Flap-plasty and closure by second intention: an option in the reconstruction of the ear and external auditory canal

Retalhoplastia e fechamento por segunda intenção: opção na reconstrução da orelha e conduto auditivo externo

DOI: http://www.dx.doi.org/10.5935/scd1984-8773.20181021104

ABSTRACT

Non-melanoma skin cancer is the most common type of neoplasia. Basal cell carcinoma is the most common cancer of them, the incidence of which is steadily increasing, implying an important public and financial health issue. The authors present the case of a patient with an extensive basal cell carcinoma affecting part of the external auditory canal and auricular concha, treated with a combination of surgical techniques: flap-plasty associated with second intention closure of the external auditory canal. Due to the excellent aesthetic and functional outcomes, this technique should be considered as a therapeutic option for auricular lesions.

Keywords: Carcinoma, Basal cell; Dermatology; Ear neoplasms; Ear, external; Surgical flaps

RESUMO

O câncer da pele não melanoma é o tipo de neoplasia mais comum. O carcinoma basocelular é o mais frequente dos cânceres da pele, cuja incidência aumenta constantemente implicando uma importante questão de saúde pública e financeira. Apresenta-se o caso de paciente portador de carcinoma basocelular extenso, acometendo parte do conduto auditivo externo e concha auricular, que foi tratado por associação de técnicas cirúrgicas: retalhoplastia associada ao fechamento por segunda intenção do conduto auditivo externo. Devido ao excelente resultado estético e funcional, essa técnica deve ser lembrada como opção terapêutica para lesões auriculares.

Palavras-Chave: *Carcinoma basocelular; Dermatologia; Neoplasias da orelha; Orelha externa; Retalhos cirúrgicos*

INTRODUCTION AND LITERATURE REVIEW

Non-melanoma skin cancer is the most common form of cancer in humans. Basal cell carcinoma (BCC) is the most frequent skin cancers and has an ever growing incidence, meaning an important public health and financial issue for several countries.[1,2]

It is known that exposure to the sun is the most important risk factor for BCC, while sensitivity to the sun is the main predisposing factor related to the host. Intensely fair skin and presence of actinic keratoses are the personal risk factors most frequently related to the development of BCC. A study suggested that intermittent exposure to the sun is closely related to the occurrence of BCC, and that the risk of developing this condition is proportional to the incidence of ultraviolet (UV) radiation in the geographical area where the patient dwelled during his or her first 20 years of life. However, there was no increase in the risk of BCC regarding cumulative exposure – unlike what is observed in squamous cell carcinoma patients, which is another malignant keratinocytic neoplasia.[1]

New techniques

Autors:
Lais Lopes Almeida Gomes[1]
Bianca de Franco Marques Ferreira[1]
Mário Chaves Loureiro do Carmo[1]
Solange Cardoso Maciel Costa Silva[1]

[1] Dermatology Service, Hospital Universitário Pedro Ernesto, Universidade do Estado do Rio de Janeiro – Rio de Janeiro (RJ), Brazil.

Correspondence:
Laís Lopes Almeida Gomes
Av. Nelson Cardoso, 1149/310
Taquara – Rio de Janeiro-RJ – Brasil
E-mail: llag_3@hotmail.com

Received on: 13/10/2017
Approved on: 17/06/2018

This study was performed at the Universidade do Estado do Rio de Janeiro - Rio de Janeiro (RJ), Brazil.

Financial support: None
Conflict of interests: None

The authors describe the case of a patient with extensive BCC affecting part of the external auditory meatus and auricular concha, whose treatment by association of surgical techniques – flap-plasty associated with second intention closure of the external auditory meatus – resulted in excellent esthetic and functional outcomes.

CASE REPORT

A 72-year-old, phototype III male patient sought care related to a lesion perceived 7 months earlier in the right ear. At the clinical examination, an ulcer vegetative lesion with pearly borders was observed spanning the entire auricular concha, external auditory meatus and part of the lobule (Figure 1). The patient also referred to progressive ipsilateral hearing loss. Following the clinical diagnosis of BCC, the authors chose to completely surgically excise the lesion. Surgery was performed with simultaneous histological analysis of borders and resulted in a large surgical defect (Figure 2).

