

# A Robust Reconstructive Measure for Skin Cancers of the Face- The Limberg Flap

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## Abstract

**Background:** Basal Cell Carcinoma arises from basal layer of non-keratinizing cells of epidermis. In this article, we are describing a 72-year-old male patient. Diagnosis was confirmed by punch biopsy. The mainstay of treatment is excision of growth. This article emphasizes on early recognition and treatment for management of basal cell carcinoma.

**Keywords:** Limberg flap, Facial Plastic surgery, Basal cell Carcinoma.

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## INTRODUCTION

Basal cell carcinoma (BCC), which makes up around 80% of nonmelanoma skin cancers, is the most prevalent kind of skin cancer. It mainly affects fair-skinned people over 50 who have been exposed to ultraviolet (UV) radiation for an extended period of time, usually from sunlight. The face, neck, head, and arms are among the areas of skin that are regularly exposed to the sun and are frequently affected by BCC. Although BCCs typically develop slowly and never spread, they can locally infiltrate and cause serious harm, often requiring major facial surgery.<sup>[1]</sup>

The face's continuous exposure to sunlight makes it especially susceptible to BCC. The nose, forehead, cheeks, and periocular area of the face are the most impacted areas. Patients with facial BCCs may have psychological as well as physical side effects. Visible lesions may cause a cosmetic deformity, especially if excision is required. After excision, reconstruction surgery may be difficult, especially if the cancer has deeply penetrated the surrounding tissues, bone, or skin.<sup>[1]</sup>

To reduce the amount of excision and subsequent rebuilding, early identification and treatment of BCC are essential. Depending on where and how severe the cancer is, treatment options include radiation therapy, Mohs micrographic surgery, and surgical excision and curettage. Clinical forms of BCC include fibroepithelioma of Pinkus, nodular, superficial spreading, pigmented, and morpheaform. The majority of the lesions are located on the head and neck, typically above the line that connects the angle of the mouth to the tragus of the ear. Nodular, micronodular, superficial, pigmented, infiltrative, morphemic, metatypical, and fibroepithelioma are among the histopathological variations. Keratotic, adenoid, granular type, clear cell, and BCC with

sebaceous and eccrine differentiation are less prevalent kinds. A rare form of BCC with both basaloid and squamoid differentiation is called basosquamous cell cancer.<sup>[2]</sup>

BCC is a tumour that grows slowly, invades nearby structures, and typically does not spread. Size more than 2 cm and invasion depth are poor prognostic indicators, mid-facial area, ill-defined margins, long-standing disease, and immunosuppression. Perineural and vascular invasion increases the risk of metastasis.<sup>[2]</sup>

## CASE REPORT

A 72-year-old man arrived at our hospital with a big pigmentation on his right cheek. Over the course of a year, the lesion had progressively grown larger, elevated, and ulcerated. The patient did not report any significant medical history or constitutional symptoms. Examining the right cheek revealed a pigmented lesion that was hard, elevated, and ulcerated, with a diameter of 5 cm. There was no discernible regional lymphadenopathy, and the surrounding skin looked erythematous and indurated. [Figure 1] The differential diagnoses included Basal cell carcinoma, adnexal tumors with follicular, sweat gland, or sebaceous differentiation and

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Squamous cell carcinoma.

During the patient's punch biopsy, a deep cutaneous invasion of basal cell carcinoma was found. Basal cell carcinoma was confirmed by histological analysis of the removed tissue.



Figure 1: Pre operative image showing Exfoliative growth over right cheek. Histopathologically proven Basal Cell Carcinoma

Wide local Excision was planned as a definitive management. A safe margin of 1cm was taken all around the lesion for its removal. In order to reconstruct, Limberg Flap was used to correct the resultant defect. Since the defect was ovoid so we removed the posterosuperior part of margin to fashion it. [Figure 2]



Figure 2: Post surgical defect of excision of basal cell carcinoma (Blue arrow- Showing faint blue skin markings to depict the extended excision of margins to facilitate flap inset).

The depth of flap is full thickness of the skin and subcutaneous tissues, deep up to the level of masseter muscle. After inseting the flap into the recipient area, a triangular defect was created [Figure 3]. In order to correct the triangular defect, we undermined the deeper tissue to keep the margins closer and suturing was done. As it is often seen in closer of asymmetric defects, a dog ear was formed at inferior edge in our case too. Dog ear, a characteristic bunching up of excess tissue formed during wound closure, is a common unsightly problem in cutaneous surgery. A dog ear deformity results from the outward and upward protrusion of tissue when the degree of apical redundancy caused by tissue rotation and compression surpasses the skin's capacity to "absorb." It could appear as a cosmetic issue. It was corrected by taking out burrow's triangle and suturing was done.



Figure 3: Triangular defect following flap inset.

There were no complications in postoperative period. The resected specimen confirmed the diagnosis. The patient recovered and demonstrated no recurrence on follow up.



Figure 4: Comparative pre-and 3 months Post-operative images showing the cosmetic almost hidden facial scar.

