology, China Medical University. Shenyang 110001, Liaoning Province; 4. Department of Oromaxillofacial Head and Neck Oncology, Shanghai Ninth People's*

[收稿日期] 2021-05-17;[修回日期] 2021-07-12
[作者简介] 陈传俊(1963-),男,博士,教授、主任医师
[通信作者] 陈传俊,E-mail: ccj6318@sina.com;陈伟良,E-mail: drchen@vip.163.com。*共同通信作者

Hospital, Shanghai Jiao Tong University School of Medicine. Shanghai 200011; 5. Department of Oral and Maxillofacial Surgery, Xiangya Hospital Central South University. Changsha 410008, Hunan Province; 6. Department of Oral and Maxillofacial Surgery, Peking University School and Hospital of Stomatology. Beijing 100081; 7. Department of Oral and Maxillofacial Surgery, Hospital of Stomatology, Wuhan University. Wuhan 430070, Hubei Province; 8. Department of Oral and Maxillofacial Head and Neck Oncology, Beijing Stomatological Hospital, Capital Medical University. Beijing 100050; 9. Department of Oral and Maxillofacial Surgery, Guanghua School of Stomatology, Hospital of Stomatology, Sun Yat-sen University. Guangzhou 510055, Guangdong Province; 10. Department of Oral and Maxillofacial Surgery, The First Affiliated Hospital of Fujian Medical University. Fuzhou 350005,Fujian Province; 11. Department of Oral and Maxillofacial Surgery, First Affiliated Hospital of Zhengzhou University. Zhengzhou 450052, Henan Province; 12. Department of Oral and Maxillofacial Surgery, School of Stomatology, Air Force Military Medical University. Xi'an 71003, Shaanxi Province; 13. Department of Oral and Maxillofacial Surgery, Medical School of Nanjing University. Nanjing 210008, Jiangsu Province; 14. Department of Oral and Maxillofacial Surgery, Affiliated Stomatological Hospital of Nanjing Medical University. Nanjing 210029, Jiangsu Province; 15. Department of Oral and Maxillofacial Surgery, West China Hospital of Stomatology. Chengdu 610041, Sichuan Province; 16. Department of Oral and Maxillofacial Surgery, First Affiliated Hospital of Zhejiang University of Medicine, School of Stomatology, Zhejiang University. Hangzhou 310006, Zhejiang Province, China)

[Abstract] Submental island flap (SMIF) is an axial flap that receives its blood supply from the submental artery, a branch of the facial artery. It is in close proximity with many oral and maxillofacial regions, and provides a good texture and color match. The flap is easy to prepare and suitable for repairing medium-sized defects of the oral and maxillofacial region with high survival rates. However, there are still controversies about the application of submental island flap both at home and abroad, mainly focusing on the oncological safety of submental island flap for patients with cervical lymph node metastasis and the preparation method of the flap. In order to unify and standardize the application of submental island flap in repair of oral and maxillofacial head and neck defects, this paper focuses on the collective wisdom of experts in oral and maxillofacial surgery of many medical colleges in China, and reaches an expert consensus, so as to guide the clinical application of submental island flap.

[Key words] Submnental island flap; Defect; Oral and maxillofacial region; Reconstruction; Expert consensus
China J Oral Maxillofac Surg,2021,19(5):385-391.

Martin 等[1]于 1993 年首先报告，用基于颏下动脉的新型岛状皮瓣—颏下岛状瓣（submnental island flap，SMIF）成功修复 8 例口面部缺损。20 世纪 90 年代末，国内有颏下岛状瓣修复口腔颌面-头颈缺损的报告[2-3]。2008 年，Chen 等[4]基于该瓣常常依赖颏下动脉的上一级源动脉即面动脉为蒂旋转，来达到较远距离缺损的修复，将其命名为面-颏下动脉岛状瓣（facial-submental artery island flap，FSAIF）。近 20 多年来，在口腔颌面外科、耳鼻咽喉头颈外科、整形外科和肿瘤外科等国内外相关期刊中，有大量 SMIF 临床应用的报道，肯定了该瓣在一些特定的口腔颌面部缺损修复中的临床应用价值。本文综合国内多名口腔颌面外科专家关于 SMIF 临床应用的经验，初步形成专家共识，供相关临床工作者参考。

