Skin Cancer

Examination, Diagnosis and Treatment
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Basic Structure of the Skin

Actinic Keratosis

- Actinic keratosis (AK) is a cutaneous lesion that results from the proliferation of atypical epithelial keratinocytes.
- Commonly detected in adults with fair skin.
- Chronic sun exposure is a major risk factor.
- AKs typically develop as solitary or multiple lesions on highly sun exposed areas, such as the balding scalp, neck, dorsal hands, and dorsal forearms.
Common presentation of Aks

- AK presents as an erythematous, scaly macule, papule, or plaque
- These lesions tend to come and go. Patients often complain of scratching off the lesion and state that they return within a few weeks
- Hypertrophic AKs are characterized by the presence of thick, adherent scale on an erythematous base
- AKs have the ability to develop into a Squamous Cell Carcinoma if left untreated

Actinic Keratosis

Hypertrophic Aks
Treatment for Aks

- **Liquid nitrogen cryotherapy** — Liquid nitrogen cryotherapy is the most widely utilized treatment for AK. This treatment may be quickly performed in an office-based setting and is well tolerated by patients.
- **Shave excision and curettage** are more frequently used for hyperkeratotic lesions.
- **Photodynamic therapy** is an effective therapy for AKs that consists of topical application of a photosensitizer followed by exposure of a wavelength light source.

Topical Treatment

- **Topical 5-fluorouracil** causes inflammation and destruction of the lesion. Inflammation typically subsides approximately two weeks after 5-FU is discontinued. It typically takes four to six weeks (two to four weeks of which are active treatment) for the skin to progress through erythema, blistering, increase with erosion, and reepithelialization.
- **Imiquimod** — a topical immune response modifier that stimulates local cytokine induction, is an effective therapy for AKs

Squamous Cell Carcinoma
Squamous Cell Carcinoma (SCC)

- SCC is the second most common form of skin cancer.
- Most cases of SCC of the skin are induced by UV radiation.
- SCC can develop on any cutaneous surface, including the head, neck, trunk, extremities, oral mucosa, genital skin, and anal genital areas.
- In fair-skinned individuals, SCCs most commonly arise in sites frequently exposed to the sun.
- Metastasis, while a very rare event, is very uncommon for SCCs arising in sites of chronic sun damage.

Clinical Features

- Lesion may be superficial, discrete, and hard, and arises from an indurated, rounded, elevated base.
- SCC in situ (Bowen's disease) — Cutaneous SCC in situ typically presents as a well-demarcated, scaly patch or plaque. SCC in situ lesions tend to grow slowly, enlarging over the course of years and are usually asymptomatic.
- Keratoacanthoma (KA) — are keratocytic epithelial tumors that clinically and histologically resemble SCC. It is controversial whether keratoacanthomas represent a subtype of well-differentiated SCC or a separate entity. Lesions typically exhibit rapid initial growth, manifesting as dome-shaped or crater type nodule with a central keratotic core that develop within a few weeks.

Squamous Cell Carcinoma
Bowen’s Disease (SCC in situ)

Keratoacanthoma (SCC type)

Treatment

- Biopsy — Although clinical findings may strongly suggest a diagnosis of SCC, histopathologic examination is necessary to confirm the diagnosis. Shave, punch, or excisional biopsies may be used for diagnosis.
- Superficial SCC can be treated with ED&C
- The primary treatment of SCC of the skin is surgical which can include Mohs surgery
- Brachytherapy is also an effective treatment option
Basal Cell Carcinoma

Basal Cell Carcinoma (BCC)
- Basal cell carcinoma (BCC) is an extremely common skin cancer, arising from the basal layer of epidermis and its appendages
- BCC have very low metastatic potential. However, they are locally invasive, aggressive, and destructive of skin and the surrounding structures including bone, so should not be ignored.
- Particularly common in Caucasians; it is very uncommon in blacks and other dark-skinned populations.
- The incidence of BCC increases with age; persons aged 55 to 75 have about a 100-fold higher incidence of BCC than those younger than 20
- Individuals with a history of BCC are at increased risk for subsequent lesions. Approximately 40 percent of patients who have had one BCC will develop another lesion within five years

Risk Factors
- UV radiation which includes sun exposure, tanning salons, phototoxicizing drugs, and ionizing radiation as for facial acne, psoriasis, or tinea capitis, increases the risk of nonmelanoma skin cancer, including BCC
- Fair skinned individual
- Immunosuppression
Clinical Features

