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Case Report

Reconstruction of a large check and nose defect following excision of a basal cell carcinoma with squamous differentiation with cheek rotation flap and paramedian forehead flap in a patient with albinism

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ABSTRACT

Squamous differentiation of basal cell carcinomas are very aggressive tumors. The albino population on the other hand very much susceptible to radiation-induced skin changes and malignancies. Here we have presented a case of 34-year-old lady with large basal cell carcinoma of the cheek and lateral nose wall presented to us at a very late stage due to COVID-19-induced lockdown in this part of India. She was referred to the plastic surgery outpatient department (OPD) from the head and neck surgery for the reconstruction-related opinion. We excised the tumor with adequate margins and reconstructed the right cheek defect with the cheek rotation flap of size 15×14 cm and the right nose defect with a left paramedian forehead flap. The postoperative period was uneventful. After three weeks of the surgery, the flap division was done and one more week later, radiation therapy started. The patient was followed up at three monthly intervals at the OPD and she was doing fine till now and is also happy with the aesthetic appearance. For the large defects of the nose and cheek, a combination of cheek rotation flap and paramedian forehead flap can be done. Both are very reliable flaps and good color match and proximity to the defect made them an attractive option.

Keywords: Basal cell carcinoma, Cheek rotation flap, Paramedian forehead flap, Albino

INTRODUCTION

The word albinism is derived from the Latin word “albus” which means white. The incidence of albinism is 1 in every 17,000 all over the world. It is a rare genetic disorder resulting from the complete or partial absence of melanin pigment which is responsible for the color of the skin, hair, and eyes in the human body due to the absence or defect of tyrosinase, a copper-containing enzyme involved in the production of melanin. These people may have vision problems and hypersensitivity to the sun rays, and they are also prone to skin cancers.[1] In India, the exact incidence of basal cell carcinoma is not known but nonmelanoma skin cancers account for 1-2% of the total skin malignancies in India. [2] In the studies published by Lal et al and Malhotra et al, head and neck region attributes 97.2% and 91.2% of the total basal cell carcinoma cases respectively.[3,4] The basal cell carcinoma with squamous cell differentiation, also known as basosquamous type, is a controversial one. It consists of basaloid cells (that are larger, paler, and rounder than those of the solid BCC), squamous cells, and intermediate cells. This is an aggressive cancer with metastatic potential. The reconstructive procedure for such malignancies depends on the location, size, depth of the defect, and the adjacent tissue mobility. The cheek rotation flap is one of the commonly used flaps used for the reconstruction of the defects of the cheek, lower eyelid, medial, and lateral canthus. The cheek rotation flap has a robust blood supply, and it is a flexible, well-deflected, and easy-to-manipulate flap and has a pivot point that can be changed according to the need. The paramedian forehead flap is a workhorse flap for nasal reconstruction. Probably the first use of a forehead flap for nasal reconstruction was performed by Sushruta in India between 600 to 700 BC.[5]

CASE REPORT

A 34-year-old lady was referred to plastic surgery by the Department of Head and Neck Surgery for advice regarding the reconstruction of the defect after excision. She is an albino and by profession a health care worker. She had a black mole on the right side of her cheek since birth and for the last 6 months, it progressed very fast. Due to the sudden imposed lockdown (for COVID-19), she was not able to visit the hospital which resulted in rapid progression and increased size of the lesion. On clinical examination, the lesion appeared to be approximately 9×8 cm at the right nasolabial groove with extension to the right cheek and right ala of the nose. The elevated lesion was blackish in color with ulceration at the top, tender, and fixed with a sharply defined margin. The biopsy of the lesion was reported as basal cell carcinoma with squamous differentiation.

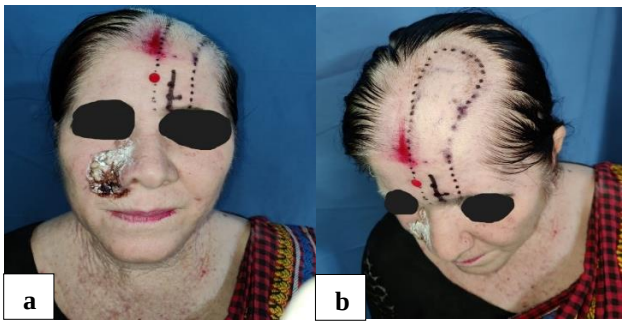

Figure 1: a) Preoperative lesion with the marking of the paramedian forehead flap pedicle, and (b) the huge marking of the paramedian forehead flap.