The preparation of a transposition flap harvested from the area anteroinferior to the auricular pavilion was the procedure chosen for repairing the operative wound. The flap was elevated, positioned and sutured in the bloody area, covering the defect, leaving out the area of the external auditory meatus to heal by second intention. The flap's donor area was chosen due to its proximity to the primary defect (Figure 3). The transposed tissue was rotated about 90° aiming at covering the area of the wound resulting from the resection of the tumor, having been being sutured with 4-0 nylon thread (Figure 4). Careful measurement of the flap (width and height) was taken to ensure that the extensive defect would be fully covered. In the secondary operative defect, the primary closure was performed by means of a simple suture with 4-0 nylon thread, in order to reduce tension.

RESULTS

The patient treated the wound with daily hygiene and standard dressings in the postoperative period, when no inter-

Figure 1: Preoperative BCC

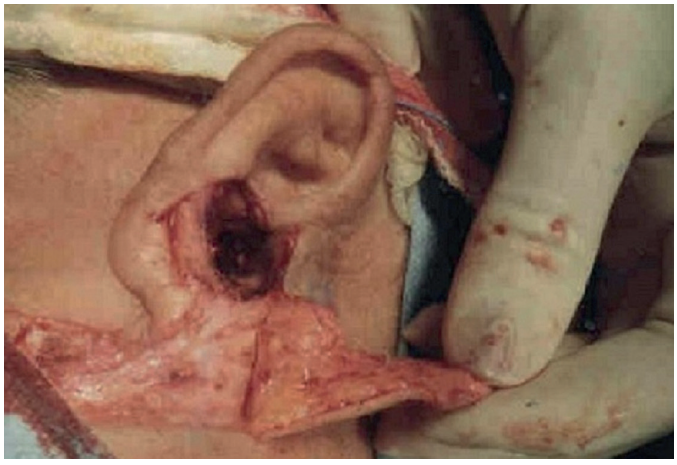

Figure 3: Donor area

Figure 2: Primary defect

Figure 4: Immediate postoperative

currences were observed. Aiming at a better aesthetic outcome, 50% trichloroacetic acid was applied to the surgical scar in two sessions, (Figures 5 and 6). Three weeks after, the patient was evaluated at the Otorhinolaryngology Department, which confirmed the good healing of the external auditory meatus area by second intention.

DISCUSSION

Basal cell carcinoma accounts for about 90% of malignant cutaneous lesions of the head and neck region, being the most common type of ear carcinoma. The vast majority of cases occur in the ear helix and periauricular area, which are especially susceptible to exposure to the sun.[2,3] Nevertheless, 15% of these arise in the external auditory meatus, [2] with the most common BCC variant in this area being the ulcerative nodular, that arises as a slightly erythematous, desquamative, sometimes pigmented papule surrounded by a capillaries network, with pearly border, with possible central ulcer. Although metastases are extremely rare, the invasive character of the tumor can cause extensive local damage linked to cartilage infiltration.[2]

Figure 5: Application of trichloroacetic acid to the surgical site after 6 weeks

Figure 6: Scar after 13 weeks

The ear is susceptible to the effects of UV radiation due to its location, which causes extensive exposure and, consequently, susceptibility to neoplastic and pre-neoplastic skin lesions. In addition, the ear has the function of transmitting sounds and participating in the facial aesthetics. Depending on the affected site, lesions of the external ear can be easily perceived by the patient or by friends and relatives, meaning that the search for medical attention will most probably occur without delay.[2,3] On the other hand, when lesions occur in less exposed areas, as in the present case, the search for a dermatologist physician might be delayed, resulting in the development of the lesion over time. This fact embeds increased risk in cases of malignant tumors due to their invasive potential, associated to the small thickness of the skin in this area as compared to that of other regions.[2]

It is important to highlight that the physician should always perform the complete examination of the patient's body after diagnosis of the first BCC due to the high frequency of synchronous BCCs. Follow-up studies have shown that the emergence of new skin cancers occurs in roughly half of the patients in the following five-year time interval.[3,4]

The outer ear consists of the external auditory meatus and the auricular pavilion (Figure 7). Both are formed by elastic cartilage covered by skin, connected to the perichondrium, and poorly vascularized. The epidermis of its concave part covers a thin layer of dermis and subcutaneous, which is strongly attached to the pavilion's cartilage – in contrast to the skin in the outer ear's convex part, which rests over a thick subcutaneous fat layer that provides more laxity and mobility.[2]

