Mustardé cervicofacial flap. Literature review and case report. Instituto de Prevision Social

Colgajo cervicofacial tipo mustardé. Revision de la literatura y a proposito de un caso. Instituto de Prevision Social

Eladio Marcelo Samudio Scavone*, Rafael Ramón Monzón Cardozo**, Michelle Natascha Feltes Escurra***, Pablo Enrique Schaerer Elizeche*

Hospital Central del Instituto de Previsión Social. General Surgery Services. Asunción, Paraguay

ABSTRACT

Basal cell carcinoma of the head and neck represents the most common skin tumor nationally and worldwide, poses a real challenge for reconstructive surgeons. Due to the COVID-19 pandemic, many hospital facilities were affected by the countless respiratory patients, sometimes weakening important sectors of healthcare. Metastases are extremely rare and occur in more aggressive subtypes such as morpheaform. Surgical treatment remains the first choice, but radiotherapy and PD-1 inhibitors are also an option in certain cases.

Key words: Basal cell carcinoma, flaps, metastases.

RESUMEN

El carcinoma basocelular de cabeza y cuello, siendo el tumor de piel más frecuente a nivel nacional y mundial, representa un verdadero desafío para los cirujanos reconstructivos. Debido a la pandemia del COVID-19 muchos centros de referencia nacional se vieron afectados por el sinnúmero de pacientes respiratorios, debilitando a veces sectores muy importantes de la salud. Las metástasis son extremadamente raras y se presentan en subtipos más agresivos como el morfeiforme. El tratamiento quirúrgico sigue siendo la primera opción, pero la radioterapia e inhibidores de PD-1 constituyen igualmente una opción en ciertos casos.

Palabras claves: Carcinoma basocelular, colgajos, metástasis.

INTRODUCTION

Basal cell carcinoma is positioned as the most common skin cancer. Being women between 70 – 80 years old with high solar exposition the main risk factors, besides solar showers, chronic exposure to arsenic, clear skin phenotype which are also risk factors. [1]

The treatment alternatives can be classified into (BCC) frequently recurrent and infrequent.[2]

Tabla 1. Basal cell carcinoma recurrence zones' classification.

High recurrence risk zones	Ears, periorbital region, eyelids, eyebrows, nose, jaw's angle
Low recurrence zones	Cheeks, forehead, chin, lower lip, neck

Tumors that have been previously treated with radiotherapy or peri neural invasion would also be included into the high recurrence classification. When surgery is not possible due to an advanced state, metastasis, or patient rejection, radiotherapies, Hedgehog inhibitors or PD-1 Inhibitors can be opted for, according to the S2K guide for basal cell carcinoma.[3]

The safety margins suggested by British dermatology guides vary according to the size of the tumor. Injuries < 20 mm and well defined, are eliminated in 85% of cases with a 3 mm surgical margin and un 95% of cases with a 4 – 5 mm safety margin. Bigger tumors and of morpheaform subtype require up to 13 to 15 mm of safety. The approximate recurrence rate upon 5 years is of 2 to 8%. [4]

Metastasis are extremely rare with high morbidity and mortality rates, cases with metastasis are generally from histological subtypes such as (morpheaform or infiltrative) metastasis cases that are associated to peri neural invasion and its metastasis reaches the lymph nodes, bones, lungs and skin. [5]

When the basal cell carcinoma reaches larger sizes they tend to be slightly more aggressive and even become similar to squamous cell carcinomas. [6]

This phenomenon, known cutaneous collision tumor, has a rare occurrence in the same zone. However, when two malignant tumors overlap, the concurrence between basal cell and squamous cell carcinomas' cases becomes common. Two tumors with highly different treatments.

In big cutaneous tumors with plenty of surface, accurate diagnostic and taking into account the tumors' concurrence is important. Furthermore, when we have already obtained a preoperatory diagnosis, it's important to take into account the elapsed time since the initial biopsy up to the final treatment.[6]

MUSTARDÉ CERVICOFACIAL FLAP

Non-microvascular flaps used in head and neck possess benefits regarding structure, texture and preservation of the zone's typical color. Furthermore, they provide redistribution of the tension lines close to the defect. [7]

The Mustardé flap, was initially designed to repair the lower

*General Surgery Specialist, Head and Neck Surgery Department. Hospital Central del Instituto de Previsión Social. marcesasca@gmail.com - Psher2025@hotmail.com
**General Surgery Specialist. Head and Neck Specialist, Chief of the Head and Neck Surgery Department. General Surgery Service of the Hospital Central del Instituto de Previsión Social. monzonrafaelramon@gmail.com
***General Surgery Resident, 1st Year. Columbia University - Harlem Hospital Center, New York. feltesmd@gmail.com
Corresponding author: Dr. Marcelo Samudio
Email: marcesasca@gmail.com - Address: Jacaranda casi Las Guindas s/n. San Lorenzo, Paraguay
Date of reception: 25/09/2023 - Date of approval: 30/05/2024
Responsible editor: Helmut A. Segovia Lohse Universidad Nacional de Asunción. Facultad de Ciencias Médicas. San Lorenzo, Paraguay. Ministerio de Salud Pública y Bienestar Social. Hospital General de Lambaré. Paraguay

eyelid, cheeks and even the nose wing. Through dispersion of the planes' tension, the ectropion and softness of the palpebral bag decreases.[7]

