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RELIABILITY OF SUPRACLAVICULAR FLAP FOR ORAL CAVITY RECONSTRUCTION

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Abstract:

To assess the efficiency of supraclavicular artery flap in reconstruction associated with defects preceding resection of the lesions involving the intraoral cheek segment of the oral cavity. This research emphasized the initiatives of both general surgeon and plastic surgeon as well; it reveals exactly how a supraclavicular flap can be quite a dependable, simple and effective solution for intra-oral cheek reconstruction in chosen situations.

This research is founded on supraclavicular artery flap in 10 patients basically residents of Dera Ghazi Khan Teaching Hospital (either surviving in a locale or introduced by Mayo Hospital Lahore) and diagnosed as squamous cell mobile carcinoma of mouth.

10 supraclavicular flaps were used in 10 patients for various defects in the intraoral cheek area. There were 6 male and 4 female patients. The indication was tumor in these patients. The prerequisite was that at least one supraclavicular region should be uninvolved. A total of 10 supraclavicular flaps were used for resurfacing defects in the intra oral cheeks (in all patients). The minimum flap dimension was 8cm × 6cm (horizontal × vertical).

Key Words: *Supraclavicular Flap; Oral Cavity; Microvascular Reconstruction.*

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INTRODUCTION:

The absolute most method that is popular in handling of intra oral and oropharyngeal defects after tumors ablation is nowadays represented by the transposition of microvascular flaps, and free flaps, in fact, provide the surgeons (both plastic surgeons and general surgeons) an easy selection of available cells (bone tissue, muscle tissue, skin, etc.) for optimal renovation of type and function. But, don't assume all problem strictly needs a free flap to reach good practical outcomes, rather than every patient can be an optimal prospect for the procedure that is microvascular. Consequently, the alternate artery that is supraclavicular could have a crucial role even yet in the free flap age whenever coping with patients struggling with serious comorbidities or with pretreated patients presenting recurrences or 2nd main tumors (Bone, 2007).

Supraclavicular artery flap is just a fasciocutaneous flap predicated on the supraclavicular artery, a branch regarding the transverse cervical artery, less often it comes from, the suprascapular artery, though dependable, isn't extremely vessel that is large. Venous drainage is generally followed closely by the transverse vein that is cervical must certainly be identified at its top level by very carefully preserving outside jugular vein that depletes the dismal percentage of the flap (Chen and Chang, 2015).

For quite some time, reconstructive surgeons used myocutaneous and fasciocutaneous flaps for the closing of defects following the resection of tumors. Pectoralis major flap that is myocutaneous the workhorse for reconstruction among these defects in developing nations. The flaps that are pedicled very easy to harvest and are usually extremely dependable. But, these flaps are too bulky and additionally induce donor site morbidity. Microvascular tissue that is free has expanded your options designed for reconstruction.

Nonetheless, it calls for longer operative time, considerable monitoring that is postoperative specific expertise which will never be for sale in peripheral facilities. Patients with peripheral vascular disease maybe not appropriate for these flaps. The purpose of reconstructive surgery is always to offer anatomical units that are functional skin tone and texture matching with the recipient site. With advancements in familiarity with vascular structure and physiology of epidermis, a few flaps that are forgotten supraclavicular flap had been rediscovered. Few studies in literary works have actually described the effectiveness of this flap in intra oral cheek reconstructions. This is a dependable fasciocutaneous flap that is pedicled suitable patients which could reduce surgical time and morbidity (Chen and Chang, 2015).

Properly, the effective use of microvascular free flaps is considered the most method that is widely used by the reconstruction of considerable defects of the oral cavity due to their flexibility and dependability. The success rate of free muscle transfers has risen up to higher than 95%, and fascio-cutaneous flaps that are free in other words. Free radial forearm, free anterolateral thigh flap) is considered the gold standard for soft muscle reconstruction of oral cavity and oropharyngeal defects.

We decided to study the reliability of the flap for intra-oral cheek reconstruction. The use of pre-operative hand-held Doppler to identify the course of the supraclavicular vessels and intra-operative transillumination to safeguard the vessels are, in our opinion, extremely useful measures for improving the reliability of this flap.

