

CASE REPORT

Platysma myocutaneous flap for external ear reconstruction of squamous cell carcinoma in an albino patient- A case report

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Abstract

Background: Squamous cell carcinoma of the skin is less common as compared with basal cell carcinoma. It is rarely noted in external ear as compared to other cutaneous sites. Due to locally infiltrative and aggressive nature, rapid spread to nearby structure and cervical lymph node region necessitate the need of excision of tumor along with radical neck dissection. Many types of reconstructive options are available but we choose the platysma myocutaneous flap for ear reconstruction in our case as it is a versatile, portable, and thin flap, less technique sensitive and can be obtained during neck dissection with a primary closure of the donor site with minimum postoperative complications.

Keywords: Platysma Myocutaneous Flap, Albinism, Squamous Cell Carcinoma of Ear.

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Introduction

Squamous cell carcinoma is less commonly reported in the skin of head and neck region with a prevalence rate of 7-11% only as compare to 80% for basal cell carcinoma. The most common sites involved are face, lips, hands, forearms and lower legs with the highest risk of metastasis for ear and lip tumors, 9% and 14% respectively. Predisposing factors include fair skin type, chronic sun exposure, advanced age, immunosuppressant, and a personal history of non melanoma skin cancer.

Squamous cell carcinoma of external ear is rare with a prevalence of approximately one per millions population. This is rare tumor hence, there is lack of a universally accepted staging system and thus makes it more difficult to analyze and formulate a treatment planning. Albinism is a genetically inherited disorder presenting with reduced or no melanin in the hair, the skin and the eyes. The lack of melanin with exposure to intense ultraviolet radiation increases the risk of developing skin cancer by 1,000 fold as compared to

general population. Because of aggressive, invasive nature, wide excision of primary lesion along with involved positive lymph node dissection leads to formation of large size defect following surgical treatment. Currently, the most commonly used reconstruction technique is microvascular free flaps. Reconstruction of soft tissue defects, the radial fascio-cutaneous flap is most widely used, due to its thinness and malleability but requires long duration surgery, Technique sensitive, costly, need experienced surgeons in microsurgery and microsurgery equipment. It also needs a second donor site reconstruction. Small and medium sized defects can be closed using myocutaneous platysma flap. The platysma flap was first described by Paul Tessier in 1970, remains an alternative for reconstruction of the head and neck defects due to its versatile, portable, and thin nature. This article presents the use of platysma myocutaneous flap for reconstruction of ear squamous cell carcinoma in a single stage surgery.

Case Report

A 21 years old male albino patient reported to department with slowly enlarging painless, indurated, ulcerated mass over left external ear of size 5 x 4 cm extending to left preauricular region with positive cervical lymphadenopathy. After histopathology it was diagnosed as squamous cell carcinoma. Surgical procedure done was total auricectomy along with total parotidectomy with modified radical neck dissection of left side and reconstruction of defect with posteriorly based platysmamyocutaneous flap under general anesthesia. Healing was satisfactorily with no postoperative complications were noted at operated site.



Fig 1-preoperative view Squamous cell carcinoma involving left external ear and preauricular region.



Fig 2-Intraoperative view, posteriorly based myocutaneous platysma flap.

