ISSN: 2581-5989
PubMed - National Library of Medicine - ID: 101738774

International Journal of Dental Science and Innovative Research (IJDSIR)

IJDSIR : Dental Publication Service

Available Online at: www.ijdsir.com

Volume – 3, Issue – 6, November - 2020, Page No. : 204 - 215

Submental Island Flap in Head and Neck Reconstruction – A Review

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Citation of this Article: Dr. Marbon Joevitson , Dr. Eshona Pearl , Dr. Mathew Jose , Dr. Sajesh , Dr. Nandagopan, "Submental Island Flap in Head and Neck Reconstruction – A Review ", IJDSIR- November - 2020, Vol. – 3, Issue - 6, P. No. 204 – 215.

Type of Publication: Review Article

Conflicts of Interest: Nil

Abstract

Reconstruction of more complex defects following excisional surgery for head and neck cancer has come a long way since exordium and such complex reconstructions are done using microvascular free tissue transfer in the recent times. Submental island flap was first introduced in 1993, since then it was most commonly used for reconstruction of the lower and middle thirds of the face. It has several advantages like flap viability, reliability, pliability and versatility in its design. History, anatomy, classification, flap specifications, surgical technique, indications, limitations and modifications of this flap are discussed in this article. A literature review was performed. The anatomy, especially anatomy of submental region with a detailed description of submental artery, classification, flap specifications and surgical technique was given much importance. Forty-three articles were chosen from a wide search. A detailed anatomy, and surgical technique is presented in this article. Role of pioneers in introducing and developing the submental flap is also discussed. Submental Island flap (SIF) is an excellent alternative in the reconstruction of defects involving middle and lower third of the face especially

oral cavity because of its reliability, versatility, ease of application and most importantly wide arc of rotation.

Keywords: Submental flap, submental artery flap, Ca floor of the mouth, Ca tongue, head and neck neoplasm, reconstructive surgery, squamous cell carcinoma, surgical flaps, pedicled flaps, island flaps.

Introduction

Reconstruction of soft tissue defects of the oral cavity following excision is quite complex and a challenging task.[1] Pedicled flaps play a vital role in the reconstruction of medium to large sized oral cavity defects.[2] Several flaps have been reported in the literature for reconstruction of oral soft tissue defects, each has its own merits and demerits.[1] Among multiple donor sites, local flaps raised with the cervical skin is preferable because of its thickness, wide mobility, pliability, accessibility and it provides a peerless colour, contour and texture match.[2] Random platysmal flaps from the cervical region had inconsistent results.[3] The platysmal flaps had been described as a musculocutaneous flap by Futrell et.al. in 1978.[4] Submental flap is a variation of the random submental flap described earlier by **Jellouli et.al.** Cutaneous arterial circulation of face and scalp was investigated by using anatomic technique in fresh cadavers and interpretations on the vascular territory of submental artery with their border limits was given by Whetzel et. Al. in 1992.[5] Submental artery island flap was introduced by Martin et.al. in 1993 and was accepted widely by Maxillofacial, Plastic and Reconstructive Surgeons in head and neck reconstruction.[6] This was a major breakthrough in the use of random pattern platysmal flaps. This flap also has an advantage of tightening the cutis laxia of the submental skin.[1] The classification of this flap depends on the blood supply and the composition of flap pedicle. Owing to its wide arc of rotation, this flap can be used for the reconstruction of structures like tongue, floor of the mouth, facial skin, buccal mucosa and oro-nasopharynx which are present superior to the submental region and larynx and esophagus which are present inferior to the submental region. It has constant axial vessels, appropriate pedicle length, large skin paddle, wide pivotal movement and well hidden scar in donor area.[7] Various modifications of this flap design can be instituted based on the site, size and location of the defect.

History

Submental flap is a major breakthrough and a useful addition to the reconstructive surgeon's armamentarium for head and neck reconstruction. It was first introduced by Martin and colleagues in 1993. Since then it has come a long way and various modifications of the originally described flap was made in the recent years.

Table 1

The role of pioneer surgeons in introducing and improving submental flap characteristics.

