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Basal Cell Carcinoma with a Relationship in Dermatology and Plastic Surgery

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ABSTRACT

Skin cancers known as basal cell carcinomas (BCCs) can cause significant localized damage. They represent the most prevalent kind of cancer in the West. A lifetime incidence of up to 39% is possible. The most prevalent risk factor is UV exposure. Most of these tumors are seen in the head and neck region. Even though BCCs are often benign, the great occurrence of these conditions implies that treating them adds significantly to the health service's already heavy workload. It's critical to have a solid grasp of your potential possibilities. A number of variables, such as the patient's age and comorbidities, the location and subtype of the lesion, and others, may affect management choices. Treatment choices for BCCs on the face may differ greatly from those for BCCs originating elsewhere due to the significance of a favorable cosmetic and curative result. Good randomized controlled studies comparing different treatment methods are hard to come by. While conventional excision has historically been the preferred course of treatment, there are now a number of other alternatives as well, including as radiation, cryosurgery, curettage and cautery, Mohs micrographic surgery, topical imiquimod, photodynamic therapy, and topical 5-fluorouracil. We go over and evaluate the research and literature supporting the current range of face BCC treatment options.

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INTRODUCTION

Skin cancers known as basal cell carcinomas (BCCs) can cause significant localized damage. They are the most prevalent kind of cancer in the United States, Europe, and Australia. Even while BCCs are often benign, the high occurrence of these tumors implies that treating them adds significantly to the NHS's ever-increasing workload [1-3].

It seems that genetic predisposition and UV radiation exposure are the most important aetiological factors. 74% of BCCs arise on the head and neck because these lesions typically develop in locations with prolonged sun exposure. Even while BCCs typically develop slowly and seldom spread, if they are not treated or are removed in part, they may cause localized damage and deformity [3, 4].

A number of variables, such as the lesion's location, the patient's age, any coexisting conditions, and the kind of tumor involved, affect management. The lesion's location matters because tumors that appear in regions that are crucial for function or appearance are best treated with minimally invasive procedures that have a high prognosis. Because BCCs develop slowly in the older population, less intrusive therapies may be used even if some of them have greater recurrence rates [5].

In an attempt to enhance outcomes in terms of cosmesis, patient acceptance, and recurrence rate, several therapies have been undertaken in recent years in addition to standard excision. While a wide range of therapies are currently available for BCCs, there is a dearth of research that properly compares these various treatment regimens for various tumor forms in various sites. Treatment choices for tumors originating on the face may vary greatly from those for BCCs arising elsewhere due to the significance of a favorable esthetic result [6].

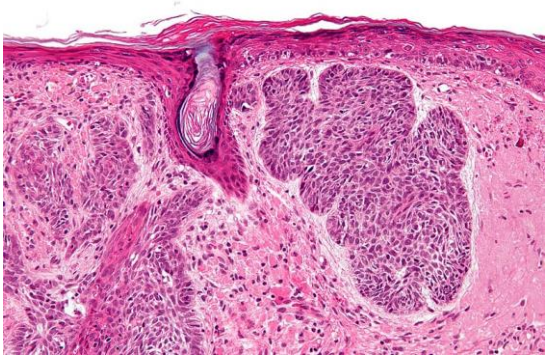

Figure 1. High magnification micrograph of a basal cell carcinoma. H&E stain.

Table 1. Staging of basal cell carcinoma

Stage I	Tumors <2 cm, limited to skin
Stage II	Tumors >2 cm, limited to skin and subcutaneous adipose tissue
Stage III	Invasion of muscle, cartilage, bone, lymphatics, and perineural invasion
Stage IV	Distant metastases

NON SURGICAL MANAGEMENT

Radiotherapy

Treatment options for primary, recurring, or partially removed BCCs include radiotherapy. It includes electron beams and surface X-rays. For contoured surfaces, brachytherapy is employed. For the most part, cutaneous lesions have cure rates over 90%. It can be applied to tumors that develop in locations where surgery would be impractical due to technical difficulties or would cause an excessive amount of tissue damage. For this reason, radiotherapy is crucial to the treatment of head and neck BCCs. Radiotherapy may be an option for tumors of the lower eyelid, inner canthus, lip, nose, and ear. However, because of the keratinization of the conjunctiva, radiation should not be administered to the upper eyelid. Additionally, lesions on the ear should be treated carefully to prevent damage to the underlying cartilage, and radionecrosis is especially common on the nasal bridge. Elderly people with particularly big scalp BCCs may benefit from radiotherapy. Patients who have connective tissue disease, Gorlin's syndrome, or recurring BCCs should not get radiation treatment. Younger patients often do not receive this treatment since the long-term cosmetic outcomes are not great and skin malignancies might develop from radiation field scars. Telangiectasia, atrophy, and radionecrosis are examples of side effects. A single fraction treatment may not yield the same cosmetic results as many visits spread out over a longer period of time. But compared to a single surgical procedure, a weekly program might cause the patient a great deal of difficulty [7, 8].

Topical 5% Imiquimod Cream

An immune response modifier is imiquimod. It binds to toll-like receptors to start working. This results in the generation of proinflammatory cytokines and the subsequent cell death caused by cytotoxic T cells. It is authorized for use in sBCC therapy [9].