Reconstruction of the ear can be challenging due to its complex topography. Post-surgical ear distortions and asymmetries can affect the patient's facial aesthetics. Several options for ear reconstruction are available and should be individualized,

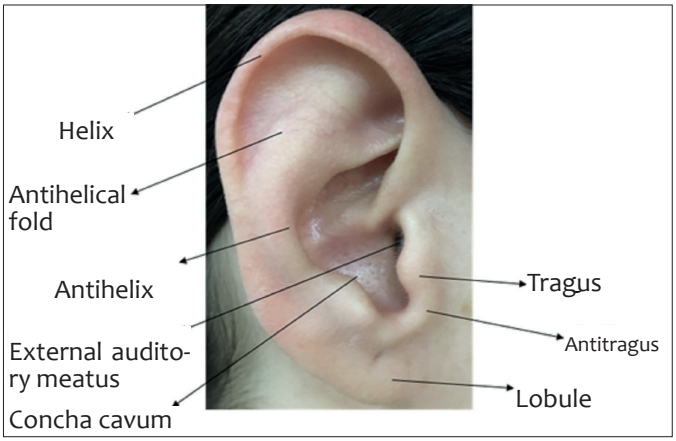

Figure 7: Anatomy of the ear

according to the surgeon's area of expertise and experience.[5] Among the options for auricular reconstruction, the authors of the present article highlight rotation, advancement and interpolation flaps, in addition to the transposition flap. It is important to note that despite the complex primary reconstruction alternatives, closure by secondary reepithelialization is also an option [3] to be used in concave areas.

Regarding the primary reconstructions of the ear, flaps are indicated for covering primary defects in the helix, lobe, anti-helix and cavum. The authors of the present article highlight the pre or retroauricular transposition flaps in these cases. It should be borne in mind that the transposed skin can not be excessively thin due to the risk of necrosis, nor excessively thick, which would cause an elevated scar.[5,6]

CONCLUSION

Reconstruction of auricular surgical defects with transposition of pre-auricular flaps and primary closure associated with second-intention closure of part of the external auditory meatus proved to be a viable and effective surgical technique, with absence of complications in the immediate and late postoperative periods. Due to the excellent aesthetic and functional outcomes, the technique described should be borne in mind as a therapeutic option for auricular lesions. ●

REFERENCES

1. Kricker A, Weber M, Sitas F, Banks E, Rahman B, Goumas C, et al. Early Life UV and Risk of Basal and Squamous Cell Carcinoma in New South Wales, Australia. Photochemistry And Photobiology. Epub 2017 Jul 15.
2. Sand M, Sand D, Brors D, Altmeyer P, Mann B, Bechara FG. Cutaneous lesions of the external ear. Head & Face Medicine Springer Nature. 2008 Feb 8; 4 (1):1-2.
3. Reddy LV, Zide MF. Reconstruction of skin cancer defects of the auricle. J Oral Maxillofac Surg. 2004;62(12):1457-71.
4. Smedinga H, Verkouteren JAC, Steyerberg EW, Hofman A, Nijsten T, Vergouwe Y. Occurrence of metachronous basal cell carcinomas: a prognostic model. Br J Dermatol. Epub 2017 Jun 30.
5. Cerci FB. Staged retroauricular flap for helical reconstruction after Mohs micrographic surgery. An Bras Dermatol. 2016; 91 5 Suppl 1:S144-7.
6. Burnett M E, Hibler BP, Wang SQ. Reconstruction of a Lower Conchal Bowl Defect. Dermatol Surg. 2016 ;42(10):1209-12.

DECLARATION OF PARTICIPATION:

Laís Lopes Almeida Gomes | ORCID 0000-0001-5396-4362
Participation in the procedure, patient postoperative follow-up, literature review, manuscript write up, photographic records

Bianca de Franco | ORCID 0000-0001-5997-4246
Participation in the procedure, patient postoperative follow-up, literature and manuscript review, photographic records

Mário Chaves | ORCID 0000-0003-2943-0322
Participation in the procedure and patient follow-up

Solange Maciel | ORCID 0000-0003-0812-908X
Conceptual development of the technique, procedure implementation