1 SMIF 的应用评价及存在争议

许多研究将 SMIF 与口腔颌面-头颈部修复重建常用的前臂皮瓣进行比较，认为 SMIF 的手术和住院时间明显缩短、修复后的美学功能效果满意、不增加肿瘤局部复发率、围术期并发症少、成活更有保障，是口腔颌面-头颈部缺损修复重建的一线皮瓣[5-9]。Pradhan 等[10]甚至认为，在仔细摘除转移的颈淋巴结后，SMIF 仍可使用，称该皮瓣终结了口腔颌面-头颈部缺损修复重建对前臂等皮瓣的依赖，是“游戏规则改变者”（game changer）。国内学者分别对 SMIF 进行回顾性和前瞻性研究，认为 SMIF 的功能效果和美学效果良好，在一定条件下，不失为口腔颌面部缺损修复的最佳皮瓣[11-12]。

一方面，SMIF 以其创伤小、优良的美学和功能修复效果、更有保障的成活率、并发症少和住院及手术时间短等优势受到推崇；另一方面，SMIF 的应用还存在许多争议，主要有：SMIF 在口腔癌伴颈淋巴转移特别是Ⅰ区淋巴结转移的患者中能否使用？SMIF 在制备过程中是否携带深筋膜浅面的结缔组

织、下颌舌骨肌和二腹肌前腹？如何避免SMIF制备不当而被弃用？

2 SMIF的肿瘤安全性

利用SMIF修复口腔癌切除后组织缺损一直存在争议。有研究将pN+ T1–2和pN0 T1–2口腔癌进行比较分析，结果显示，经过精细的颈淋巴清扫和合适的术后辅助治疗，pN+ T1–2组使用SMIF并不增加复发风险[13]。Pradhan等[10]将Ⅰ区淋巴结阳性病例与其他区域淋巴结阳性病例进行比较，结果显示，两者的肿瘤复发率无差异，认为经细致的淋巴清扫和恰当的病例选择，即便是淋巴结阳性患者，仍然可以使用SMIF。Sittitrai等[14]回顾分析一组包括Ⅰ区淋巴结转移口腔癌切除后使用SMIF修复重建的病例，发现复发的病例均与皮瓣无关。Thomas等[15]通过229例大宗病例的前瞻性研究，认为SMIF的应用不增加肿瘤安全性问题。另有一些学者持审慎态度，支持SMIF仅在cN0患者中使用[16-18]。有学者建议术中对可疑淋巴结进行冷冻活检，活检阳性则弃用SMIF[2]。还有学者建议哨位淋巴结活检，提高SMIF的安全性[19]。我们认为，SMIF的应用应遵循肿瘤安全性原则：①提倡SMIF在cN0患者中使用。②所有使用SMIF的患者，均应对Ⅰ区可疑淋巴结进行冷冻活检，强调观察肿瘤是否突破淋巴结包膜。Ⅰ区淋巴结阳性患者，若肿瘤未突破淋巴结包膜，经过细致淋巴结清扫后可以使用SMIF，但术后应追加放疗等其他辅助治疗；Ⅰ区淋巴结冷冻活检阳性且已突破淋巴结包膜者，应弃用SMIF（图1）。③Ⅰ区之外淋巴结阳性患者，可使用SMIF。④SMIF的肿瘤安全性问题与皮瓣制备相关：颏下动脉自面动脉分出，于下颌舌骨肌表面走行，穿经二腹肌前腹或越过二腹肌前腹的浅面或（和）深面浅出到达颏下区。精确解剖颏下动脉及其终末支，可完全摆脱二腹肌前腹和下颌舌骨肌的束缚，形成仅包含皮肤和颈阔肌而不携带颏部淋巴脂肪组织的岛状瓣，这样可避免皮瓣裹挟和卷入可疑淋巴结的风险[12]。⑤采用对侧为蒂的SMIF，可降低或避免同侧为蒂SMIF裹挟淋巴结的可能性[20]。

