*38th Annual FM Update*

# Non-melanoma Skin Cancers

**Brian Z. Rayala, MD**
**Assistant Professor, UNC Family Medicine**
**Director of Procedural Training, UNC FM Residency**
**Staff Physician, UNC Wound Center**

## Objectives

- At the end of lecture, learner will be able to:
  - » Identify risk factors and preventive measures for non-melanoma skin cancer (NMSC)
  - » Describe clinical features of NMSC
  - » Outline methods of diagnosis and treatment of NMSC
  - » Recommend plans for follow-up and monitoring

2

## Overview[1]

- Nonmelanoma skin cancer (NMSC):
  - » Basal cell carcinoma (BCC) – 80% of NMSC
  - » Squamous cell carcinoma (SCC) – 20%
- BCC incidence: 124-849 per 100,000 persons/yr
- SCC incidence: 100-150 per 100,000 persons/yr
  - » 2:1 male-to-female ratio
  - » Increased risk with age, proximity to equator, chronically diseased/injured skin (e.g., ulcers, sinus tracts), immunosuppression, and xeroderma pigmentosa

1. Am Fam Physician. 2012 Jul 15;86(2):161-168.

3

## Risk Factors

- Per the Canadian Program in Evidence-Based Care, skin cancer risk is very high (≥10x) among these populations:[2]
  - » Current immunosuppressive therapy post-organ transplant
  - » Personal hx of skin cancer
  - » 2 or more first-degree relatives w/ melanoma
  - » Total of 100 nevi or at least 5 atypical (dysplastic) nevi
  - » > 250 treatments with psoralen-ultraviolet A (P-UVA) for psoriasis
  - » Radiation tx for cancer as a child

2. Cancer Care Ontario; 2005 Feb [In review 2011 Sep].

4

## Risk Factors[1]

- UVB exposure – most important SCC risk factor
- Organ transplant recipients – 65x SCC risk
- Use of tanning device
  - » 2.5x SCC risk
  - » 1.5x BCC risk
  - » risk increases with earlier exposures
  - » 5/11/12 *MMWR* publication (CDC) reports:
    - 58% of Caucasian women 18-25yo used indoor tanning ≥10x within past year
    - mean of 20.3 sessions per year among all adult Caucasian women who reported indoor tanning
    - Among 18-21yo, average of 28 sessions/yr

1. Am Fam Physician. 2012 Jul 15;86(2):161-168.

5

## BCC vs. SCC[1]

| Characteristics | BCC | SCC |
|---|---|---|
| **UV exposure** | • Weaker association<br>• Exposure in childhood & adolescence more important | • Stronger association<br>• Cumulative exposure more important |
| **Location** | • 85% head & neck (25-30% nose)<br>• Weak correlation w/ areas of maximal sun exposure<br>• 1/3 occur in areas w/ little or no UV exposure | • Back of hands & forearms<br>• Areas of head & neck w/ maximal sun exposure |
| **Age** | • 20% occur in <50yo | • Uncommon in <50yo |
| **Other patient characteristics** | • Few phenotypic markers (genetic susceptibility, eg, basal cell nevus syndrome) | • Fair skin, blue eyes, red or light colored hair, inability to tan |

1. Am Fam Physician. 2012 Jul 15;86(2):161-168.

6

## Prevention

- USPSTF on Screening for Skin Cancer[3]
  - » ***insufficient*** evidence for performing whole-body skin exam by PCP or patient skin self-exam, but recommends alertness for skin lesions w/ malignant features when performing PE for other reasons (***I recommendation***, 02/2009)

3. Ann Intern Med. 2009 Feb 3;150(3):188-93

7

## Prevention

- USPSTF on Behavioral Counseling for Prevention[4]
  - » recommends counseling 10-24 yo patients with fair skin to minimize exposure to UV radiation to reduce skin cancer risk (***B recommendation***, 05/2012)
  - » Behavioral counseling – low intensity, doable by PCP
  - » Successful counseling interventions:
    - Cancer prevention messages, or
    - Appearance-focused messages (e.g., aging effects of UV)
  - » Sun-protective behaviors:
    - use of broad-spectrum sunscreen (SPF≥15)
    - wearing hats or other shade-protective clothing
    - avoiding outdoors during midday hours (10 a.m. to 3 p.m.)
    - avoiding use of indoor tanning