## DISCUSSION

Basal cell carcinoma (BCC), the most often diagnosed type of skin cancer, is a type of skin cancer that originates from the skin's basal layer. It is typified by the unchecked growth of abnormal cells in the skin's lowest layer, which leads to the development of tumours that grow slowly, are painless, and do not spread. However, BCC can infect nearby tissues and organs if it is misdiagnosed or left untreated, leading to serious consequences and requiring surgical procedures, such as surgery. Trichoblastoma and trichoepithelioma are sometimes mistaken for nodular basal cell carcinoma. Some inflammatory dermatoses, like psoriasis and eczema, might be mistaken for superficial BCC. Morphea-like BCC could be mistaken for a scar or a morphea plaque. Histopathological analysis aids in the identification of BCC in certain situations. But in our instance, we had a long-standing growth over our cheek that remarkably resembled basal cell carcinoma, and a sample revealed the same findings.<sup>[3]</sup>

Early detection and treatment of BCC have a high success rate, with treatment options ranging from Mohs surgery and topical chemotherapy to radiation therapy and topical immunotherapy. More intrusive therapies, like total surgical excision of the malignancy and surrounding tissues, can be required in more advanced cases. Since we had a large disfiguring tumour we had planned for Wide excision with flap closure.<sup>[4]</sup>

While eliminating all cancer cells is the primary objective of BCC surgery, the patient's quality of life is greatly impacted by the aesthetic result, which is equally important.

With a documented 5-year disease-free rate of more than 98%, surgical excision is the cornerstone of treatment for BCC. For high-risk BCC, the National Comprehensive Cancer Network (NCCN) suggests an excision with clinical margins more than 4 mm; for low-risk BCC, the standard excision with 4 mm clinical margins is recommended. Excision margins are usually 4–5 mm from the afflicted lesion edges, including induration. We took a gross margin of about 8mm to 1cm all around the tumour mass for better microscopic clearance.<sup>[5]</sup>

The choice of reconstruction is always a tricky situation and often doesn't go as per plan. We had decided to use melolabial flap for the reconstruction however we had to change the decision on table to Limberg flap owing to the large sized defect.

A transposition flap is called a Limberg flap. It is specifically used for deformities of the chin, floor of the nose, alar rim, and eyelid. It can be administered broadly with safety and good cosmetic outcomes. It is versatile in that a random pattern flap can be raised from any one or all corners of the rhomboid [Figure 5]. The defect is filled with tissue of the same thickness and colour, and with good vascularity. Reconstruction involves consideration for restoration of form as well as function along with aesthetics. It is called "transpositional" because it is elevated and mobilized towards an adjacent defect and transposed by an incomplete bridge of skin.<sup>[6]</sup>

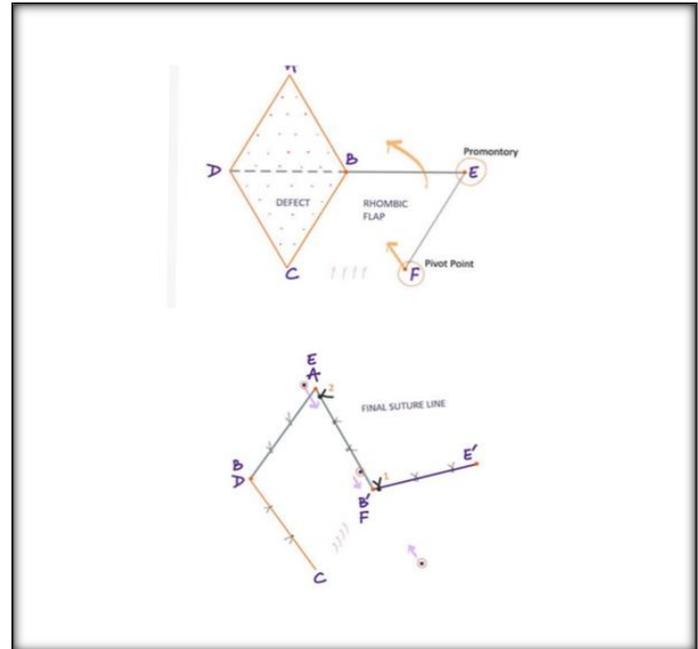


Figure 5: Schematic Diagram of Limberg Flap

If surgery is not a possibility, radiation therapy can be used as a backup treatment for BCC or SCC. Additionally, it can be utilized as an adjuvant treatment for basal cell carcinoma when perineural invasion by cancer cells occurs if additional surgery could result in the sacrifice of important nerves or other structures. The disadvantages of radiation therapy are cost, poor cosmesis in some patients, prolonged course of treatment (15 to 30 visits), and increased risk for future skin cancers. Scars from radiation therapy tend to worsen with time, while surgical scars improve over time.<sup>[7]</sup>

## CONCLUSION

One common and possibly fatal type of skin cancer that may require substantial excision and subsequent repair is basal cell carcinoma (BCC). Reducing the need for surgical excision and rebuilding is mostly dependent on early identification and treatment. In order to detect and treat BCC in a timely manner, patient education on sun protection and routine skin checks is essential. Treatment for BCC should be customized after diagnosis, taking into consideration patient characteristics, preferences, lesion size, location, and depth.

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## Conflicts of interest

There are no conflicts of interest.

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