MATERIAL AND METHODS:

Study design: Descriptive situation series.
Established: This research carried out at the Teaching Hospital Dera Ghazi Khan, Pakistan.
Duration: From August-2017 to April-2019.
Sample size: Sample size expected to utilize 95% self-confidence level, 10% margin of error with a survival rate of 88% in patients undergoing Supraclavicular artery flap. Total ten patients were included in our study.
Sample strategy: Non-Probability sampling that is consecutive
Inclusion criteria:

1. Ten patients of both sexes with lesions of small size in intra oral cheek area that needed flap reconstruction after excision
2. Five patients are living in D.G. Khan and five were with the reference of Mayo Hospital Lahore (fundamentally resident of D.G. Khan area)

Exclusion criteria:

1. Patients with scars/previous surgery into a certain section of the Supraclavicular artery flap.
2. Those that refuse this reconstructive option.
3. Patients who needed thickness that is full of the cheek or had past neck dissections or radiotherapy to the neck or big scars had been excluded through the research. This research had been carried out from August-2017 to April-2019. The patients had been followed up for at the very least year and had been examined for a practical result like defect coverage mouth closure, mastication and appearance that is aesthetic.

Our research included ten supraclavicular flaps were used in ten patients for various defects in their intra oral cheek region. There were 6 male and 4 female patients. The indication was tumor in all patients. The prerequisite was that at least one supraclavicular region should be uninvolved. A total of 10 supraclavicular flaps were used for resurfacing defects on the inner cheek.

After analysis of medical documents and registers that are surgical we recorded the next for every single client:

1. A collaborative effort has been performed by General and Plastic Surgeons as General Surgeons done surgery like neck dissection, additionally, they did tumefaction free margin, while the reconstruction done by the plastic surgeon through the supraclavicular flap. Some chemotherapy sessions have been given to patients.
2. All exams and visits performed during pre-operative assessment, medical and reconstructive time, materials and medications utilized during surgery; times of hospitalization in intensive care;
3. Hospitalization time, consultations, medicines, bloodstream transfusions, and exams are done post-surgery or in protected resignation; The risk that is pre-operative of the patient had been assessed. Postoperative practical outcomes had been examined by the medic at outpatient consultation that is follow-up twelve months after surgery employing a rating system; the sort of diet had been examined in every situation.

Case One: A 36 years old female presented with a tumor in her right inner cheek. A flap measuring 8cm × 6cm was harvested. The flap bled well at margins on the table and showed no ischemic changes immediately after the operation.