3 SMIF的设计与制备

3.1 SMIF的制备与筋膜结缔组织、下颌舌骨肌和二腹肌前腹的关系

SMIF作为面动脉分支颏下动脉恒定供血的轴

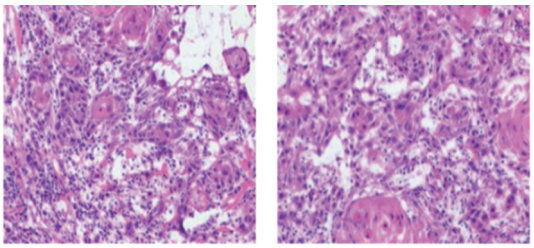

图1 术中冷冻切片检查显示Ⅰ B区淋巴结阳性且突破淋巴结薄膜包膜，放弃使用SMIF

Figure 1 SMIF was abandoned after intraoperative frozen section of lymph node, which confirmed that matastasis broke through lymph node capsule in level Ⅰ B

型皮瓣，其成活有充分保障。有资料报道，SMIF局部坏死和全部坏死率为5.1%和1.7%；但也有文献报道，该皮瓣的局部坏死和全部坏死率累计高达20%[19,21]。这种悬殊的报道，促使美国头颈外科协会（American Head and Neck Society，AHNS）在使用该皮瓣的从业人员中做过一项调查，得出结论为：该皮瓣成活率主要与制备技术有关，经常应用该皮瓣并得到很好训练的从业人员，其皮瓣成活率高，反之则皮瓣成活率低。建议规范制备方法并增加训练机会，提高皮瓣成活率[22]。有学者认为，SMIF的制备应该包含下颌舌骨肌和二腹肌前腹，以保护血管系统免受误伤，确保其血供[23]。有相反观点则认为，SMIF制备不仅可以不携带颈阔肌深面至深筋膜间的淋巴结缔组织，也无需携带二腹肌前腹和下颌舌骨肌，以免裹挟淋巴结于皮瓣内而影响肿瘤切除的安全性[12]。还有观点认为，SMIF的制备应包含二腹肌前腹，下颌舌骨肌则无需携带[24]。

根据解剖规律，颏下动脉在下颌下缘稍下方自面动脉分出，经下颌舌骨肌表面走行，穿经或越过二腹肌前腹的浅面或（和）深面浅出到达颏下区。我们认为，制备SMIF可以携带二腹肌前腹，但不应携带下颌舌骨肌。携带二腹肌前腹对保障皮瓣血供有意义，但携带下颌舌骨肌对皮瓣血供没有价值，甚至画蛇添足。因为在口底常有舌下动脉向下的穿支与颏下动脉相吻合，甚至由颏下动脉分支穿下颌舌骨肌达口底替代舌下动脉。此时若不携带下颌舌骨肌，则可以清晰辨认穿支进入下颌舌骨肌，在此处结扎穿支血管可有效避免术后出血。相反，若携带下颌舌骨肌，则血管肌肉裹挟在一起，不能有效识别并结扎，可能增加术后口底出血风险[25]。

3.2 皮瓣设计

SMIF通常采用血管蒂在同侧的设计和制备。用美蓝划出皮瓣轮廓线，皮瓣上界为下颌骨下缘稍下

方约 1 cm 处，下界一般不超过舌骨水平。皮瓣下界可以根据所需皮瓣大小和组织延展性作适度调整。两侧一般不超过下颌角，也可根据皮瓣所需面积适当向内或向外延伸。皮瓣大小取决于缺损面积，皮瓣长宽比以 3:1 为宜（图2），以避免在供区关闭时形成“狗耳”[4]。皮瓣设计也可与颈淋巴清扫术切口一并考虑（图 3，蓝色 T 形切口为颈淋巴清扫术切口）。为了供区关闭创口时准确对位，可用美兰在皮瓣上、下界正中和两侧作标记。

图 2 63 岁 II 期舌鳞癌男性患者。A. SMIF 的切口设计；B.供区遗留隐蔽的水平瘢痕；C.舌缺损修复后

Figure 2 A 63-year-old male patient with stage II squamous cell carcinoma of the tongue. A. The incision design for the flap; B. View of a well-hidden horizontal scar at the donor site; C. The tongue after repair with the flap

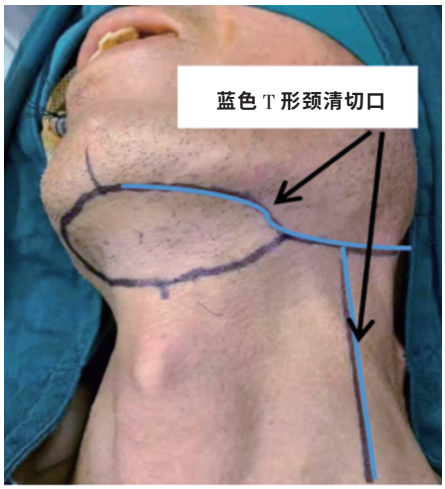

图 3 皮瓣切口线和颈淋巴清扫术切口线联合设计，蓝色 T 形切口为颈淋巴清扫术切口

Figure 3 Combined design of incision lines for flap harvest and neck dissection, the blue T- incision is for neck dissection

