Basal Cell Carcinoma

Squamous Cell and Basal Cell Carcinoma
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Objectives

- Examine how UV radiation causes skin cancer.
- Differentiate the main types of non-melanoma skin cancer.
- Identify risk factors, potential recurrence rates and education for skin cancer prevention.

Types of Skin Cancers

- Basal Cell Carcinoma - 80%
  - 90% appear on face, ears, head
- Squamous Cell Carcinoma - 16%
- Melanoma - 4%
Non-Melanoma Skin Cancers

- Actinic Keratosis (AK) (premalignant stage of SCC)
- Squamous Cell Carcinoma (SCC)
- Basal Cell Carcinoma (BCC)

- ~Half of all new cancers in the U.S.
- US annual incidence ~900,000–1,200,000
- ~80% BCC

Pictures Courtesy of E.J. Mayeaux, Jr., M.D.

Basal Cell Carcinoma and Squamous Cell Carcinoma

- Most common skin cancers
- Most important risk factors
  - sun exposure
  - family history
  - skin type
- Incidence of these cancers increase with age, probably related to cumulative sun exposure

UV Spectrum

Comprises 3 Ranges

Ultraviolet: UVC, UVB, UVA
Visible: 320-700 nm
Infrared: 700 nm and above

Wavelength (nm)

UV Spectrum Comprises 3 Ranges

- Ultraviolet: UVC, UVB, UVA
- Visible: 320-700 nm
- Infrared: 700 nm and above

Wavelength (nm)
Nerve penetrates epidermis to upper dermis
- Responsible for most biological effects
- Reddens skin in ~6 hrs

UVA penetrates to deep dermis
- Not as effective as UVB in causing biological change
- Darkens skin in 48–72 hrs

UV Radiation - Complete Carcinogen

- Direct DNA damage
- Reactive oxygen species
- Immunosuppression
- Additional mutation
- Loss of apoptosis

I. Pale white skin, blue/hazel eyes, blond/red hair
II. Fair skin, blue eyes
III. Darker white skin
IV. Light brown or olive skin
V. Brown skin
VI. Dark brown or black skin

Fitzpatrick Skin Types
Salicylates

- Benzophenones - most rxns
- Avobenzone (Parsol) - primarily absorbs UVB
- Cinnamates (Allergies!)
- Mexoryl (SPF 15 available in U.S.)
- PABA derivatives

Sunscreens

- 1 oz (2 tablespoons) = 1 application for average person
- Apply to dry skin 30 min pre-exposure
- Reapply after 2-3 hours of activity
- Duration may be shorter due to:
  - Exposure to water
  - Perspiration
  - Inadequate thickness of application
  - Photoinstability (buy new each year)

Skin Ca Incidence & Geography

Annual rate per 1,000 adults
Farabee MJ. The biosphere and mass extinctions.
Continuum of AK to SCC

Actinic Keratosis

- Most common on face/scalp and dorsum of hands
- Small, scaly spots
- Confined to epidermis
- Considered pre-SCC

Actinic Keratosis

- Initial appearance as flat pink/red spot
- Progresses to a white scale or rough spot
- Often poorly demarcated
- Becomes scaly, thickened lesion

Courtesy of E.J. Mayeaux, Jr., M.D.
AK: Frequent Proximity to SCC Lesions

Actinic Keratosis vs SCC
- Risk of malignant conversion is 2% in untreated persons
- Flat, feel rough
- “Easier to feel than to see”

Which of the following is NOT a treatment for actinic keratosis?
- A. Intralesional Candida antigen
- B. 5-FU therapy
- C. Imiquimod (Aldara)
- D. Topical 3% diclofenac gel (Solaraze)
Actinic Keratoses

- Cryotherapy
- 5-FU therapy
- Imiquimod (Aldara)
- Topical 3% diclofenac gel (Solaraze)

Cryotherapy

Field vs Ablative Therapy

Ablative Therapy: Clinical lesions only
Subclinical AKs

Field Therapy: Clinical and subclinical lesions
1 Month of 5-FU Therapy

Imiquimod Therapy

Before 3 doses 2 weeks after last treatment

Topical 3% diclofenac gel (Solaraze)

- Gently smooth into lesions BiD for 60-90 days
- $110 / 50 gm tube
**Bowen’s Disease - Features**

- SCC in situ
- Mainly sun exposed areas
- Slightly elevated red scaly plaque with well-demarcated borders

**Bowen’s Disease - Features**

- May resemble psoriasis, superficial BCC, chronic eczema, SK
- Curable using cryotherapy, 5-FU, excision, or curettage & desiccation

**Squamous Cell Carcinoma**

- About 20% of NMSCs
- Reddish, scaly, poorly defined papules or plaques
SQUAMOUS CELL CARCINOMA

May have ulcerated center
Potential for rapid growth

Invasive SCC—extension into dermis (5% of cases)
- Metastases:
  - 2%-6%
  - Higher for recurrent, large, and mucous membrane involvement (lip ~25%)

May develop keratin “horn”
Location of SCCs

- Especially on the lips, ears, nose and scalp
- Same distribution as BCCs

Treatment Options for SCC

- Excision with 6 mm margin
- Curettage and desiccation after a shave biopsy
- Cryotherapy – deep and wide freeze
- Mohs for recurrent SCC or functional and cosmetic importance
Basal Cell Carcinoma
- About 75%–80% of NMSCs
- Clinical appearance
- Pearly, waxy surface
- Histology
  - Islands of basophilic keratinocytes
  - Metastases extremely rare

Basal Cell Carcinoma
- Nodular: dome-shaped
- May have central depressed ulcer

Nodular BCC
- Pearly with central ulceration
- Pearly borders & telangiectasia
Nodular BCC