Pioneer surgeons	Year	Modification
Martin et al.	1993	1) Original description of the flap 2) Free submental flap
Sterne et al.	1996	Retrograde variant
Faltaous and Yetman	1996 (cadaver)	Inclusion of anterior belly of
Curran et al.	1997 (patient)	digastric muscle in pedicle half
Yilmaz et al.	1997	Deepithelialized osteomuscular variant
Janssen and Thimsen	1998	Extended
Kitazawa et al.	1999	Bipedicled
Kim et al.	2002	Perforator submental flap
Tan et al.	2007	Interposition
Patel et al.	2007	Inclusion of mylohyoid muscle in pedicle half
Li et al.	2009	Expanded
Ramkumar et al.	2012	Bipaddled

Table 1: Pioneers in the introduction and modifications of submental artery. Adapted from Rapheyma et.al. 2014. Submetal artery island flap in intraoral reconstruction: A review. Journal of Cranio-Maxillo-Facial Surgery 42 (2014) 983-989

Anatomy

The Facial artery climbs superiorly leaning against the posterior face of the submandibular gland and gives off the SA deep to or at the superior edge of the gland.[8] Submental artery is a well-defined, consistent branch of

facial artery. It has the largest diameter of facial artery in the neck.[7,8,9] After branching out from the facial artery, the submental artery passes forward and medially across the mylohyoid muscle. It follows a gentle curve, forwards and medially on the mylohyoid and it gives off 1 to 4 cutaneous perforators which pierces the overlying platysma muscle before forming a subdermal plexus which anastomoses extensively with the contralateral branches in 92% of the cases.[10] This wide zone of perfusion allows us to raise a submental flap from mandibular angle to angle with the width determined by the laxity of the neck skin allowing primary closure, affording a flap as large as 18 cm x 7 cm(length x width.[10] It has 2-4 skin perforator branches. Major perforators (one or two) passes medially or laterally to anterior belly of digastric muscle and minor perforators pass through the anterior belly of digastric muscle.[11] These skin perforators participates in the rich subdermal plexus which is one of the major advantage of this submental flap.[12] The submental artery ends behind the mandibular symphysis just lateral to the midline, on the anterior belly of the digastric muscle, from where it sends branches to the lower lip and the sublingual gland.[13] The terminal branches curves around the mandible close to the chin and divides into superficial and deep branches. Some of the branches anastamose with the labiomental arteries or the inferior labial artery which supplies the lower lip.[13]

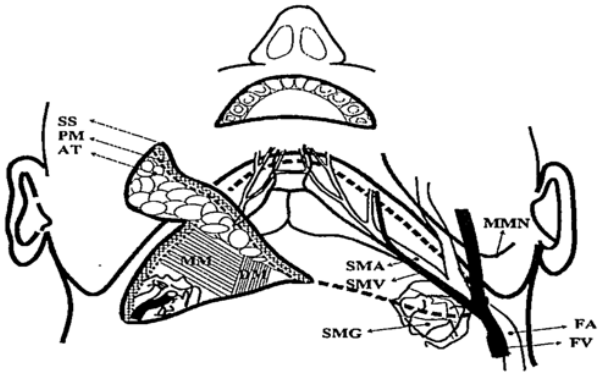

Fig 1. The anatomy and dissection of the submental artery island flap. SS = skin and subcutaneous tissue; PM = platysmal muscle; AT = adipose tissue; MM = mylohyoid muscle; DM = digastric muscle; SMA = submental artery; SMV = submental vein; SMG = submandibular gland; FA = facial artery; FV = facial vein; MMN = marginal mandibular nerve.

Figure 1: Anatomy of submental artery island flap. Adapted from Yilmaz et.al. 1997. Submental artery island flap for reconstruction of lower and midface. Annals of Plastic Surgery 1997;39:30-35.

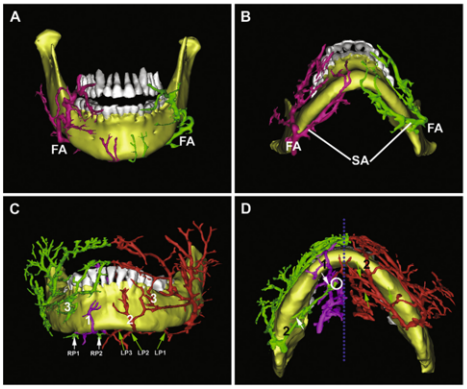

Figure 2 3D-reconstruction of the mandible and surrounding arteries are from a cadaver angiographic injection specimen. A, Anterior view; B, Inferior view. FA, facial artery; SA, submental artery; C and D are from another cadaver angiographic injection specimen. C, anterior view; D, inferior view. 1, sublingual artery, 2, submental artery; 3, mental artery; RP1, 1st right submental artery perforator; RP2, 2nd right submental artery perforator; LP1, 1st left submental artery perforator; LP2, 2nd left submental artery perforator; LP3, 3rd left submental artery perforator; White circle shows the anastomosis of sublingual artery and submental artery.