Figure 2: The defect following excision of the tumor.

The surgery was done in a supine position under general anesthesia. The pedicle of the left paramedian flap was marked with the handheld Doppler one day before the surgery. Wide excision of the lesion with adequate margin was done. The cheek rotation flap was marked on the right side of the cheek, and the flap was raised above the level of superficial musculoaponeurotic system (SMAS). Beneath the SMAS layer, lies the branches of the facial nerves, so it is of paramount importance not to violate the SMAS layer. The size of the flap was approximately 15×14 cm. The flap was raised to the upper neck crease inferiorly and at the lateral side up to the tragus of the right ear. This incision was also used for the parotid node dissection as the computed tomography (CT) scan of the patients showed parotid nodes. Once the cheek rotation flap was raised completely, an assessment of the reach of the flap and the need for another flap was done. After all these, we raised a left paramedian forehead flap for the remaining defect, and the donor site was closed primarily except at the top where the skin graft was applied. The drain was placed under the check rotation flap. Post post-operative period was uneventful, the cheek drain was removed after 4 days, and facial stitches were removed after one week. After three weeks of the surgery, the flap division was done and one more week later, radiation therapy started.

The patient was followed up at three monthly intervals at the OPD and she was doing fine till now and also happy with the aesthetic appearance.

Figure 3: The cheek rotation flap marking.

Figure 4: The cheek rotation flap and divided median forehead flap on day 21.

DISCUSSION

Albinism is a genetic disorder with worldwide distribution. It is characterized by the reduced or absence of melanin in the hair, the skin, and the eyes. According to the type of the genetic mutation, albinism is classified into four varieties, oculocutaneous is the most common.[6] The treatment modalities available for the head and neck BCC

are Moh's micrographic surgery, surgical excision, liquid nitrogen cryosurgery, and curettage and electrodesiccation, other less frequently employed treatment modalities are topical application of 5-5-fluorouracil (5-FU), laser therapy and chemotherapy. The main aim of any treatment is the complete removal of the tumor, preservation of function, and a good cosmetic outcome. The gold standard for large basal cell carcinomas is the surgical excision with adequate margins.[7]

Reconstruction of head and neck basal cell carcinoma is often challenging. One of the frequently used flaps for nasal basal cell carcinoma is the forehead flap. The midline forehead flap can be used in any nasal reconstruction from severe tip and ala loss to a total nasal defect. The principles of aesthetic and functional reconstruction of the nose can be achieved with this flap. The local septal flaps are used for the septal support lining. The forehead donor defect is closed primarily.[8] In 2008, Chew et al described a case report of basal cell carcinoma of the nose reconstructed with a paramedian forehead flap. They concluded that with a paramedian forehead flap, good matching of skin and texture can be achieved and it's a very safe flap that can give a precise dimension, also primary closure of the donor is possible.[9] In our case, we did the paramedian forehead flap for the nasal component and cheek rotation flap for the cheek component of the defect.

In 2016, Kim et al described their case series of 38 patients where various facial defects were reconstructed with the cheek rotation flaps. The defects were at the cheek (16), lower eyelid (12), nose (3), medial canthus (3), and pre-auricle (2). In their series, the average defect size was 6.4 cm2, the average size of the cheek flap was 47.3 cm^2 and the largest flap raised was 62.5 cm^2. In 28 patients, primary closure of the donor site was done (73.7%) and a skin graft was needed in 10 patients (26.3%). There was no incident of abnormal slant or ectropion of the lower eyelid but in the three patients with large nasal side wall defect dog ear deformity was noticed. It was corrected once the flap settled after a few months of the surgery. Two patients developed venous congestion at the edge of the flap which was managed with the leech therapy and eventually healed with conservative management.[10] In our case report there was neither a dog ear deformity nor there was any venous congestion. After an uneventful postoperative period, the patient was discharged on day 5.

CONCLUSION

For the large defects of the nose and cheek, a combination of cheek rotation flap and paramedian forehead flap can be done. Both are very reliable flaps and good color match and proximity to the defect made them an attractive option.

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