- Dermoscope telangstasias

- Dermoscope pigmented

Nodular BCCs

- Raised pearly white, smooth translucent surface with telangiectasias

Nodular BCCs

- May ulcerate leaving a small bloody crust
- May be pigmented
Morpheaform BCC
- Look like scars, indurated
- Histologic margins extend beyond clinical lesion

Sclerosing BCCs
- Ivory or colorless
- Flat or atrophic
- Indurated
- May resemble scars
- Are easily overlooked

Sclerosing BCCs
- Called morpheaform because looks like localized scleroderma
- Called infiltrating BCCs because the border is not well demarcated
Superficial Spreading BCC

- Resembles dermatitis: red, scaly, wrinkled plaque

Superficial BCCs

- With a thready border (slightly raised and pearly)
- Occasionally with shallow erosions or crusts

Pigmented BCCs

- May look like melanoma or a mole
- Increased brown or black pigment
- Seen more commonly in dark-skinned individuals
Pigmented BCCs

Differentiating Intradermal Nevus from Nodular BCC

- Intradermal nevus
- Stable size
- Soft
- No crusting or ulceration
- May have telangiectasias

Differentiating Sebaceous Hyperplasia from Nodular BCC

- Sebaceous hyperplasia
- Stable size
- May have yellow coloration
- Umbilication without ulceration
Diagnosis of Basal Cell Carcinomas

- Shave biopsy
  - Nodular
  - Thick superficial types

Courtesy of E.J. Mayeaux, Jr., M.D.

Diagnosis of Basal Cell Carcinomas

- Punch biopsy
  - Morpheaform
  - Flat superficial types

Courtesy of E.J. Mayeaux, Jr., M.D.

Treatment Options for BCC

- Imiquimod
- Curettage and desiccation
- Cryotherapy with 3-5 mm margins
- Excision with 3-5 mm margins
- Mohs for recurrent BCC and areas of cosmetic importance
- Radiation therapy
Systematic Review of Tx for BCC

- Mohs micrographic surgery (3 studies, n=2660): Recurrence rate 0.8 to 1.1
- Surgical excision (3 studies, n = 1303): Recurrence rate was 2 to 8.1 Mean cumulative 5 year RR was 5.3
- Cryosurgery (4 studies, n=796): recurrence rate 3.0 to 4.3 cumulative 5 year RR ranged from 0 to 16.5
- Curettage and desiccation (6 studies, n=4212): recurrence rate 4.3 to 18.1 cumulative 5 year RR 5.7 to 18.8.

Imiquimod for Basal Cell Ca

- Application site reaction
- 5x/week for 6 weeks
- $120 for 12 packets

3-year Risk of Another BCC or SCC

- BCC after BCC = 44%
- SCC after SCC = 18%
- SCC after BCC = 6%
**Indications for Referral for Mohs Surgery**

- Recurrent tumors, sclerosing BCC
- Primary tumors in locations with high tumor-recurrence rates
- Nasolabial fold, temple, periauricular, periorcular area, scalp, nasal alae
- Preservation of normal tissue is vital (for cosmetic and functional reasons)
- Nose, eyelids, lips, fingers, ears, penis

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**Take Home Points**

- Prevent skin cancers by risk factor reduction
- Early detection of pre-cancers and skin cancers most likely will prevent morbidity and mortality
- Use the appropriate biopsy technique for diagnosing skin cancers
- Treat or refer based on providers skills

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**Online References**

- Dermis.net
- Medstat.med.utah.edu/kw/derm/
- Emedicine.com/derm/topic47.htm
Cutaneous T-Cell Lymphoma

- Lymphomatous neoplasms of helper T cells that present in the skin
- Malignant cells have a marked affinity for the skin
- Progresses to systemic involvement
- Early detection is essential because the disease has an excellent when it is confined to the skin.

Mycosis fungoides: Red-brown hyperpigmented plaques with an atrophic, wrinkled surface tend to remain fixed in location.
Early plaques have a fine scaling surface. The well-demarcated, erythematous lesions slowly evolve into tumors.

Annular or serpiginous plaques may be numerous. Central clearing may occur. Itching may be intense at this stage.

Cutaneous T-Cell Lymphoma

Large plaques have slowly evolved from stable macular, scaling, eczematosus-appearing lesions.
Tumors are ulcerated and exophytic. They resemble a mycotic infection; thus the archaic term mycosis fungoides.

Cutaneous T-Cell Lymphoma Tx

- Bexarotene 1% retinoid gel
- PUVA and UVB
- Traditional broadband UVB phototherapy (280–320 nm)
- Total skin electron beam therapy
- Extracorporeal photopheresis

Paget's Disease of the Breast

- Results from invasion of the epidermis of the nipple unit by malignant cells from underlying ductal carcinoma
- Paget's disease is a rare unilateral ds, whereas nipple eczema is common and almost invariably bilateral
- Treatment is surgical
Paget's Ds of the Breast

- Early lesions are subtle
- Erythema, scale, and crust
- Infiltrating process spreads to the areola and beyond.

Paget's Ds of the Breast

- Red, scaling plaque
- Drains serous fluid and forms a crust
- Appears eczematous but, unlike eczema, is unilateral

Extramammary Paget's ds

- Rare cutaneous adenocarcinoma
- Occurs more in elderly women
- Assoc. with underlying malignancy

Courtesy of the Color Atlas of Family Medicine
Extramammary Paget's ds

- Extramammary Paget's disease
- A white, eroded plaque with ill-defined borders on the labia

Extramammary Paget's ds

- Surgical excision or Mohs' surgery followed optionally by radiation tx

Extramammary Paget's ds

- Parking For Drive-Thru Service Only
- Thank You