Discussion

Squamous cell carcinoma of the skin noted at external ear is one of the rarest case reported at our Regional Cancer Center, Chhattisgarh. As Albinism and solar radiation were identified as main risk factors hence to prevent metastasis, early diagnosis and aggressive surgical resection of lesion is treatment of choice. Previous studies from Nigeria and Tanzania reported that only a few Albinos survived beyond 30 years. Squamous cell carcinoma is a major cause of morbidity and mortality in very few patients suffering with Albinism who develop premalignant and malignant lesions at a younger age and suffer from advanced skin cancers in the third to fourth decade of life.^{1,2} Various treatment modalities like surgical excision, cryosurgery, curettage, electrodesiccation, radiotherapy, photodynamic therapy, topical cytostatics and immunomodulators, brachytherapy, chemotherapy etc can be used according to site and size of lesion, depth of invasion and level of lymph node involvement.³ In the modern era, microvascular flaps were the first choice after cancer resection, but it had some drawbacks like need of prolonged surgical time with two surgical teams of expert surgeons in microsurgery, microsurgical equipment, flap viability and the donor site morbidity. Myocutaneous flaps, such as pectoral, deltopectoral or trapezius flap, has the disadvantage of bulky, anaesthetic and less functional, has more risk of necrosis, dehiscence due to the weight of the flap. Although the platysma flap has not been widely used but literature shows that it can be used as an alternative for reconstructive surgery of head and neck tumors. Small to medium-size defects can be functionally reconstructed with the platysma myocutaneous flap as an excellent alternative particularly in medically compromised patients not being eligible for lengthy free tissue transfer surgery. It is based on submental artery as the predominant blood supply to the platysma muscle as well as to the skin paddle. Additional supply comes from the transverse cervical, thyroid, occipital and posterior auricular vessels. To prevent venous drainage Ruark et al and Verschuur et al suggested that the external jugular vein should be preserved and included in the flap pedicle whenever possible.^{4,5} For the concern of flap survival, the need of sacrificing the facial vessels is a question of debate. Ruark et al and McGuirt et al stated that preservation of the facial artery is not a prerequisite for survival of the platysma myocutaneous flap.^{4,6} Coleman et al emphasized that the platysma flap cannot be raised in standard radical neck dissection because the facial artery is transected which compromises flap survival.⁷ It offers several advantages like thin and pliable flap with no excessive bulk and easy to harvest, useful for reconstruction of small to medium-sized skin or mucosal defects of the facial skin, oral cavity, and pharynx, floor of mouth, tongue. Despite these advantages the platysma myocutaneous flap has not gained widespread acceptance due to a lack of its

reliability and a high rate of complications (18-45%). Loss of skin paddle or formation of orocutaneous fistula has been described due to ischemic flap necrosis or venous congestion. According to Tosco et al, the main contraindications to use this flap are previous surgical scarring or previous neck radiation therapy, previous radical neck dissection, the need of tissue bulk in the defect zone, defect size larger than 7×10 cm, and when there is radiologic suspicion or evidence of neck metastases with extracapsular spread which may hampers the vascularity of platysma muscle.⁸

For ear reconstruction we found only one case published by Arian, in which the platysma myocutaneous flap was used as a “sandwich” with an outer muscle-cutaneous pedicle and tubulated to cover the auricular region that had lost the skin.⁹ To prevent all these complications, we planned to do one stage ear reconstruction using posteriorly based platysmamyocutaneous flap after total auricectomy, total parotidectomy and modified radical dissection for aggressive, infiltrative squamous cell carcinoma of left external ear having positive parotid lymph nodes and cervical nodal metastasis.

Conflict Of Interest

The authors have no conflict of interest to declare.

References

1. Okoro AN. Albinism in Nigeria: a clinical and social study. *Br J Dermatol* 1975;92:485–492.
2. Luande J, Henschke CI, Mohammed N. The Tanzanian human albino skin: natural history. *Cancer* 1985;55:1823–1828.
3. Buljan M, Bulat V, Situm M, Mihic LL and Stan-ic-Duktaj S. Variations in Clinical Presentation of Basal Cell Carcinoma. *Acta Clinica Croatica*. 2008;47:25-30.
4. Ruark DS, Mc Clairen WC, Schlehaider UK, Abdel-Misih RZ. Head and neck reconstruction using the platysma myocutaneous flap. *Am J Surg* 1993;165:713-8.
5. Verschuur HP, Dassonville O et al. Complications of the myocutaneous platysma flap in intraoral reconstruction. *Head Neck* 1998;20:623-9.
6. McGuiert WF, Matthews BL, Brody JA, May JS. Platysma myocutaneous flap: caveats reexamined. *Laryngoscope* 1991;101:1238-44.
7. Coleman JJ, Jurkiewicz MJ, Nahai F, Mathes SJ. The platysma musculocutaneous flap: experience with 24 cases. *Plast Reconstr Surg* 1983;72:315-23.
8. Tosco P, Garzino-Demo P et al. The platysma myocutaneous flap (PMF) for head and neck reconstruction: a retrospective and multicentric analysis of 91 T1-T2 patients. *J Craniomaxillofac Surg* 2012;40:e415-8.
9. Ariyan S, Chicarilli ZN. Replantation of a totally amputated ear by means of a platysma musculocutaneous “sandwich” flap. *Plast Reconstr Surg*. 1986;78:385.