Figure 2: Perforator branches of submental artery. Adapted from Tang et.al. 2011. Three-dimensional angiography of the submental artery perforator flap. Journal of Plastic, Reconstructive and Aesthetic Surgery(2011)64,608-613. Tang et.al in 2011 performed a 3 dimensional angiographic study of the submental artery perforator flap and he named the perforator branches as RP1, RP2 and LP1, LP2, LP3 on the right and left sides respectively.

The mean diameter of submental artery is 2 mm at its origin from the facial artery. Various dimensions of the

submental artery which contributes to the submental flap was documented in the literature[12]

Table 2

Measurements of the Facial and Submental Arteries

Parameter	Description	Mean (mm)	Minimum (mm)	Maximum (mm)
1	Diameter of the facial artery at its origin	2.7	2.0	3.7
2	Distance between the mandibular angle and the point where the facial artery crosses the lower border of the mandible	26.6	15.0	38.0
3	Diameter of the facial artery at the lower border of the mandible	2.3	1.8	3.1
4	Distance of the origin of the SMA from the origin of the facial artery	27.5	19.0	41.0
5	Diameter of the SMA at the origin	1.7	1.0	2.3
6	Distance of the origin of the SMA from the lower border of the mandible	5.0	1.5	12.0
7	Distance of the origin of the SMA from the mandibular angle	23.8	1.5	39.0
8	Length of the SMA	58.9	35.0	108.0
9	Diameter of the SMA at the level of the submandibular gland	1.4	1.0	2.1
10	Length of the SMA from the origin to the anterior belly of the digastric muscle	31.5	26.0	38.0
11	Distance between the origin of the SMA and the point where the SMA crosses the mylohyoid nerve	16.8	9.0	34.0
12	Distance between the angle of the mandible and the point where the SMA crosses the mylohyoid nerve	39.6	8.0	51.0
13	Distance of the origin of the SMA from the nearest point of the marginal mandibular nerve	8.9	2.0	19.0
14	Distance between the SMA and the marginal mandibular nerve at the level of the submandibular gland	12.0	0	28
15	Diameter of the facial vein at the origin	3.0	2.1	4.3
16	Diameter of the SMV at the origin	2.2	1.0	2.9
17	Distance between the origins of the facial vein and the SMV	19.3	7.0	29.0
18	Distance of the origin of the SMV to the lower border of the mandible	13.1	4.0	25.0
19	Distance of the origin of the SMV to the mandibular angle	25.1	9	36

SMA, submental artery; SMV, submental vein.

Table 2: Measurements of Facial and Submental arteries. Adapted from Magden et.al. 2004. Anatomic study of the vasculature of submental artery flap. Plastic and Reconstructive Surgery. December 2004

Classification Of Submental Artery Island Flap

BASED ON FLAP COMPOSITION: Fasciocutaneous, Myocutaneous, Osteomyocutaneous.[2] Type C (myocutaneous perforator) Based on Mathes and Nahai classification 1981

BASED ON BLOOD SUPPLY: Pedicled flap, Free flap, Perforator flap. [2]

Minor Modifications Of Submental Artery Island Flap: Bipaddled flap, Bipedicled flap, Expanded submental flap, Deepithelialized submental flap, Interposition submental flap. [2]

Flap Specifications

Size of the skin paddle: Upto a maximum of 18 cm x 7 cm (length x width), if harvested from angle to angle.

Arterial supply: Submental artery. 5 to 6 cm in length; 1.5 to 2 mm in diameter.

The submental artery gives of four types of collateral vessels:

Short branches to the submandibular gland. Muscular branches to the platysma, digastric, and mylohyoid muscles. Some of these muscular branches supply the periosteum of the mandible. Small branches to the subplatysmal fatty layer and cutaneous perforations ranging from one to four in number, with one perforator piercing the platysma and dividing into many branches in the subdermal plane, anatomising extensively with the contralateral branches.

