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Case Report

Immediate Head and Neck Reconstruction Through Pectoral Major Muscle Flap After a Huge Squamous Oncological Resection

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Abstract:

The pectoralis major myocutaneous flap (PMMF) has long been considered one of the main flaps for reconstructing defects of substance of the face and neck. PMMF is nowadays increasingly neglected in the face of the rapid growth of free flaps, especially in developed countries. However, it remains of significant use in developing countries.

Objective: Report an immediate head and neck reconstruction trough pectoral major muscle flap as a solution after a huge head and neck squamous oncological resection.

Clinical Case: 56 years old male with a block oncologic resection that includes cigomatic arch and body + negative intraoperative frozen cut + modified radical neck lymph dissection and, on a second time immediate reconstruction by the Plastic and Reconstructive Surgery service through a left Myocutaneos pectoralis major flap + ipsilateral rotation scalp flap + muscle temporalis left flap and a VY advancement flap.

Discusion And Conclusion: Myocutaneous flaps revolutionized the reconstruction of defects in head and neck oncological reconstruction. The pedicled pectoralis major flap is still harvested and mainly indicated for reconstruction in the polymorbid patient. Even with the develop and outcomes of the free flaps and the microsurgery has the gold standard in head and neck reconstruction, the pectoral major myocutaneous flap still maintain as one of the “battlehorse” in reconstructive surgery.

keywords: myocutaneous pectoralis major flap; head reconstruction; combined flaps

Introduction

Head and neck squamous cell carcinomas (HNSCCs) develop from the mucosal epithelium in the oral cavity, pharynx and larynx and are the most common malignancies that arise in the head and neck. [1] The burden of HNSCC varies across countries/regions and has generally been correlated with exposure to tobacco-derived carcinogens, excessive alcohol consumption, or both. [1] First described by Ariyan in 1979, the pectoralis major myocutaneous flap (PMMF) has long been considered one of the main flaps for reconstructing defects of substance of the face and neck. (2) PMMF is nowadays increasingly neglected in the face of the rapid growth of free flaps, especially in developed countries. However, it remains of significant use in developing countries. [3]

Case Report

Male 75 years old, diabetic with high tobacco consumption and without oncological antecedents, who reports the beginning of current illness 8 months earlier characterized by asymmetric, exofitic and self-detected lesion with irregular edges at left malar face subunit, who start as a small lesion but quickly increase and develop size until approximately 13 x 11 cm without ipsilateral cervical lymph nodes. Under local anesthesia, it performs an incisional biopsy who reports moderated differentiated squamous cell carcinoma. Stadification process show cigomatic and malar left bone compromise without cervical lymph nodes and no distant metastases. For that reason, the patient was prepared by a multidisciplinary team and undergo first, under general anesthesia with the Head and Neck surgery service to an block oncologic resection that includes cigomatic arch and body + negative intraoperative frozen cut + modified radical neck lymph dissection and, on a second time immediate reconstruction by the Plastic and Reconstructive service through a left Myocutaneos pectoralis major flap + ipsilateral rotation scalp flap + muscle temporalis left flap and a VY advancement flap. During the operation, the Plastic and Reconstructive team were taking care with the vascular pedicle of the acromiothoracic artery and his secondary branches to dissect carefully the Type V Mathes and Nahai flap, similarly, another 3 flaps were prepared in order to cover the defects of the scalp, adequate internal support after the bone resection and the new contralateral white upper lip.