4. Ann Intern Med. 2012 Jul 3;157(1):59-65. 8

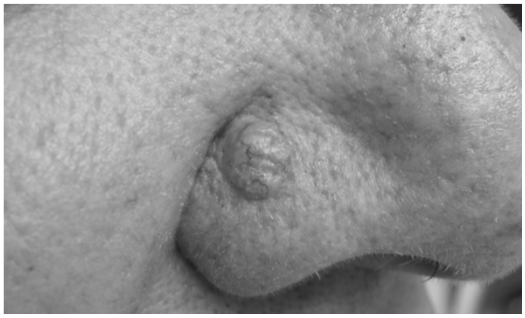
## Clinical Presentation of BCC[1]

- Nodular BCC – most common subtype (21%)
  - » pearly white or pink, dome-shaped papule w/ telangiectasia
  - » smooth translucent surface w/ loss of normal pore pattern
  - » may be pigmented (blue, brown, or black) – often mistaken for melanoma
  - » may ulcerate
- Variants of nodular BCC: higher malignant potential
  - » Micronodular BCC (15%)
  - » Infiltrative BCC (7%)

1. Am Fam Physician. 2012 Jul 15;86(2):161-168.

9

## Nodular BCC



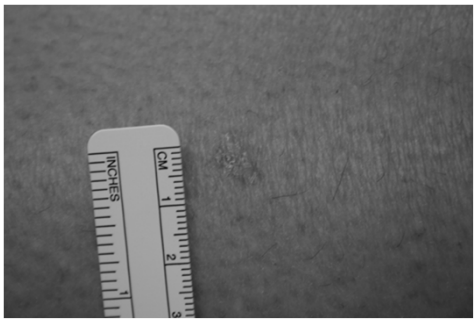
10

## Clinical Presentation of BCC[1]

- Superficial BCC – 2nd most common subtype (17%)
  - » red or pink scaly plaque with a thready border (raised, pearly)
  - » trunk and extremities
  - » least invasive of the subtypes
- Sclerosing or Morpheaform BCC – rarest (1%)
  - » ivory or colorless, flat or atrophic, indurated
  - » resembles localized scleroderma (firm, yellowish, ill-defined) or a scar
  - » easily overlooked
  - » may extend ≥5mm beyond clinical borders
  - » most dangerous; worst prognosis

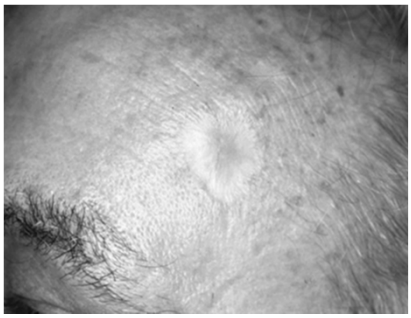
1. Am Fam Physician. 2012 Jul 15;86(2):161-168. 11

## Superficial BCC



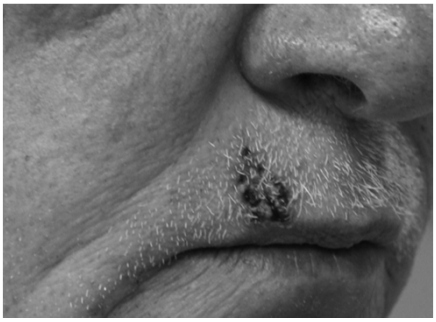

12

## Sclerosing BCC



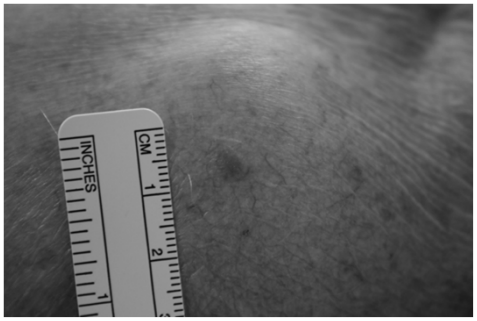
13

## BCC, mixed type



14

## Pigmented BCC, mixed type




15

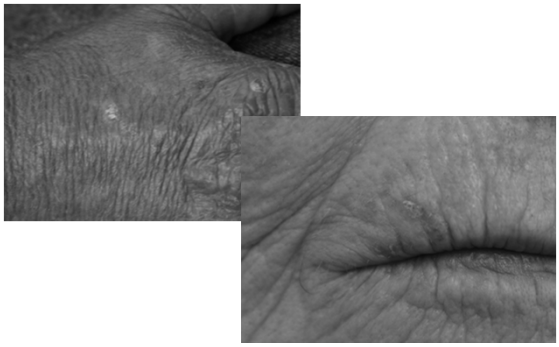
## Clinical Presentation of SCC[1]