3.3 皮瓣制备

患者取仰卧位，头部和颈部适度伸展。先沿皮瓣轮廓线上界切开达颈阔肌下。需作颈淋巴清扫术时，按照 T 形切口（图 3）先切开，将皮瓣上界延伸到对侧。解剖分离行走在颌下腺上缘沟槽内的面动脉，将下颌下腺向下牵引，显露沟中的血管，可见面动脉沿途发出颏下动脉和若干腺体分支供养下颌下腺。保护好面神经下颌缘支，分离和结扎腺体供养支，向前解剖颏下动脉和静脉。沿着下颌舌骨肌表面向前分离，遇由颏下动脉发出分支穿入下颌舌骨肌时，则应在下颌舌骨肌表面妥善结扎分支，进一步分离，直达二腹肌前腹。颏下动脉有伴行静脉时，在解剖分离过程中要特别注意保护静脉；若无伴行静脉，则应保留面颈部静脉系统的其他属支。摘除下颌下腺并清扫 I B 区淋巴结。在确认动、静脉系统完好无损后，按照设计线切开下轮廓线至中线。紧贴下颌骨下缘剥离血管蒂侧二腹肌前腹的下颌骨附着，同时断离二腹肌的舌骨附着，连同二腹肌前腹，在颏下三角区的颈阔肌深面掀起皮瓣以便清扫 I A 区淋巴结。将 I A、I B 区可疑淋巴结送快速冷冻切片检查，决定皮瓣取舍。若冷冻活检淋巴结转移并突破淋巴结包膜，或皮瓣血管蒂不慎被破坏，则将皮瓣原位缝合，改用其他修复方式。若冷冻活检报告淋巴结阴性且皮瓣血管蒂完好，则完全切开皮瓣下轮廓线，岛状瓣获得完全游离。皮瓣中线对侧只包含颈阔肌而无需携带二腹肌。这种沿面动脉-颏下动脉离心性解剖和分次切开轮廓线的制备方法，在发现有肿瘤安全问题或血管蒂毁损时，可以弃用该皮瓣并将皮瓣复位缝合，避免颏下区缺损；也可以从皮瓣对侧向血管蒂侧向心性解剖制备，特别是用于非肿瘤性缺损修复时，向心性制备或许更流畅、更安全。皮瓣制备中发生血管蒂毁损时，在条件允许的情况下也可改用以对侧为血管蒂的岛状瓣或游离皮瓣。只要不损伤血管系统，无论是沿血管轴向心性制备还是离心性制备均可。

临床上常因回流静脉的不确定性，在制备过程中受损而导致皮瓣坏死。关于 SMIF 回流静脉的研究报道存在较大差异。黄龙等[12]的研究显示，SMIF 分别回流至颈内和颈外静脉的比例相等。Lin 等[26]的研究显示，SMIF 73%经由颈内静脉回流，27%经由颈外静脉回流。吴斌等[27]报告引流静脉的分布为，39.0%颏下静脉经面静脉汇入颈外静脉，51.6%经面静脉汇入颈内静脉。建议对静脉系统采取以下保护策略：①发现颏下动脉有伴行静脉时，应妥善保留伴行静脉；若颏下动脉无伴行静脉，则应避免面静脉系统其他属支的结扎和损伤。②避免同时结扎下颌后静脉和面总静脉。保留前者则静脉血可以回流到颈外静脉系统，保留后者则静脉血可以回流到颈内静脉系统；若不能同时保留 2 套静脉系统，应至少保留 1 套静脉系统。③静脉系统是否损伤术中很难判断，若术后发生静脉危象，通过针刺放血是有效措施，因为 SMIF 组织量不大，其血运负荷小，针刺放血作为保守处理措施往往奏效[12]。总之，SMIF 动脉系统走