The variations include the submental artery arising independently from the carotid artery and giving of a branch to the tongue. In few other cases, submental artery arises from the curve of the facial artery around the mandibular border.[14,15]

Venous drainage: Small venae comitantes which drains into facial vein(2.5 mm) and submental vein that drains separately into the common facial vein(3 mm).[16,17]

Muscle: Harvested with platysma, ipsilateral anterior belly of digastric(optional) and a portion of the mylohyoid(optional).[17,18,19]

The submental island donor site is in many ways ideal for reconstruction, and the scar is camouflaged in the submental angle. In addition, it can be used in a single-staged fashion and does not require extensive anaesthesia, as the harvest is technically straight forward. It can be used in patients after radiation therapy.[20,21,22]

Surgical Technique

Initial Preparation: Under Naso-endotracheal intubation general anaesthesia was administered. Patient was placed in supine position with the head tilted and the neck extended. Standard draping was done followed by betadine painting and irrigation extraorally and intraorally respectively. Then the defect was measured. Outline of the spindle shaped flap was marked in the submental region. The measured dimensions was used in marking the outline. Marking was done in a horizontal fashion.

Planning the Flap

The surface marking of the origin of the submental artery is a point 5.5 (4 -7) cm anterior to the angle of the

mandible and 7 (3 - 15) mm from the mandibular border. The surface marking of its termination is a point 8 (2 - 12) mm behind the mandibular border and 6 (4 - 8) mm lateral to the midline. Care must be taken not to encroach too far anteriorly, which would produce a visible scar. This incision could be extended posteriorly on the ipsilateral side to enable further dissection of the vascular pedicle if required.

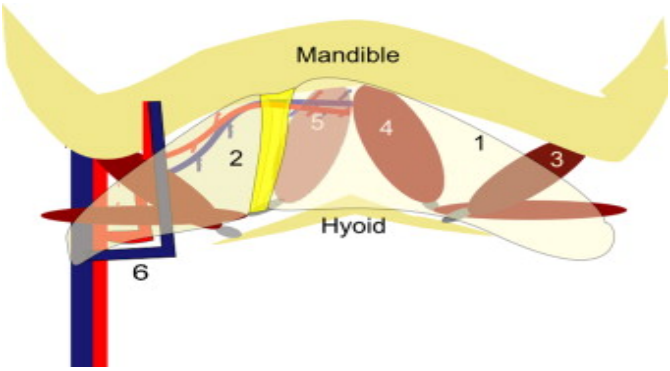

Figure 3: Showing arterial tree on right side of head and only the venous system on the left side of head. 1 - Submandibular space, 2 - Submental vessels, 3 – Posterior belly of digastrics, 4 and 5 – Anterior belly of digastrics, 6 – Facial artery and vein.

The flap was designed according to requirements of the defect, and although the maximum dimensions that can be reliably harvested are 18 X 8 cm, the amount of skin that while still achieving a primary closure was determined using a simple pinch test by pinching the submental skin and the lower border of the flap was drawn. Irrespective of the skin paddle size, it was designed in an elliptical fashion to facilitate primary closure.

Raising the Flap

A marking is placed in the submental region according to the reconstruction planned. The first stage is to identify and preserve the marginal mandibular branch of facial nerve just deep to platysma and overlying the facial artery. The dissection was started distally by elevating the skin paddle in the subplatysmal plane. As the dissection was performed toward the origin of the pedicle, the submental vessels were identified**.** Anterior belly of the digastric muscle ipsilateral to the vascular pedicle was harvested with the skin paddle. This ensures that the submental vessels were protected as they passed deep into the muscle. Dissection of the submental vessels was completed by releasing the deep facial attachments and perforating vessels to the submandibular gland. The facial artery was tortuous and always long enough to provide a wide arc of rotation. The dissection was performed until sufficient length was gained to reach the distal edge of the facial defect or till the junction of the submental and facial vessels. As the superior skin incisions were made, it was imperative to locate and protect the marginal mandibular branch of the facial nerve. A subcutaneous or submucosal tunnel was then made from the facial cutaneous defect to the superior aspect of the submental incision. For the defects in tongue and in the floor of the mouth the tunnel is made beneath the mandible medially. The skin paddle was then carefully passed through the subcutaneous tunnel up into the defect, and attached to the recipient site. Primary closure was done for the donor site defect by undermining. Undermining under the mandibular skin was avoided as it can cause eversion of the lower lip. Flexion of the neck to facilitate closure was avoided because it could cause subsequent hypertrophic scars. Drainage was necessary for a few days to prevent hematoma formation.