- Actinic keratosis (AK) – precursor to SCC
  - » malignant transformation is 6-10% over 10-yr period
  - » 60% of SCC arise from AK
  - » 25% spontaneously resolve over 1 yr, esp. with reduction in UV exposure
  - » rough, scaly erythematous papules over sun-exposed areas
  - » easier to recognize by palpation than visual inspection
- Bowen's disease (BD) or SCC in situ
  - » scaly, red plaque (similar to AK), but bigger, thicker and well-demarcated
- Invasive SCC
  - » areas of persistent ulceration, crusting, hyperkeratosis, and erythema over sun-damaged areas of skin

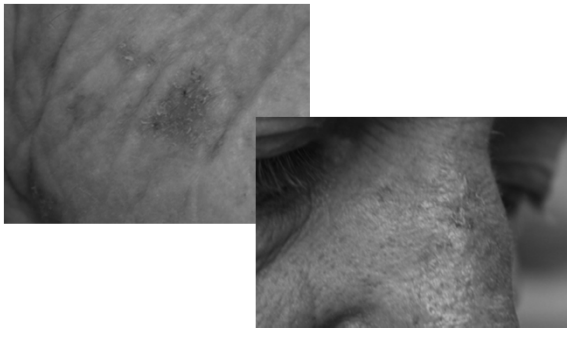
1. Am Fam Physician. 2012 Jul 15;86(2):161-168.

16

## Actinic Keratosis

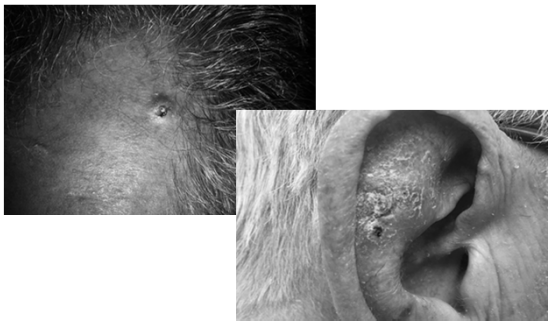


## Bowen's Disease



18

## Invasive SCC



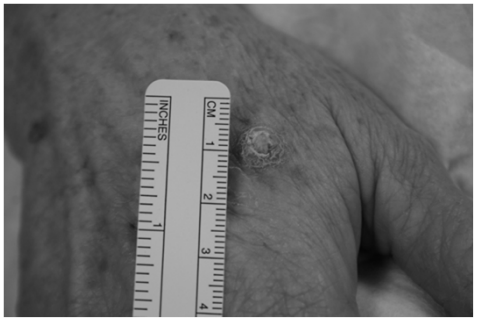
19

## Other SCC-related Lesions

- Cutaneous horn
  - » protruberant mass of keratin resembling an animal horn
  - » can begin as AK and degenerate into SCC
- Keratoacanthoma (KA)
  - » firm, rapidly growing (i.e., 6-8wks), erythematous papule or nodule with central keratotic plug
  - » may regress in 3-6 mos, or may grow
  - » Controversial: benign vs. SCC variant (called SCC-KA)

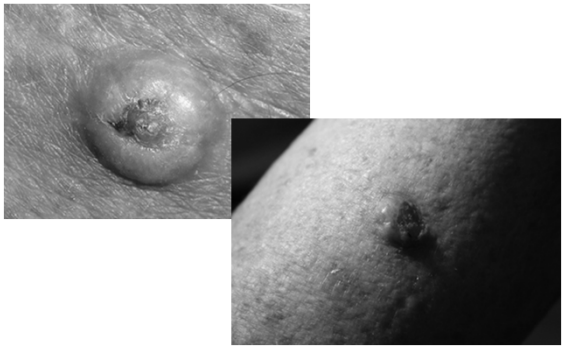
20

## Cutaneous Horn

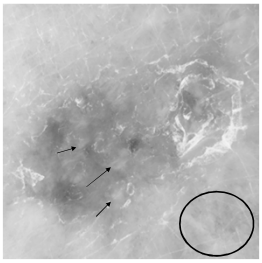



21

## Keratoacanthoma



## Dermoscopy

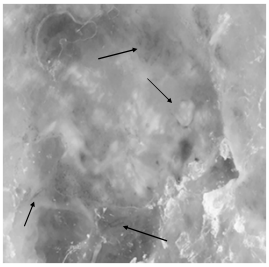


**BCC Features:**

- Leaf-like areas
- Large grey-blue ovoid nests
- Multiple grey-blue globules
- Spoke-wheel structures
- Arborizing “tree-like” vessels or short fine telangiectasia
- Ulceration
- Shiny white areas

