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The supraclavicular artery Island flap in conjunction with unilateral karapandzic flap for reconstruction of lower facial defects: A Case report

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ABSTRACT

Head and neck oncologic resections leave complex defects which are challenging to reconstruct. In head and neck region, aesthetic facial units should be considered and a thin, malleable, suitable texture and color flap should be applied. Supraclavicular artery Island flap is fasciocutaneous flap, that taken from skin on the shoulder and supraclavicular area that based on supra clavicular artery. One of the advantages of the supraclavicular artery Island flap is the possibility of one-stage reconstruction with minimal morbidity. The objective of our study were to describe our initial experience using the supra clavicular artery Island flap in conjunction with karapandzic flap for reconstruction of lower facial defects.

Keywords: Supraclavicular flap; Karapandzic flap; Facial defect; Island flap; Supraclavicular artery.

Introduction

Head and neck oncologic resection leaves complex defects which could be challenging for reconstruction. In head and neck region, aesthetic facial units should be considered and a thin, malleable, suitable texture and color flap should be applied. Supraclavicular artery Island flap is fasciocutaneous flap, that taken from skin on the shoulder and supraclavicular area that based on supra clavicular artery. This flap based on supraclavicular artery that is a branch of the transverse cervical artery and its venous drainage is usually accompanied by transverse cervical vein which is at its upper extent. One of the advantages of the supraclavicular artery Island flap is the possibility of one-stage reconstruction with minimal morbidity [1,2].

There are some techniques available for lower lip reconstruction and functional restoration as a sphincter. For reconstruction of the one-half to two-thirds of the lower lip Karapandzic flap could be a good choice. That could have nerve and blood supply into it.

The objective of our study were to describe our initial experience using the supraclavicular artery Island flap in conjunction with karapandzic flap for reconstruction of lower facial defects [3].

Case Report

A 75-year-old female patient refered to Department of cancer Institute-Imam Khomeini Hospital complex with a history of ulceroproliferative lesion involving the left lower lip and left cheek that was maintained for at last 5 months. She had no habit of alcohol consumption and smoking. The lesion was from the left oral commissure extended to midline of the lower lip and from labial and buccal vestibular mucosa to left retromolar region (Figure 1). There is no palpable lymph nodes found in five zones of neck and supraclavicular region. The malignancy was confirmed by excisional biopsy and was squamous cell carcinoma. After CT scan were prepared for the patient, pre-operative procedures were performed and the patient was ready for operation.

The patient was informed about his condition and surgical procedure. Under G.A. left side supraomohyoid neck dissection and full thickness lower lip, cheek and mandibular segmental resection with 15mm safe margin performed (Fig. 2). For defect reconstruction we decided to use both karapandzic and supraclavicular island artery flap in conjunction.

A hand held Doppler ultrasound probe used to located the left side supraclavicular Artery that is usually located in a triangle that borders are inferiorly by the clavicle, medially by the posterior border of the sternocleidomastoid muscle, and laterally by the Trapezious muscle (Figure 3). The doppler signals were traced over the acromion, that was the point for the rotation of the flap where the artery exits. This point also used for measuring the length of the flap. Flap width was 6-7cm for primary closure and the dissection was performed in the subfascial plane, this plane would protect the vascular peddicle. The middle part of the flap de-epithelialized for tunneling to the defect site. After filling the defect with the flap, the donor site where widely undermined for primary closure. After that for better reconstruction a cosmetic results of the lower lip a right side uni lateral karapandzic flap was performed which the incisions lines was along the mental crease and then with a safe margin from commissure located into the naso labial fold. After incision marking a full thickness incision performed for the patient and dissection was done in an attempt to identify nerves and blood vessels and preserve them (Figure 4, 5). and finally we could achieve a good reconstruction with good cosmetic results (Figure 6).

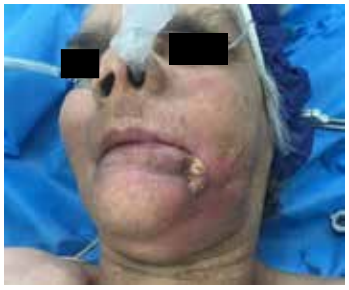

Fig 1. Photography of the patient.

