OASIS DERMATOLOGY GROUP

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Squamous Cell Carcinoma

Squamous cell carcinoma (SCC) is a type of non-melanoma skin cancer that typically arises from the squamous cells of the skin, which are the thin, flat cells that make up the outermost layer of the epidermis. SCC commonly presents as a firm, scaly bump or red, crusted patch, often in sun-exposed areas. Although less aggressive than melanoma, SCC remains a significant cause of morbidity and mortality. Early detection and appropriate treatment can achieve a cure rate of approximately 95%, with careful monitoring and preventive measures critical in reducing the risk of recurrence.

Etiology and Risk Factors

SCC is primarily associated with chronic ultraviolet (UV) light exposure, which causes DNA damage in the skin's squamous cells, leading to the development of malignant tumors. Fair-skinned individuals are particularly vulnerable due to reduced melanin protection, and SCC is more common in older adults. Other risk factors include a history of actinic keratosis (AK), immunosuppression (e.g., organ transplantation or HIV/AIDS), and previous skin damage such as chronic wounds, scars, or burns. Specific precursors to SCC include actinic keratoses, which are rough, scaly patches that can evolve into malignant tumors over time if left untreated.

Clinical Presentation and Classification

SCC can present in various forms, and its clinical appearance often dictates the potential risks associated with the tumor. The most common types of SCC include:

- ***Bowen's Disease (SCC in situ)****:* A localized, non-invasive form of SCC that appears as a dry, rough patch, typically mistaken for a fungal infection or rash. This type of SCC is rarely malignant but could progress to more invasive forms if untreated.
- ***Keratoacanthoma***: A rapidly growing nodule with a central keratin-filled core, often mistaken for a cyst or boil. Keratoacanthomas have the potential to evolve into more aggressive forms of SCC if not managed promptly.
- ***Invasive SCC****:* These tumors are more dangerous and typically present as raised, ulcerated lesions that may bleed easily. They are most commonly found on sun-exposed areas like the face, ears, and lips and may have a greater risk of metastasis, particularly if located on high-risk sites or if the tumor shows signs of poor differentiation.

Invasive SCC can metastasize to regional lymph nodes, with a risk of spread ranging from 3% for low-risk tumors to 10-30% for high-risk lesions. High-risk SCCs may be characterized by features such as larger size, deep invasion, or presence on critical areas like the ear or lip.

Diagnosis

The diagnosis of SCC is made through clinical evaluation, dermatoscopic examination, and biopsy. Dermatoscopic findings may reveal atypical vascular patterns, scaling, or keratinization indicative of malignancy. A skin biopsy is essential to confirm the diagnosis and determine the depth of invasion and histologic subtype. Staging is based on the size of the tumor, its depth, and whether it has spread to nearby lymph nodes or other organs.

Treatment Options

The treatment approach for SCC is determined by the type, size, location, and risk of metastasis. Available treatment modalities include:

1. ***Surgical Excision***: This is the most common treatment for SCC, particularly for low-risk tumors. The lesion is excised with surrounding normal tissue, and the margin is sent for pathological examination to ensure complete removal. For high-risk tumors, a wider excision margin is recommended to minimize recurrence.
2. ***Mohs Micrographic Surgery***: For high-risk or recurrent SCC, Mohs surgery offers the highest cure rate. This technique involves the removal of the tumor layer by layer, with each layer being examined microscopically until clear margins are achieved. Mohs surgery is particularly useful for tumors located in cosmetically sensitive areas or areas prone to recurrence.
3. ***Cryosurgery***: For small, superficial SCCs, cryosurgery using liquid nitrogen can be employed. This technique involves freezing the tumor, causing the cells to die and the tumor to slough off. It is less invasive and usually requires fewer follow-up visits.
4. ***Electrodesiccation and Curettage (ED&C)***: This method is useful for smaller, superficial SCCs. The tumor is scraped off with a curette, and the remaining tissue is cauterized to prevent recurrence. This treatment option is effective for well-defined, non-aggressive lesions.
5. ***Radiation Therapy****:* Radiation is an adjuvant treatment often used for high-risk SCCs or when surgical options are not feasible. It can be employed after surgery to improve the cure rate or used as a primary treatment for inoperable tumors. Radiation is also considered in cases of advanced SCC with distant metastasis.
6. ***Chemotherapy***: Chemotherapy is reserved for advanced, metastatic SCC and is typically guided by oncologists. It is not commonly used in early-stage SCC but may be necessary for patients with widespread disease.

Prevention and Surveillance

Prevention of SCC primarily involves protecting the skin from UV radiation. This can be achieved through the use of broad-spectrum sunscreen with SPF 15 or higher, wearing protective clothing, and avoiding prolonged sun exposure, especially during peak hours. Regular self-examinations for new or changing skin lesions, along with annual dermatologic check-ups, are essential for early detection of SCC and other skin cancers. Individuals with a history of SCC or actinic keratosis should have follow-up evaluations at least twice a year, as they are at higher risk for developing additional skin cancers.

Conclusion

Squamous cell carcinoma is a common form of skin cancer that, if detected early, is highly treatable with a variety of options, including excision, Mohs surgery, cryosurgery, and radiation. The risk of metastasis varies depending on the tumor's characteristics, making early diagnosis and appropriate treatment essential. Preventive measures, including sun protection and regular skin exams, play a critical role in reducing the incidence of SCC. Ongoing monitoring and intervention are crucial for patients with a history of SCC to minimize the risk of recurrence or the development of new lesions.

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