Figure 1.1

Figure 1.2

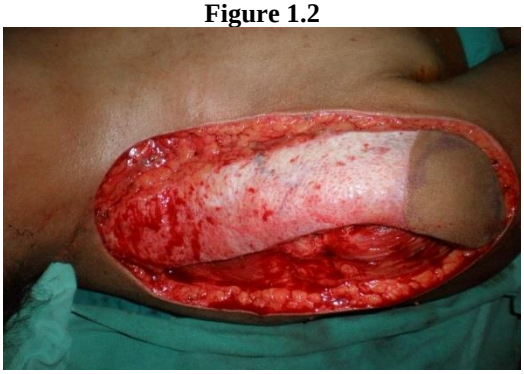


Figure 1.3

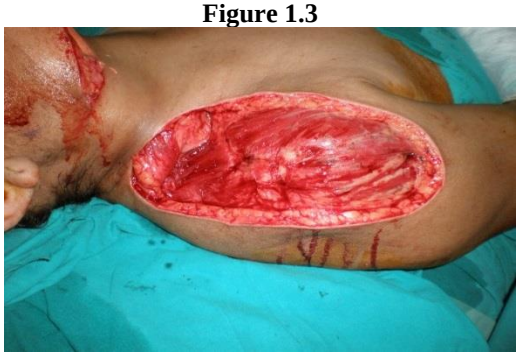


Figure 1.4

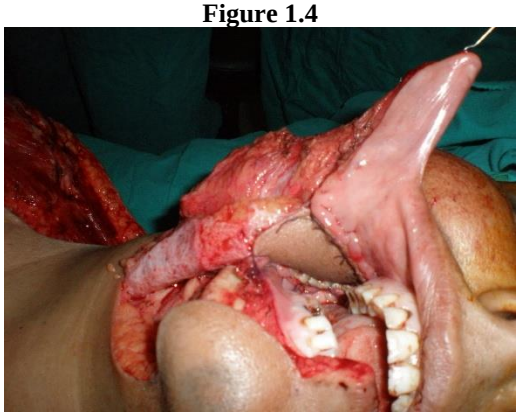
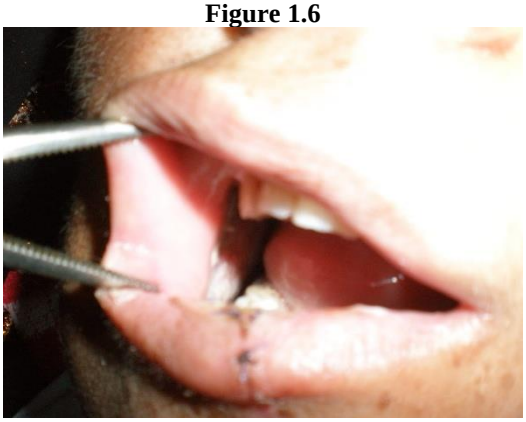


Figure 1.5

Figure 1.6



Case Two: A 45-year-old male with severe tumor of the left inner cheek and underwent resurfacing of the defect using a flap about 12cm × 8cm. Not only was the tumor released completely, the color and texture match provided was quite good. The donor site was closed primarily. At the 12-month follow-up visit, the flap had maintained its aesthetic and functional qualities and the patient was very happy.

Figure 2.1

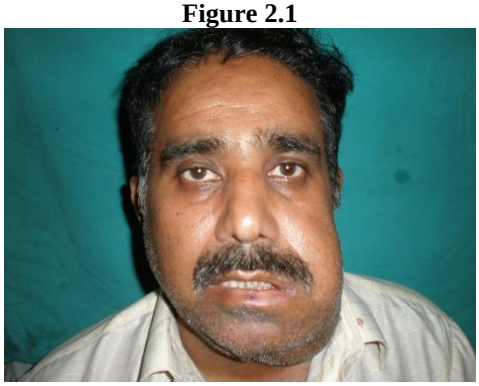


Figure 2.2

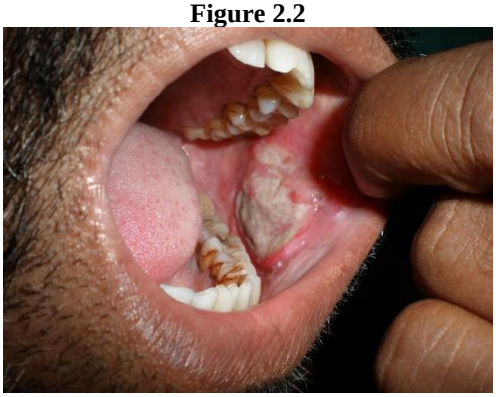


Figure 2.3

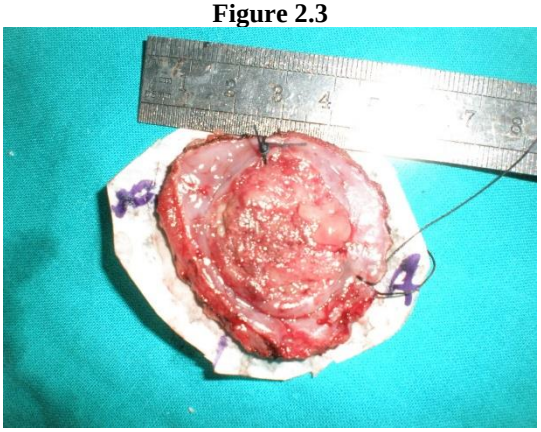


Figure 2.4

Figure 2.5

Figure 2.6

RESULTS:

All the ten flaps did well, at donor site some dehiscence was noticed only in one patient. Our patients were mostly happy with their final appearance. With donor sites closed primarily and the scar hidden underneath clothing, we found it easier to convince subsequent patients to opt for the procedure. Elaborate neck splintage and bulky dressings generally used for split skin grafts were not needed and the average time from post-operative recovery to resuming work was quite short, about 8 to 10 days. The patients were seen at 1-, 3-, and 6-month intervals. Adjuncts such as silicone gel sheet application and pressure garments were used if needed. Z-plasties were done to release minor areas of tightness due to straight-line scars and not for correction of failures of the release process. We were sometimes hesitant to use primary z-plasties due to concerns about the vascularity of the flap at the primary surgery; hence, they were done secondarily. The clinical appearance of all flaps resembled the natural contouring of the cervical silhouette.