行恒定，基本没有变异，而静脉系统存在较大变异，因此在皮瓣制备过程中，要格外注意保护静脉系统免受损伤。

3.4 延长血管蒂的 SMIF 制备

在面动脉分出颏下动脉起点的近心或远心处切断面动脉，可以实现皮瓣蒂的延长，从而满足远处缺损修复的需要。于面动脉分出颏下动脉处的远心段切断面动脉，则皮瓣可绕下颌下缘经下颌骨内侧进入口腔，既解除了面动脉远心段的牵绊，且屈曲的近心段面动脉被拉伸和延展，可以获得一定幅度的延长（图 4）。于面动脉分出颏下动脉起点的近心段结扎切断面动脉，则皮瓣不仅解除面动脉近心段的牵绊，还可以沿着面动脉远心段向面部隧道式潜行解剖分离，获得足够长度的血管蒂。皮瓣和血管蒂穿经隧道，可到达远距离部位，满足远处缺损如额部、软腭、颞部缺损的修复[28-29]。这种失去近心段动脉供血而由动脉远心段逆行供血的岛状瓣称为逆行岛状瓣（图 5）。由于面部静脉没有静脉瓣或静脉瓣薄弱，所以逆行静脉回流一般不会有问题。由于静脉的变异大，全程伴行面动脉的静脉少见。当皮瓣用于修复上面部、颞部或封堵颅底脑脊液漏等远距离缺损时，作为逆行岛状瓣的动脉蒂可以逆行解剖，获得足够长度，而颏下静脉无论最终引流到颈内静脉或颈外静脉，皮瓣旋转移动都会受到近心段大静脉的牵制，此时可将皮瓣引流静脉结扎、切断，待皮瓣引入受区后，在受区就近将静脉吻合到附近静脉（如颞浅静脉、颈外静脉上端等），这种动脉带蒂而只吻合静脉的皮瓣称为杂合皮瓣[30-32]。

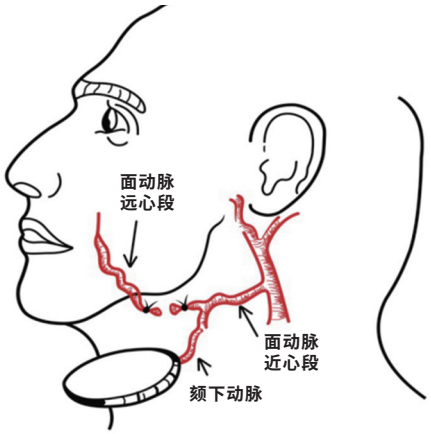

图 4 结扎、切断面动脉远心段的顺行血供颏下岛状瓣：面动脉近心段携带颏下动脉及岛状瓣，绕下颌骨下缘经下颌骨内侧转入口腔，屈曲的近心段被拉伸和延展，使得皮瓣的蒂部得以适度延长

Figure 4 Submental island flap supplied by anterograde blood flow of the facial artery: the submental island flap, based on the proximal segment of the facial artery, which passes around the inferior margin of the mandible and turns into the oral cavity through the inner side of the mandible.The flexion of the proximal segment is stretched and extended, allowing the pedicle of the flap to extend moderately

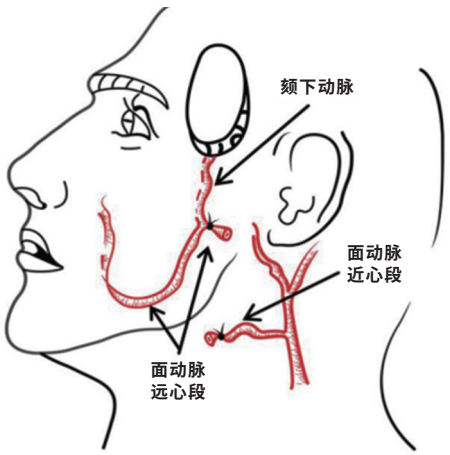

图 5 结扎、切断面动脉近心段的逆行供血颏下岛状瓣：沿面动脉远心段向上适度潜行解剖分离血管轴，将面动脉远心段反折向上，其携带的颏下动脉及皮瓣可穿行隧道达到远处缺损部位。皮瓣供血由面动脉远心段提供

Figure 5 Submental island flap supported by retrograde blood flow when the proximal segment of the facial artery is ligated and cut off: the vascular axis is dissected and separated moderately along the distal segment of the facial artery. The vascular pedicle and flap can pass through the tunnel to distant defects