- Approximately 70 percent of BCCs occur on the face. Fifteen percent present on the trunk, and only rarely is BCC diagnosed on areas like the penis, vulva, or perianal skin.
- Nodular BCC typically present on the face as a pink or flesh-colored papule. The lesion usually has a pearly or translucent quality and a telangiectatic vessel is frequently seen within the papule.
- Superficial BCC typically present as slightly scaly, non-firm macules, patches, or thin plaques light red to pink in color.
- Pigmented BCC have all the features of a nodular BCC but in addition, brown or black pigmentation is present.
Pigmented BCC

![Image of Pigmented BCC]

Treatment

- **Biopsy** — Although clinical findings may strongly suggest a diagnosis of BCC, histopathologic examination is necessary to confirm the diagnosis. Shave, punch, or excisional biopsies may be used for diagnosis.
- **Superficial BCC** can be treated with **ED&C**.
- The primary treatment of BCC of the skin is surgical, which can include **Mohs surgery**.
- **Brachytherapy** is also an effective treatment option.

Melanoma

![Image of Skin Layers]
Melanoma

- Nevus (moles) are benign proliferations of melanocytes. A melanoma are their malignant counterpart.
- Almost half will develop from pre-existing nevi, and the rest will develop from previously normal-appearing skin.
- The incidence of melanoma of the skin is increasing faster than any other potentially preventable cancer in the United States.
- Five-year survival rates for people with melanoma depend upon the stage of the disease at the time of diagnosis. Survival rates decline steadily as the tumor thickness and disease stage increase.

Risk Factors

- Familial — Approximately 10 percent of melanomas are familial.
- Atypical nevi — Individuals with atypical nevi have an associated 3- to 20-fold elevated risk of developing malignant melanoma compared to the general population.
- High nevus count — There is a strong association between high nevus count (more than 25) and melanoma.
- Sun or ultraviolet exposure — Clinical and epidemiologic evidence demonstrate higher rates of melanomas in people with extensive or repeated intense exposure to sunlight.
- Phenotypic traits — Light skin pigmentation, hair color (red or blond), light eye color (green, hazel, blue) are associated with increased risk.

A, B, C, D, Es of melanoma

- the ABCDE criteria for melanoma are imperfect, but are a simple way for patients to understand and have proved to be helpful for the detection of melanoma.
  - Asymmetry
  - Border irregularities
  - Color variegation (ie, different colors within the same region)
  - Diameter greater than 6 mm
  - Enlargement or evolution of color change, shape, or symptoms
Melanoma in situ

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Melanoma

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Acral Melanoma

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Subungual acral lentiginous melanoma

Amelanotic Melanoma

Treatment

- Proper surgical management is critical for the diagnosis, staging, and optimal treatment of primary cutaneous melanoma.
- Obtaining complete and accurate microstaging of the primary tumor to guide therapy.
- Appropriate excision of the margin around the primary site to minimize the risk of local recurrence without compromising additional staging maneuvers (eg, sentinel lymph node biopsy potentially is less accurate after wide margin excision).
Surgical Recommendation

- The definitive surgical treatment for primary cutaneous melanoma is a wide local excision down to the deep fascia.
- In situ melanomas, a 0.5 cm margin of normal tissue is recommended.
- Retum melanomas <1 mm thick (T1) with a 1 cm margin of normal tissue.
- For melanomas 1 to 2 mm thick (T2 lesions) use a 2 cm margin of normal tissue.
- For melanomas 2 to 4 mm thick (T3), resection with a 2 cm margin of normal tissue is recommended.

Refer out!

- Most cases of malignant melanoma are diagnosed at an early stage, when surgical excision can be curative. However, a few patients have metastatic disease at presentation, and some develop metastasis after their initial definitive treatment.
- Referral to a general surgeon for lymphatic mapping and sentinel lymph node biopsy are indicated in the initial management of melanoma with a thickness ≥0.75 mm and in those with melanomas <0.75 mm if high risk features (ulceration, mitoses ≥1/mm², or lymphovascular invasion) are present in otherwise healthy patients.
- Referral to oncology to discuss advanced treatment options.

Prevention

- Sun protection with avoidance of midday sun.
- Protective clothing.
- Regular application of sunblock SPF 30.
- Routine skin exams.