DISCUSSION:

In the reconstruction of the intra oral cheek, the surgeons (both general and plastic) are up against a few problems: ensuring healing that is optimal increasing recurring purpose, we analyzed the Oral cavity defects in patients being described as the outpatient department of ENT in D.G. Khan Hospital (Teaching Hospital D.G. Khan). We find Supraclavicular artery flap beneficial to protect these defects and increase the purpose of mouth opening, swallowing and chewing. We conducted this scholarly research to gauge the dependability of Supraclavicular Artery with regards to success thus got enhancement in the purpose of mouth. In reality, transoral resections are mostly done for tiny tumors, where in fact the reconstruction in such cases is less complicated, using a closure that is primary regional flaps or epidermis grafts (Emerick, Herr and Deschler, 2014).

The expected esthetics of the head and neck region in terms of the color, texture match, and the functional dexterity that is desired makes any reconstruction in this region a very challenging one. The lack of color and texture match, leads to dissatisfaction amongst patients. At the other end of the spectrum, options like ultra-thin free flaps need specialized equipment and long operative time (Kekatpure, Trivedi, and Kuriakose, 2011).

The flap based on the supraclavicular branch of the tranverse cervical artery has had a long and chequered history. It was first described by Kazanjian and Converse as "in charretera" or acromial flap. The Demergasso flap, which was described by Mathes and Nahai, and several other flaps have evolved into the supraclavicular artery flap as we know it today. Cormack and Lamberty defined the flap as a laterally extended cervico-humeral flap and published an article about its vascular anatomy in 1983. The first anatomical studies of the cervicohumeral flap were performed in 1977 by Mathes and Vasconez. The vessel described by them as "an ascending branch of the artery cephalad to the clavicular insertion of the trapezius muscle" was named the supraclavicular artery by Lamberty. The supraclavicular fasciocutaneous island flap was actually introduced by Lamberty in 1979. He correctly described the supraclavicular artery as a perforator that arises from the transverse cervical artery in 93% of cases or from the suprascapular artery in 7% of cases (Kekatpure, Trivedi, and Kuriakose, 2011).

The flap fell into obscurity until 1997 when further fundamental studies were carried out by Pallua et al. who described the supraclavicular island flap for releasing postburn mentosternal contractures as a reliable and useful flap. Three years later, Pallua and Noah further defined the anatomical features of the supraclavicular artery by their studies on cadavers (Emerick, Herr and Deschler, 2014).

According to Cormack and Lamberty, an anatomical territory including the main blood flow into a flap is linked to the next anatomical territory through choke vessels and these two anatomical territories, including choke vessels, are the basic flap survival area. Keeping this guiding principle in mind, in our study we found that the supraclavicular flap can be safely elevated within dimensions of 20cm × 10cm. Use of tissue expansion greatly amplifies the total area available. Furthermore, the use of flaps from both sides not only greatly improves the total area that can be resurfaced but also eliminates the tension on the suture line while attempting to cover distal-most portions of the neck and head. However, it must be taken into an account that the distal portion of the flap may be perfused in a retrograde fashion by branches of the posterior circumflex humeral artery through the anastomoses over the point of the shoulder, hence the role for delay in unexpanded flaps remains (Lupi and Balercia, 2009).

In our experience, the use of the supraclavicular flap is an excellent option for reconstruction of intra oral cheek. The flap scored well in all parameters studied including reliability, reach, and quality of resurfacing. The overall patient satisfaction was also good.

CONCLUSION:

There is always a challenge in oral cancer surgery following reconstruction. Free microvascular tissue relocation, as well as pedicled myocutaneous flaps, may well not often be the right alternative, particularly in circumferential hospitals. A supraclavicular flap is just an option that is a good reconstruction of intra oral that do not include complete depth of cheek. It is possible to increase, dependable, less cumbersome and has now very little donor site morbidity and operating time that is short. Conservation of outside jugular vein is essential for success regarding the flap. Conservation of supraclavicular nerves can cause donor site morbidity like dysaesthesia. This flap is most effective in patients with T2 or T3 neck dissection cancers particularly if they will have co-morbidities that might maybe not enable operating a long time.

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