4 SMIF 在口腔颌面部缺损修复中的应用

4.1 口腔、口咽和软腭修复

口腔（舌、颊、腭、口底和牙龈）和口咽癌切除术后缺损采用 SMIF 修复有较多报道[4]，主要修复舌缺损[33]、口底缺损[34]、口咽缺损[35]。软腭缺损重建仍然具有挑战性，去除约 1.0 cm 宽的皮肤带折叠逆行 SMIF 修复软腭缺是一种可靠的方法，用于肿瘤切除术后软腭缺损的修复，能达到令人满意的吞咽和言语功能[36]。

4.2 颌面骨缺损修复

有诸多报道使用携带部分下颌骨或下颌骨下缘逆行的 SMIF 修复颌面部骨缺损，包括肿瘤切除后上颌骨和下颌骨缺损、颧眶区复合组织缺损以及带牙种植体的骨肌皮瓣功能性修复上颌骨缺损。经术后随访，均获得良好的功能和美学效果[37-40]。

4.3 面部皮肤缺损修复

用逆行 SMIF 可修复颧区皮肤基底细胞癌切除后缺损和腮腺切除术后缺损，并被认为是一种肿瘤性切除术后修复面侧软组织缺损的良好方法[4,41]。

4.4 衬垫性组织充填

脱上皮颏下瓣（deepithelialized submental flap）

充填可达到恢复组织缺损的目的。重塑良性肿瘤切除术后面部轮廓，达到良好的美学效果[42]；腮腺全切后缺损填充，无并发症，美观效果好[43]。有学者利用脱上皮颏下瓣修复半侧颜面短小萎缩和永久性面瘫矫正，并认为可拓展到用于各种原因引起的面中下部轮廓的重塑[44]。

5 SMIF 的临床适应证及局限性

5.1 SMIF 的适应证

①伴有系统性疾患高龄患者，不能耐受游离组织移植等长时间手术；②修复口腔癌手术后中小型缺损；③颞部、额部、面中下份小型皮肤组织缺损修复效果理想，建议推广应用；④可用带下颌骨下缘 SMIF 修复上颌骨缺损、颧眶区复合组织缺损；⑤脱上皮颏下瓣可用于面部轮廓重塑、腮腺区缺损填充、半侧颜面短小萎缩、永久性面瘫矫正等。

5.2 SMIF 的局限性

SMIF 临床应用的局限性包括：① Ⅰ区有颈淋巴转移的患者酌情慎用，突破淋巴结包膜的Ⅰ区淋巴结转移患者禁用；②胡须过重的男性，舌根和咽部缺损应慎用，因胡须可致局部奇痒不适，必要时可先脱毛处理后再使用；③因组织量有限，大量的容积性缺损或大面积缺损不宜使用。④供区做过放疗者不宜使用。

利益冲突声明：无。

[参考文献]

[1] Martin D, Pascal JF, Baudet J, et al. The submental island flap: a new donor site. Anatomy and clinical applications as a free or pedicled flap[J]. Plast Reconstr Surg, 1993, 92(5): 867–873.

[2] 陈传俊, 李志来, 罗永祥, 等. 颏下岛状瓣修复口腔缺损的初步报告[J]. 口腔医学纵横, 1998, 14(3): 169–171.

[3] 蒋斌, 房敏, 蒋松琪, 等. 颏下岛状皮瓣在头颈外科的应用[J]. 上海口腔医学, 2000, 9(4): 194–196.

[4] Chen WL, Li JS, Yang ZH, et al. Two submental island flaps for reconstructing oral and maxillofacial defects following cancer ablation[J]. J Oral Maxillofac Surg, 2008, 66(6): 1145–1156.

[5] Patel UA. The submental flap for head and neck reconstruction: comparison of outcomes to the radial forearm free flap [J]. Laryngoscope, 2020, 130(Suppl 2): S1–S10.

[6] Sittitrai P, Reunmakkaew D, Srivanitchapoom C. Submental island flap *versus* radial forearm free flap for oral tongue recon struction: a comparison of complications and functional outcomes [J]. J Laryngol Otol, 2019, 133(5): 413–418.

[7] Jφrgensen MG, Tabatabaeifar S, Toyserkani NM, et al. Submental island flap versus free flap reconstruction for complex head and neck defects[J]. Otolaryngol Head Neck Surg, 2019, 161(6): 946–953.