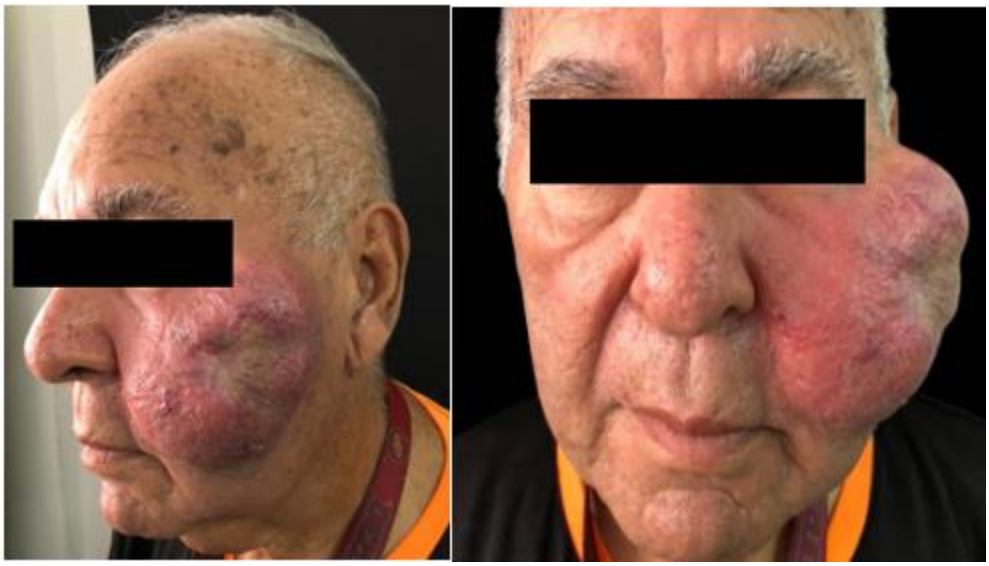

Figure: 1 and 2 Huge squamous head carcinoma that involves cigomatic arch.

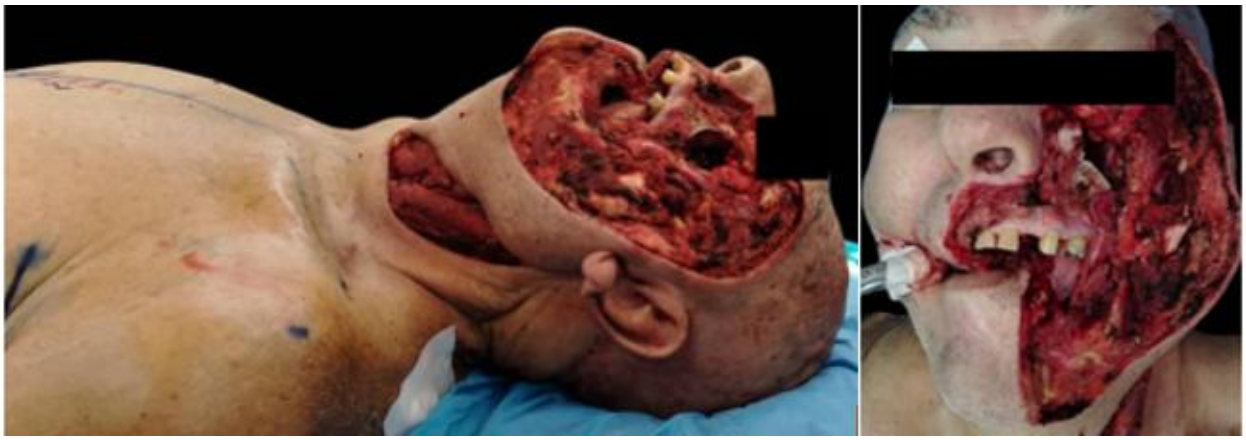

Figure 3 and 4: After the block oncological resection.

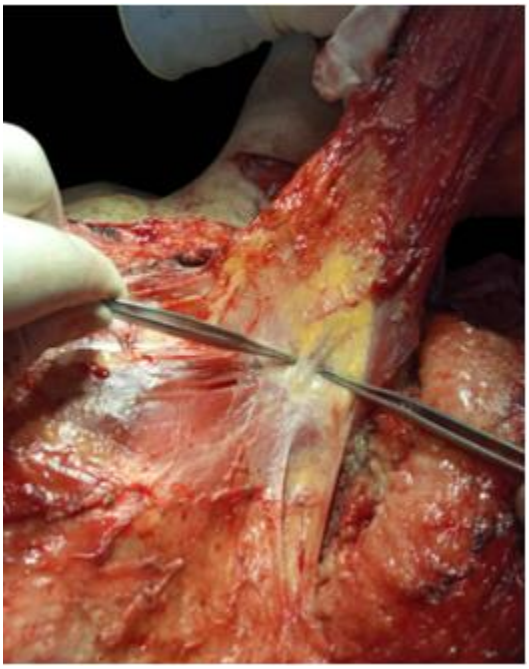

Figure 5: The acromiothoracic dominant pedicle.