Fig 2. Resection of lesion.

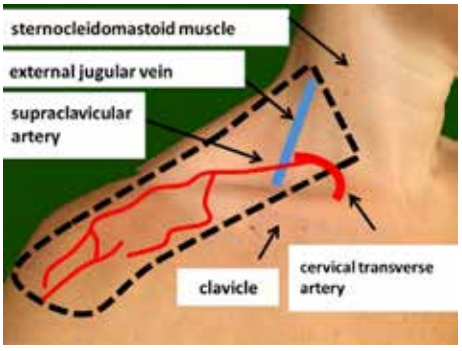

Fig 3. Diagram of the shoulder.

Fig 4. Intraoperative pictures of patient.

Fig 5. Karapandzic falp.

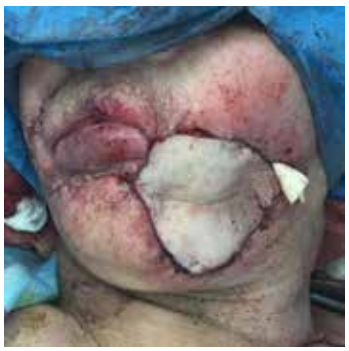

Fig 6. The defect was reconstruction with SAIF inconjection with karapandzic flap.

Discussion

Head and neck reconstruction after tumor resection is a complex issue that requires functional and cosmetic rehabilitation. A thin, malleable flap with similar texture and color to those of the recipient site is ideal for repair of head & neck defects. Micro anastomosed fasciocutaneous flap (forarm flap, anterolateral thigh flap) Provide thin, Flexible and well vascularized tissue. However it is a long lasting surgery and requires experienced multidisciplinary team [1]. Regional flap, such as the pectoralis major myocutoneous flap, are reliable and versatile and require shorter operation times, however, the pectoralis major flap is often bulky and provides a poor color match for cutaneous reconstruction.

The supraclavicular artery flaps are usually safe, capable of easily harvested and rapidly useful for reconstructing a variety of head and neck defects, and flap harvesting is easy and rapid, taking only 40 to 60 min depending on the surgeon experience [2,4]. This flap has the arc of rotation about 180° and could be used for closure of middle facial third to mediastinal defects. For this flap large skin plddle can be use although distal ischemia of skin paddle has been reported for flaps longer than 22cm [1]. The technique of flap harvest is easy, particularly at the beginning of the flap harvest in deltoid region but in the acromioclavicular area and supra clavicular fossa more attention should be paid where the main artery arises [5,6]. There are lots of procedures described for lower lip reconstruction, which are included v-excision, Gillies fan flap, Abbe flap, Abbe–Estlander flap, karapandzic flap and Bernard webster flap [3,7]. The karapandtic flap is one of the useful techniques for reconstruction of large defects of the lower lip and was first described by karapantic in 1974. This flap is useful for reconstruction of large defects that are one-half to two-thirds of the lower lip. The reconstruction is achived by rotating the

bilateral flap of the upper lip and perioral tissue, both inferiorly and medially [3]. During dissection, the labial arteries and buccal motor nerve branches are identified and preserved and the flap is rotated and advanced for cloure. One of the most critical advantages of this method is that this flap is fully innervated, so there is preservation of sensation and motor function and it can be used to seal large defects with similar, adjacent tissue [8]. Other advantage is that is a one-stage procedure. Some of disadvantages are the lip circumference is reduced and can lead to microstomia and there is rounding or distortion of the commissures [9]. In the case described earlier the patient demonstrated a defect of approximetly %50 of lower lip and operated for surgical correction with unilateral karapandzic flap and supraclavicular flap. Three month after operation, the patient demonstrated oral competency (Figure 7).

Fig 7. Three month postoperation.

Coclusion

The supraclavicular artery Island flap is relatively common in reconstruction of head and neck defects, and reconstruction of defects simultaneous with karapandtic flap has not been reported yet. In this study we want to show strength of combination flaps in head and neck oncologic surgery.

Conflict of Interest

There is no conflict of interest to declare.

Aknowledgment

We would like to aknowledge all the staff and personells in surgery ward.

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