The flap starts with an incision along the lower eyelid until the eye's outer edge followed by an incision along the preauricular pits. In 3 – 4 cm full thick tumors the incision can be extended along the cervicothoracic region giving greater advancing capacity and being able to cover wider area. [7]

Upon performing the flap's dissection it's important to respect the facial nerve's terminal branches including the mandibular nerve.[7] Precaution must be had on patients with a history of smoking, scars from previous surgeries or previous radiations knowing that the flap only perceives irrigation though the facial artery. As well as considering that facial hair on men could yield non-aesthetic results. [7]

Placing specific fixating stitches on the fascia of the zygomatic arch, close to the zygomatic buttress or in the subtarsal fold prevents the risk of ectropion, ensuring as well that the tension vector of the other sutures is directed from the preauricular area towards the cheek region contributing to the decrease of excessive tension and nasal deviation.[7]

Several authors conclude that when we have >50% compromise of the nasal aesthetic unit, it's better to replace it completely leaving scars on the inside of the elevations and depressions themselves rather than reconstructing by nasal subunits.[7]

Limitations of the Mustardé flap include: Vasculopathies, smoking, scars by previous radiations, and facial hair mainly in men.[7]

The risk of ectropion is always present, even more if the flap extends. The reconstructive surgeon is forced to be familiarized with the diverse techniques and their respective complications.[7]

CLINICAL CASE'S PRESENTATION

63-year-old female, from Asunción, severely intellectually disabled with a history of a basal cell carcinoma diagnosed through incisional biopsy 2 years back, and delayed treatment due to the COVID-19 pandemic. Admitted into the hospital due to injury in the infraorbital cutaneous region over-infected with myasis and periorbital cellulitis.

Reports proliferative and ulcerous injury in the genian region of 54 x 45 x 20 mm with spontaneous bleeding. Patient self-treated the injury through homemade infusions and bandages which didn't yield favorable results. Excision of larvae and pertinent antibiotic treatment is performed, scheduling surgery.

Patient without other relevant personal or family pathologies, has high social risk due to a disabled intellectual condition for personal care, thus support from social services is requested.

Upon physical examination, large cauliflower-like injury of 50 x 40 x 20 mm located in the left cheekbone region with multiple lobulations is reported, eroded surface with multiple bleeding foci, slightly adhered to deep planes. Didn't compromise orbital complex nor nasal complex.

No adenomegalies in the neck nor other neoplastic injuries were reported.

Simple facial TAC: In third facial half, a dissolution of cutaneous continuity in the left malar region of ulcerous aspect can be observed, infiltrating deep planes apparently without compromising the bone surface.

Despite the patient reporting with a certified basal cell carcinoma biopsy, we performed several biopsies again, corroborating the two-year-old diagnosis. Considering the occurrence of collision cutaneous tumors.

Staging: T3N0M0 (American Joint Committee on Cancer – AJCC) 8th Edition, Staging for Nonmelanoma Skin Cancer.

We performed a tumoral incision with a 1.5-centimeter margin. Tumor with infiltration up to the muscular plane without compromising the bone plane. Reconstruction of the Mustardé cervicofacial flap.

DISCUSSION

Taking into account works published by Adonis et al, the use of free flaps in the head and neck represent the most sensible alternative nowadays, however, there are some factors to consider such as the surgeon's experience and formation or patients with diseases that elevate the American Society of Anesthesiology score which can contraindicate the performance.[8]

Other local factors such as previous radiations to the zone or arteriosclerotic diseases of the neck could interfere in its performance. In many hospital centers in Paraguay, rotation or advancement flaps such as the Mustardé one, represent a true option regarding defect reconstruction.[8]

A retrospective study proved that reconstructions with non-microvascular flaps present more satisfaction among patients, better tissue coordination, better skin color and tone, besides providing less in-patient stays compared to microvascular reconstruction techniques.[7]

The Mustardé flap starts from the upper edge of the defect encompassing the inner edge's surroundings, extending underneath the lower eyelid along an upper and lateral line to the temporal area. The placement of fixating stitches in the most prominent area of the cheekbone is of outmost importance, decreasing the flap's tension and avoiding ectropion.[7] With our experience we have proven that the Mustardé type cervicofacial flap can be used for big defects, specifically soft tissue ones, yielding proper aesthetic and functional results.