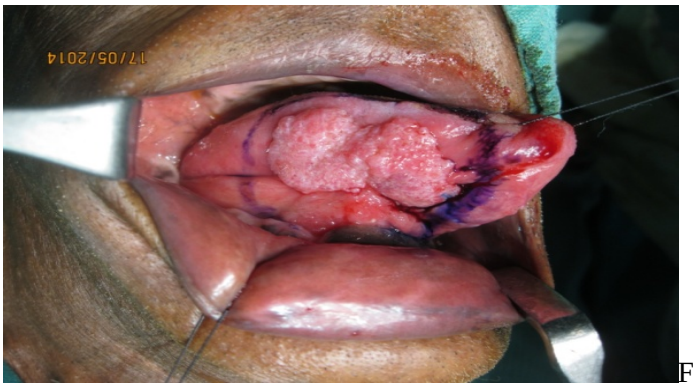

Fig 4: Lesion on the tongue

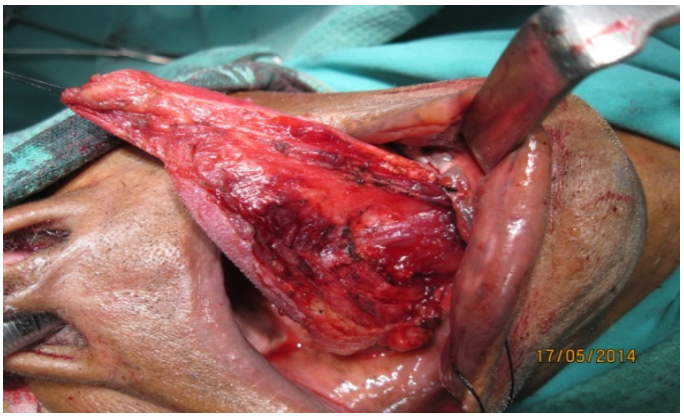

Fig 5: Excision of lesion

Fig 6: Marking of submental island flap

Fig 7: Harvested flap

Fig 8: Tunnelling of submental island flap

Fig 9 : Submental island flap sutured to tongue

Discussion

Oral cancer is an important disease globally and mostly in India it has higher incidence, due to the widespread habits of tobacco chewing and smoking.[22] Prevalence of a precancerous condition like oral submucous fibrosis has increased the incidence of oral cancer.[23] The predominant tumour of the oral cavity is squamous cell carcinoma, most of which are well differentiated. Surgical excision of primary lesion and cervical lymphnodes followed by radiation and chemotherapy as an adjuvant treatment depending upon the stage of the disease. Larger defects requires the immediate appropriate reconstruction with regional or distant flaps.

Tongue cancers are the second most common cancer in oral cavity. Lesion in the anterior region of tongue are more common than posterior region. The lesions in the anterior 1/3rd or tip of the tongue can easily and quickly invade the floor of the mouth.[24] Restoration of the functions of highly specialized tissue of the tongue is one of the great challenges for reconstructive surgeons. Reconstruction method depends on extent of tongue resection. Excision of tongue over 20% which is seen in T3 and T4 lesion requires replacement of tissue in order to preserve mobility and function.[22,25]

Various techniques were developed for the reconstruction of the tongue and floor of the mouth which includes free

skin grafts, pedicle flap and free flap. Skin grafts has many limitations for its use in the tongue reconstruction because of the secondary contraction.[26]

The pedicle skin flaps such as the nasolabial flap, platysma musculocutaneous flap and sternocleidomastoid musculocutaneous flap can be used for most of the defects in oral cavity.[27] Advantages of this pedicled flaps is that it consume less operative time and surgical techniques are simple. However pedicle flaps have disadvantages: such as large scarring in the donor site, with imperfect function after surgery, donor site morbidity, second surgery to de-pedicle the flap.[28]

Free flaps tend to be more accepted than pedicle flaps since they are devoid of tethering effects of pedicled flaps. Radial forearm flap, lateral arm flap, anterolateral thigh flap, pectoralis major myocutaneous flap and rectus abdominus myocutaneous flap are some of the free flaps used for the reconstruction of tongue. Radial forearm flap is suitable because of its various virtues. These include provision of soft, thin pliable skin and adequate length which reach the neck very easily to harvest.[28] In addition, it can be used as a sensate flap by including the cutaneous nerve of forearm which are connected to lingual or inferior alveolar nerve.