[8] Schonauer F, Di Martino A, Nele G, et al. Submental flap as an alternative to microsurgical flap in intraoral post-oncological reconstruction in the elderly[J]. Int J Surg, 2016, 33(Suppl 1): S51–S56.

[9] Hu S, Fan C, Pecchia B, et al. Submental island flap vs free tissue transfer in oral cavity reconstruction: systematic review and meta-analysis[J]. Head Neck, 2020, 42(8): 2155–2164.

[10] Pradhan SA, Kannan R, Tiwari N, et al. Submental flap: game changer in oral cancer reconstruction–a study of 1169 cases[J]. J Surg Oncol, 2020, 122(4): 639–645.

[11] 吴跃煌, 唐平章, 祁永发, 等. 颏下岛状皮瓣应用结果回访[J]. 中华口腔医学杂志, 2002, 37(6): 418–420.

[12] 黄龙, 郭峰, 翦新春, 等. 颏下动脉穿支皮瓣修复口腔癌术后缺损的临床应用[J].中华口腔医学杂志, 2018, 53(1): 3–7.

[13] Wang J, Tan Y, Shen Y, et al. Oncological safety of submental island flap for reconstruction of pathologically node-negative and node-positive T1–2 oral squamous cell carcinoma-related defects: a retrospective study and comparison of outcomes [J]. Oral Oncol, 2020, 102: 104507.

[14] Sittitrai P, Srivanitchapoom C, Reunmakkaew D, et al. Submental island flap reconstruction in oral cavity cancer patients with level I lymph node metastasis [J]. Br J Oral Maxillofac Surg, 2017, 55(3): 251–255.

[15] Thomas S, Varghese BT, Ganesh SA, et al. Oncological safety of submental artery island flap in oral reconstruction – analysis of 229 cases[J]. Indian J Surg Oncol, 2016, 7(4): 420–424.

[16] Faisal M, Adeel M, Riaz S, et al. The Submental island flap in head and neck cancer[J]. Ann Maxillofac Surg, 2018, 8(2): 287–291.

[17] Aslam-Pervez N, Caldroney SJ, Isaiah A, et al. A retrospective volume matched analysis of the submental artery island pedicled flap as compared to the forearm free flap: is it a good alternative choice for the reconstruction of defects of the oral cavity and oropharynx? [J]. J Oral Maxillofac Surg, 2018, 76(3): 656–663.

[18] Ramirez AT, Chiesa-Estomba CM, González-García Já. Submental artery island flap in oral cavity reconstruction. An observational, retrospective two-centre study[J]. Int Arch Otorhinolaryngol, 2021, 25(1): e71–e76.

[19] Husso A, Suominen S, Acarturk TO, et al. Submental artery flap with sentinel lymph node biopsy in the reconstruction of oral cancer[J]. J Reconstr Microsurg, 2016, 32(2): 153–159.

[20] Xie ZJ, Li YX, Guan BY, et al. Are contralateral submental artery perforator flaps feasible for the reconstruction of postoperative defects of oral cancer? [J]. Head Neck, 2020, 42(12): 3647–3654.

[21] Amin AA, Sakkary MA, Khalil AA, et al. The submental flap for oral cavity reconstruction: extended indications and technical refinements[J]. Head Neck Oncol, 2011, 3:51–57.

[22] Tang L, Day AT, Lee R, et al. Submental flap practice patterns

and perceived outcomes: a survey of 212 AHNS surgeons [J]. Am J Otolaryngol, 2020, 41(1): 102291.

[23] Zenga J, Emerick KS, Deschler DG. Submental island flap: a technical update [J]. Ann Otol Rhinol Laryngol, 2019, 128(12): 1177-1181.

[24] Moubayed SP, Rahal A, Ayad T. The submental island flap for soft-tissue head and neck reconstruction: step-by-step video description and long-term results [J]. Plast Reconstr Surg, 2014, 133(3): 684-686.

[25] Zdilla MJ, Bender-Heine AN, Lambert HW, et al. Clinical implications of the submental and sublingual arteries in relation to the mylohyoid boutonnière [J]. Otolaryngol Head Neck Surg, 2021, 164(2): 322-327.