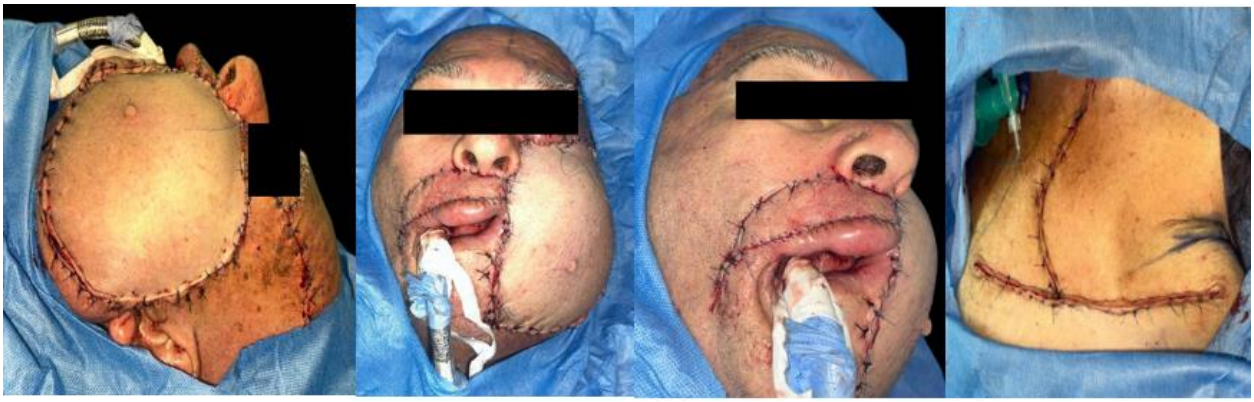

Figure: 6, 7, 8 and 9 Results: PMMF, Ipsilateral rotation scalp and temporalis muscle flap, VY contralateral advancement and closure donor site.

Discussion

Head and neck cancer surgery leads to defects which require surgical reconstruction. Post-surgical defects have aesthetic as well as functional implications in the form of problems in speech, mastication and swallowing. [4] The pedicled pectoralis major flaps are still harvested and mainly indicated for reconstruction in the polymorbid patient. [5] having relation with our case because was a comorbid old smoker and diabetic patient. Other indications are combinations of pedicled pectoralis major flaps with free microvascular flap, salvage reconstruction following complications, free flap failure and recurrent or extended primary disease [5] a fact that does not related with this reconstruction because were all combined regional and local flaps.

In relation with the surgical planification, according Bathula S, Stern N et al [6] the surface markings of the pectoralis major muscle flap is made by drawing a line from the left (author preferred left side for right dominant hand patients) acromion to the xiphosternum. Another line vertically from the midpoint of the clavicle intersects the first line. The pectoral branch of the thoracoacromial artery usually runs along the vertical line, a fact that was related with the same markings on our patient.

Myocutaneous flaps revolutionized the reconstruction of defects in head and neck oncological reconstruction. [7] In particular, the PMMC flap has emerged as a versatile flap in the reconstruction of surgical defects in cervicomaxillo-facial area. [8] Its advantages include location adjacent to the defect, reliability, plenty of bulk, ease of harvest, short time of harvest and minimal donor site morbidity with good aesthetic outcomes. It is also suitable for patients with comorbidities or undergoing radiotherapy. [4] However, PMMC flap is known for its complications like oro-cutaneous fistula (OCF) formation, bulkiness of the adipose tissue and muscle, scarring, high potential of marginal or distal flap necrosis with partial flap loss and donorsite morbidity. [9] In this case the patient does not develop vascular complications, however a small dehiscence of the medial flap portion was seen and does not require reintervention, only a few stitches under local anesthesia.

Another important topic is that according Anehosur V, Vadera H et al. [10] the nerve supply to this muscle is from lateral and median pectoral nerves. It has a role in shoulder movements along with other intrinsic and extrinsic muscles, specifically adduction, flexion, medial rotation of the shoulder and protraction of scapula. It is often suggested that a drawback

of this flap is its detrimental effect on shoulder function. Some authors have commented that any loss of function appears well tolerated, while others have reported that the loss of muscle function prevents manual workers returning to their work. [11] However, until today, this patient has not shoulder functional problems. Follow these words, the pectoral major myocutaneous flap is not obsolete and continues to maintain its place in head and neck reconstruction.[4]

Conclusion

Even with the develop and outcomes of the free flaps and the microsurgery has the gold standard in head and neck reconstruction, every patient is a complex and different case, not all the surgical centers worldwide count with these complex technology, so the pectoral major myocutaneous flap still maintain as one of the "battlehorse" in reconstructive surgery.

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Conflicts of Interest

The author declares no conflicts of interest.

Ethical Approval

This research complies with the World Medical Association Declaration of Helsinki on medical protocols and ethics.

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