It's recognized that the flap is very suitable specially for older populations or those with some sort of severe comorbidity such as blood malnutrition, or in this case a highly socially-risked patient, who otherwise would have not been a candidate to a prolonged microvascular surgery and an even more aggressive postoperatory.[9]

It's important to follow the anatomy standards in order to preserve harmony, the correct anchorage of the flap to the zygomatic arch's fascia decreases the lower eyelid's tension, a simple suture of the skin to the flap is unadvised lest to decrease the edges' tension, it's recommended to perform fixating sutures with 4-0 polyglactin. Respecting the direction of the skin's tension lines and laxity with which it works are fundamental to achieve an aesthetic result.[1]

Conflict of interest
None of the authors declare a conflict of interests.

Ethical considerations
Informed consent was obtained from the patient for the presentation of the case.

Funding
The work was self-funded by the authors.

Author's contribution
Dr. Rafael Monzón, Dr. Marcelo Samudio y Dr. Michelle Feltes conceived the idea, worked on its elaboration, interpretation, revision and writing of the manuscript. Dr. Schaerer handled the bibliographic research.

REFERENCES

1. Fuenzalida Mery L, Villalobos Cabrera K, Miranda Palta R, Cabané Toledo P. Colgajo de Mustardé como tratamiento de un carcinoma basocelular. A propósito de un caso. Rev Cir. 2023;75(4). Disponible en: doi:10.35687/s2452-454920230041812 [Accessed 24 ago. 2024].
2. Seidl-Philipp M, Frischhut N, Höllweger N, Schmuth M, Nguyen VA. Known and new facts on basal cell carcinoma. J Dtsch Dermatol Ges. 2021 Jul;19(7):1021-1041. doi: 10.1111/ddg.14580. PMID: 34288482; PMCID: PMC8361778.
3. Lang BM, Balermpas P, Bauer A, Blum A, Brölsch GF, Dirschka T, Follmann M, Frank J, Frerich B, Fritz K, Hauschild A, Heindl LM, Howaldt HP, Ihrler S, Kakkassery V, Klumpp B, Krause-Bergmann A, Löser C, Meissner M, Sachse MM, Schlaak M, Schön MP, Tischendorf L, Tronnier M, Vordermark D, Welzel J, Weichenthal M, Wiegand S, Kaufmann R, Grabbe S. S2k Guidelines for Cutaneous Basal Cell Carcinoma - Part 2: Treatment, Prevention and Follow-up. J Dtsch Dermatol Ges. 2019 Feb;17(2):214-230. doi: 10.1111/ddg.13755. PMID: 30762963.
4. Peris K, Fargnoli MC, Garbe C, Kaufmann R, Bastholt L, Seguin NB, Bataille V, Marmol VD, Dummer R, Harwood CA, Hauschild A, Höller C, Haedersdal M, Malvehy J, Middleton MR, Morton CA, Nagore E, Stratigos AJ, Szeimies RM, Tagliaferri L, Trakatelli M, Zalaudek I, Eggermont A, Grob JJ; European Dermatology Forum (EDF), the European Association of Dermato-Oncology (EADO) and the European Organization for Research and Treatment of Cancer (EORTC). Diagnosis and treatment of basal cell carcinoma: European consensus-based interdisciplinary guidelines. Eur J Cancer. 2019 Sep;118:10-34. doi: 10.1016/j.ejca.2019.06.003. Epub 2019 Jul 6. PMID: 31288208.
5. Lo JS, Snow SN, Reizner GT, Mohs FE, Larson PO, Hruza GJ. Metastatic basal cell carcinoma: report of twelve cases with a review of the literature. J Am Acad Dermatol. 1991 May;24(5 Pt 1):715-9. doi: 10.1016/0190-9622(91)70108-e. PMID: 1869642.
6. Lee IS, Hong IP, Lee HK. Basal cell carcinoma and squamous cell carcinoma in a single tumor in the anterior auricular area. Arch Craniofac Surg. 2020 Aug;21(4):257-260. doi: 10.7181/acfs.2020.00262. Epub 2020 Aug 20. PMID: 32867417; PMCID: PMC7463126.
7. Patel SB, Buttars BR, Roy DB. Mustardé flap for primary nasal sidewall defect post-Mohs micrographic surgery. JAAD Case Rep. 2022 Apr 1;23:151-154. doi: 10.1016/j.jdcr.2022.03.014. PMID: 35509498; PMCID: PMC9058563.
8. Ramírez-Cuellar AT, Sánchez-Jiménez W, Latorre-Quintana M. Colgajo submentoniano en la reconstrucción de cabeza y cuello. Rev Colomb Cir 2022, 37, 580-587. [citado 18 de septiembre de 2023]. Disponible en: https://www.revistacirugia.org/index.php/cirugia/article/view/1872
9. Behan FC, Rozen WM, Wilson J, Kapila S, Sizeland A, Findlay MW. The cervico-submental keystone island flap for locoregional head and neck reconstruction. J Plast Reconstr Aesthet Surg. 2013 Jan;66(1):23-8. doi: 10.1016/j.bjps.2012.08.027. Epub 2012 Sep 11. PMID: 22974756.