Tissue penetration is necessary for imiquimod therapy to be effective. Because sBCC have a shallow depth of invasion, they could respond better to topical therapies. Lower clearance rates are caused by incomplete medication penetration into nodular tumors due to their greater depth [10].

For individuals with primary face superficial BCCs, imiquimod may be a better option than surgery; nevertheless, its long-term clearance is not as good as that of certain other treatment techniques. It is a useful therapeutic choice for old fragile individuals and people who are not interested in surgery, however it is not advised for recurring illness [11].

Photodynamic Therapy (PDT)

Photodynamic treatment (PDT) uses an irradiating light source to destroy cells that have been sensitized. On the skin, a prodrug is administered, either methyl aminolaevulinic acid (MAL) or 5-aminolaevulinic acid (ALA). The tumor cells transform this intracellularly into protoporphyrin IX. When strong red or blue light is present, protoporphyrin IX-containing tumor cells' cell membranes undergo a cytotoxic interaction with reactive oxygen, which kills the tumor cells while sparing the surrounding skin [12].

For the care of nodular BCCs on the head or neck, PDT is typically not advised since the clearance rates are lower than for surgical therapies. Although therapy for initial superficial BCCs on the face may be possible, it is not advised for recurring illness [13].

Topical 5-Fluorouracil 5%

5-fluorouracil is a fluorinated pyrimidine that destabilizes DNA by preventing the methylation process between deoxyuridylic acid and thymidylic acid. It should only be used to low risk areas and is occasionally used to treat tiny, superficial BCCs. As a result, it is not advised while managing face BCCs [14].

SURGICAL MANAGEMENT

Standard Excision of Primary BCC with Predetermined Margins

Historically, the most popular course of therapy for primary BCC has been standard surgical excision, which is a very successful treatment. Typically, a predefined excision margin of 3–4 mm of healthy skin surrounds the removal of BCCs. Grafts and flaps, as opposed to direct closure, may be required to repair wounds, particularly on the face [8].

In general, people feel that routine surgical excision yields a decent cosmetic result. However, because to tissue loss, grafting, and ensuing scarring, needing to remove big tumors with sufficient excision margins can be disfiguring. The position of the BCC on the face requires special consideration since there are several regions, such as the perioral, pericular,

and perinasal areas, that are significant both functionally and aesthetically [15].

When appropriate margins are obtained, routine surgical excision is generally seen to be a good treatment choice for all BCCs originating on the face, with 5-year recurrence rates of up to 10%. Therefore, for a typical surgical excision, we would advise leaving at least a 3-mm margin. While it would seem sense to take larger margins at the sites where subclinical spread is known to be more extensive, it is important to strike the right balance when considering Mohs micrographic surgery as a backup because these sites are all very important from a cosmetic and functional standpoint [16].

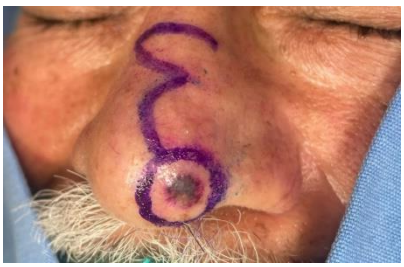

Figure 2. Localized basal cell carcinoma pre-surgical photograph

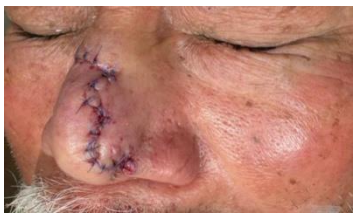

Figure 3. Local flap after resection of basal cell carcinoma

MOHS MICROGRAPHIC SURGERY

Dr. Mohs, an American physician and general surgeon, initially described Mohs micrographic surgery (MMS) in 1941 [17]. The tissue that was removed is frozen and divided horizontally. After that, an intraoperative histological examination of the whole margin is possible. If more excision is required, it can then be done from the margin that is directly affected. MMS enables improved tissue conservation and histology accuracy [18].

In order to choose the best course of action, even initial lesions must be properly classified. Important aspects to take into account include the patient's age, comorbidities, location, size of the lesion, and histological subtype. According to guidelines, the following are indicative signs in particular: Poor clinical definition of the tumor margins, recurrent lesions, perineural or perivascular involvement, tumor site (especially central face, around the eyes, nose, lips, and ears), tumor size (any size, but especially >2 cm), histological subtype (especially morphoeic, infiltrative, micronodular, and basosquamous subtypes), and recurrent lesions are some of the factors that can affect a tumor [19].

CONCLUSION

Many of the possible treatment methods for BCCs have been covered. However, because facial lesions are regarded as high-risk, several of the conventionally recommended treatment approaches might not always be suitable. A previous histology diagnosis is frequently required, particularly when considering a damaging therapy. Although Mohs micrographic surgery is still the highest standard, not everyone can afford to get it. In most situations, standard surgical excision yields satisfactory outcomes. For individuals for whom surgery is not an option, radiotherapy may be taken into consideration. Other therapeutic options include topical imiquimod, PDT, laser, curettage and electrocautery, and cryosurgery; however, due to the danger of recurrence, these therapies should not be used as first line in most cases, however they may be a suitable alternative for the older population. When planning management, it's also critical to take the patient's preference, practicality, side effects, and cosmetic result into account.

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