Free flaps has unavoidable limitations, such as functional problems and increased potential for flap failure.[29] Microvascular reconstruction techniques increases the surgical time and complexity of the process carry an inherent risk of vascular failure.[9]

The submental island flap was introduced by **Martin et al.,** in 1993. It can be used as both free or pedicle flap which is based upon the submental artery branch of facial artery. There are several modification of this flap technique and the design has been developed over time. The blood supply of Submental island flap is robust, and the vascular pedicle is constant, which facilitates pedicle transportation.[11,17] Structural variants of this flap are *fasciocutaneous, myocutaneous and musculocutaneous.*[12] This flap can be converted to a ***Reverse flow flap*** the retrograde flow through the facial vessels by dividing these vessels proximal to the origin of the submental vessels.[25] This submental flap have been used in reconstruction of the defects occurred following the excision of fibrotic bands in oral submucous fibrosis cases and excellent results have been achieved.[32] The submental flap is reliably safe and effective in reconstruction of defect and providing functional stability. In our study we have included the anterior belly of digastric muscle in all the cases along with the submental flap.

Submental island flap is being used widely for the reconstruction of head and neck defects for the past 2 decades. It has many advantages when compared to other pedicle flaps. It is thin, pliable and large surface area can be harvested. The size skin paddle varied from 8 x 4 cm to maximum 15 x 5 cm.[17] But the maximum dimension that can be readily harvested is 15 x 7cm.[6,33] In this study we have taken only upto 4 x 3 cm size for harvesting. Depending upon the laxity of the submental skin it can be extended.[33] As the flap is adjacent to the surgical defects it is easy to harvest. The submental flap provides excellent colour and texture that matches facial skin and the donor site incision can be closed primarily.[6,21,33]

Various studies has been done to compare the function and efficiency of the submental flap with the other flaps in the reconstruction of head and neck defects. In recent years a study is performed to compare the intraoperative and post operative functional results between submental island flap and radial forearm free flap for reconstruction of intraoral defects.[24] Which concluded that reconstruction of oral cavity with submental island flap results in shorter operative time and hospitalization without compromising functional outcome.[29] It also stated

that submental island flap is an preferable option in reconstruction of oral defects less than 40cm.[31,35] Another study is done to assess the reliability of 2 patterns of submental island flaps the Facial-submental artery island and the Reverse facial – submental artery island flap. The outcome results and the success rate of these flaps are equal.[17]

Submental island flap has several advantages. It provides excellent colour, contour, texture, functional and cosmetic results for facial skin.[9,16,36,37] It offers advantages of decreased operative time, length of stay, reduced morbidity, maintains acceptable speech and swallowing and leaves a well-hidden donor site.[30,33,38,39]

Use of submental island flap may eliminate the need for a distant flap for head and neck reconstruction in relatively young age patients where donor site morbidity is of concern. In our study reconstruction tongue and floor of the mouth has performed successfully with submental island flap obtaining excellent chewing, swallowing and speech functions. The donor site defect can be closed primarily because of the laxity of the submental skin, especially in elderly patients. The donor site scar is acceptable, well hidden in the submental region and not visible in most cases.[21,29,34,35]

Advantages	Disadvantages
• Thin and pliable flap • Largest surface area may be harvested • Largest skin paddle • Rich vascular supply • Excellent colour and texture match • Good arch of rotation of flap • Donor site closed primarily	• Difficulty in clearing lymphnode • Marginal mandibular nerve paralysis • Neck dissection can't be impaired • Orocutaneous fistula • Intraoral hair growth (male patients)

The complications that we encountered are less during the study. There was a complete loss of flap in one of the cases which might have been caused due to arterial insufficiency. Which could have occurred due to detachment of anterior belly of digastric muscle from the flap during the surgery. The slough was removed and wound care was given and the site healed by granulation. Sterne GD[14] and Pistre V[21] have reported flap losses in their cases due to arterial insufficiency which may occurred due to various reasons. Which includes improper surgical technique, damage to artery, anatomical variations, vascular pathologies and systemic problems. Various studies have been stated that venous congestion post operatively is usually self limiting,[21,35] and long term survival of the flap can be expected. Problems with arterial inflow can be identified clinically when the flap is pale relative to the donor site, cool to the touch, and when capillary refill is slow or absent. Problems with venous outflow are suggested when the flap is congested, edematous, and when capillary refill is brisk and rapid. Colour and appearance of congested flaps can vary depending on whether the congestion is mild or severe and ranges from a prominent pinkish hue to a dark bluish purple color.[41] Non-invasive Doppler flowmetry and tissue spectrophotometry could be used for monitoring the venous congestion in a flap.[41] Near infrared angiography can also be used for the assessment of postoperative venous congestion in the flaps.[29]