[26] Lin HC, Huang YS, Chu YH, et al. Vascular anatomy is a determining factor of successful submental flap raising: a retrospective study of 70 clinical cases[J]. Peer J, 2017, 5: e3606.

[27] 吴斌, 毛驰, 廖湘凌. 颏下岛状瓣引流静脉的分布规律[J]. 现代口腔医学杂志, 2015, 29(4): 213-215, 250.

[28] Cheng A, Bui T. Submental island flap [J]. Oral Maxillofac Surg Clin North Am, 2014, 26(3): 371-379.

[29] Ferrari S, Copelli C, Bianchi B, et al. The submental island flap: pedicle elongation and indications in head and neck reconstruction[J]. J Craniomaxillofac Surg, 2014, 42(6): 1005-1009.

[30] Hanna TC, Lubek JE. The Hybrid submental flap for tongue reconstruction[J]. J Oral Maxillofac Surg, 2015, 73(9): 1876.e1-e6.

[31] Chang BA, Ryan Hall S, Howard BE, et al. Submental flap for reconstruction of anterior skull base, orbital, and high facial defects[J]. Am J Otolaryngol, 2019, 40(2): 218-223.

[32] Hayden RE, Nagel TH, Donald CB. Hybrid submental flaps for reconstruction in the head and neck: part pedicled, part free[J]. Laryngoscope, 2014, 124(3): 637-641.

[33] 陈永菊, 陈伟良, 周斌, 等. 面-颏下动脉岛状皮瓣修复年轻与老年舌癌患者的效果比较 [J]. 中国口腔颌面外科杂志, 2020, 18(2): 117-121.

[34] You YH, Chen WL, Wang YP, et al. The feasibility of facial-submental artery island myocutaneous flaps for reconstructing defects of the oral floor following cancer ablation [J]. Oral Surg Oral Med Oral Pathol Oral Radiol Endod, 2010, 109(6): e12-e16.

[35] Chen WL, Wang YY, Zhou B, et al. Survival and functional outcomes of patients who underwent facial-submental artery island flap reconstruction after oral cavity or HPV-negative oropharyngeal squamous cell carcinoma ablation [J]. J Stomatol Oral Maxillofac Surg, 2020, 121(4): 383-389.

[36] Zhang DM, Chen WL, Lin ZY, et al. Use of a folded reverse facial-submental artery submental island flap to reconstruct soft palate defects following cancer ablation [J]. J Craniomaxillofac Surg, 2014, 42(6): 910-914.

[37] Chen WL, Ye JT, Yang ZH, et al. Reverse facial artery-submental artery mandibular osteomuscular flap for the reconstruction of maxillary defects following the removal of benign tumors[J]. Head Neck, 2009, 31(6): 725-731.

[38] Chen WL, Zhou M, Ye JT, et al. Maxillary functional reconstruction using a reverse facial artery-submental artery mandibular osteomuscular flap with dental implants [J]. J Oral Maxillofac Surg, 2011, 69(11): 2909-2914.

[39] García-de Marcos JA, Arroyo-Rodríguez S, Rey-Biel J. Submental osteocutaneous perforator flap for maxillary and mandibular reconstruction following tumor resection [J]. J Oral Maxillofac Surg, 2016, 74(4): 860.e1-e9.

[40] Khan U, Haupt S, Rigby M, et al. Composite submental flaps in facial reconstructive surgery involving the zygoma and orbit [J]. J Otolaryngol Head Neck Surg, 2020, 49(1): 75-81.

[41] Patel AV, Thuener JE, Clancy K, et al. Submental artery island flap *versus* free flap reconstruction of lateral facial soft tissue and parotidectomy defects: Comparison of outcomes and patient factors[J]. Oral Oncol, 2018,78: 194-199.

[42] Chen WL, Yang ZH, Huang ZQ, et al. Facial contour reconstruction after benign tumor ablation using reverse facial-submental artery deepithelialized submental island flaps[J]. J Craniofac Surg, 2010, 21(1): 83-86.

[43] Bayon R, Davis AB. Submental flap for soft tissue reconstruction following radical parotidectomy [J]. Otolaryngol Head Neck Surg, 2019, 160(6): 1130-1132.

[44] Tan O, Atik B, Parmaksizoglu D. Soft-tissue augmentation of the middle and lower face using the deepithelialized submental flap[J]. Plast Reconstr Surg, 2007, 119(3): 873-879.