Active or passive drains placed at the donor site avoided the postoperative oedema. Even though drain was not placed in two patients no hematoma was noticed.

Temporary palsy of the marginal mandibular nerve was observed in 2 patients from which they recovered progressively. Curran AJ[35] has reported cases of marginal mandibular nerve palsy which disappeared after few weeks in their study.[14,21]

Intractable hair growth on Submental island flap was seen on tongue in 2 patients. Hair had to be trimmed for these cases. They stated that hair bearing nature of this flap in males makes it unpleasant for intaoral reconstruction. So that deepithelialization is a safe procedure for submental flap in men and it does not jeopardize the blood supply of the flap. This de-epthelialization can be done before or after flap harvesting.[38]

Submental island flap is never used for reconstruction of a tumour defect with established nodal disease in neck. This is because, when raising the flap, submental lymph nodes are included into the deep layers of the flap, so possible malignant cells could overrun the recipient site. If a suspicious lymph node is found during the harvesting procedure, it would be necessary to delay the inset of the flap until obtaining histopathologic results.[21] The vascular pedicle was thinned as much as possible to prevent incomplete removal of lymph nodes.

Speech intelligibility was achieved by the patients in a mean of 10.8 days (minimum 4 days and maximum 20 days). Bressmann T[42] used speech recording devices for the assessment. These speech recording devices could have been used for the assessment of speech and consonant intelligibility. According to Chauanjun[31] speech was better in patients not receiving grafts. In this study the patients achieved a good speech outcome by the third month which again improved in the subsequent months, which correlates with the study of Bressmann[42] the patients with flap reconstruction had a tendency for higher scores in the total number of correctly identified consonants.

Swallowing, speaking, tongue motility and facial appearance were the most common problems with the resection of tongue.[40] In our study we observed that the ability to swallow showed a marked improvement with 58.8% returning to normal diet by the first month and 94% by the third month. Tongue motility assessment was significant. 58.8 % of the patients achieved good tongue motility at the end of one month and 82.4 % of the patients got good tongue motility at third month. Hence the results can be interpreted as support for the assumption that better tongue motility precipitates better articulation.[42] The patients participated regularly in the follow-up programme.

Alan Sabri[43] has stated that the functional outcomes and quality of life is a concept that is difficult to measure, and comparison of results between patients, flaps, reconstruction, institutions and surgeons is a challenge. Further evaluations and studies has to be performed to determine the efficiency and efficacy of this submental flap. This submental island flap is reliable flap with rich vascularity acts as an ideal flap for the reconstructive surgery. Long term study is required in large scale to determine the significance of submental island flap in various oral and head & neck surgical defects.

Summary and Conclusion

The submental island flap is a reliable source of reconstruction in intraoral defects and especially for tongue and floor of mouth. The flap is safe, rapid and simple to rise. Following conclusions were made.

1. Oral cancer are important disease of head and neck region of which tongue cancers are more significant.
2. Various reconstructive techniques are available for reconstruction of tongue and other intraoral defects but it has its own limitation.

3. Free flaps provide necessary bulk for the tongue reconstruction but has restricted tongue mobility due to downward pull of muscles.
4. Submental flap are relative alternatives for free and pedicled flaps.
5. It provide thin, pliable nature and ease of harvesting for reconstruction of intraoral and extraoral defects.
6. This flap is richly vascularised by submental vessels.
7. This flap contains good arch of rotation and can be easily tunnelled intraorally.
8. Donor site is well hidden in submental region and has minimal donor site morbidity.
9. Complications are minimal and are self-limiting.
10. Intractable hair growth in males can be avoided by deepitheialization of submental flap.
11. Excellent functional outcome can be achieved such as tongue mobility, speech and swallowing.

This submental flap is reliably safe and effective in reconstruction of defects and provides functional stability.

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