23

## Dermoscopy



**SCC Features:**

- Glomerular vessels
- Hairpin vessels
- Keratin pearls and white circles
- Rosettes (strawberry pattern)
- Brown dots/globules in linear pattern at periphery

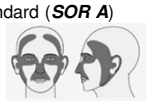
24

## Diagnosis

- Incisional biopsy – intent is to take only part of the lesion
  - » **Shave** bx - partial thickness
  - » **Punch** bx - full thickness biopsy
- Excisional biopsy – excise entire lesion
  - » **Elliptical excision** - full thickness biopsy
  - » **Saucerization (deep scoop shave)** bx - *full thickness* biopsy

25

## Treatment: BCC[5]



- » Mohs micrographic surgery (MMS) is gold standard (***SOR A***)
  - 5-yr recurrence rate – ***1%***
- » MMS indications:
  - >2cm lesions
  - invasive histologic subtypes (e.g., micronodular, infiltrative, sclerosing)
  - sites w/ higher recurrence risk (e.g., "mask area" of face, genitalia, hands, feet)
- » Surgical excision (***SOR A***)
  - Mean cumulative 5-yr recurrence rate – ***5.3%***
  - **Recommended margins: 4-5mm**
  - if margins are involved, re-excision or MMS is recommended

5. The Color Atlas of Family Medicine, 2nd ed. 2013, 996.

26

## Treatment: BCC[5]

- » Cryotherapy (***SOR A***)
  - cumulative 5-yr recurrence rate – ***0-16.5%***
  - freeze for 30-60 secs with 5mm halo
  - **not** indicated for lesions >3mm deep
- » Curettage and Electrodesiccation [ED&C] (***SOR A***)
  - cumulative 5-yr recurrence rate – ***5.7-18.8%***
  - 3 cycles of tx better than 1 cycle
- » Imiquimod or 5-fluorouracil (***SOR B***)
  - for superficial BCC that is <2cm in size

5. The Color Atlas of Family Medicine, 2nd ed. 2013, 996.

27

## Treatment: AK[6]

- » No therapy or emollient for mild AK (***SOR A***)
- » Sunscreen BID x 7 mos prevents AK (***SOR A***)
- » Cryotherapy (***SOR C***)
  - Meta-analysis: 2-month cure rate of ***97%***; 1-yr recurrence rate of ***2.1%***
  - 1mm halo for >5 secs – complete response of ***69%***
  - 1mm halo for >20 secs – complete response of ***83%***

6. The Color Atlas of Family Medicine, 2nd ed. 2013, 972-3.

28

## Treatment: AK[6]

- » Multiple lesions: use topical therapy

| Topical Rx | Tx duration | Irritation | Cost |
|---|---|---|---|
| 5FU 5% BID **(SOR A)** | 3-6 wks | High | <$100 |
| Diclofenac 3% BID **(SOR B)** | 10-12 wks | Moderate | >$130 |
| Imiquimod 2x/wk **(SOR B)** | 16 wks | Moderate | >$400 |
| Ingenol mebutate QD **(SOR B)** | 2-3 days | Moderate | >$700 |

- » Photodynamic therapy (PDT) (***SOR B***)
  - effective in 91% of AK's
  - good cosmetic outcome

6. The Color Atlas of Family Medicine, 2nd ed. 2013, 972-3.

29

## Treatment: BD[7]

- » 5-FU or Imiquimod (***SOR B***)
  - large lesions; poor healing sites
- » Curettage and Electrodesiccation (***SOR B***)
  - for lower leg lesions
  - perform 3 cycles
- » Cryotherapy (***SOR B***)
- » Surgical Excision (***SOR B***)

7. The Color Atlas of Family Medicine, 2nd ed. 2013, 973-4.

30

## Treatment: SCC[8]

- Surgical excision (***SOR A***)
  - **Recommended margins:**
    - **4 mm margin –** well-defined, low-risk tumors, <2cm
    - **6 mm margin –** large (>2cm), deep tumors, in high-risk locations
- Mohs micrographic surgery (***SOR B***)
  - High-risk tumors; sites where margins are difficult to achieve
- Curettage and Electrodesiccation (***SOR C***)
  - small (<1cm), well-differentiated SCC
  - 3 cycles
- Cryotherapy (***SOR C***) – 60 secs w/ 4-6mm halo
- Radiotherapy (***SOR C***) – lesions on lip, nasal vestibule, ear
  - very advanced tumors; poor surgical candidates

8. The Color Atlas of Family Medicine, 2nd ed. 2013, 1005-6. 31

## Treatment: Cutaneous Horn[9]

- Shave biopsy (***SOR C***)
  - Ensure base of epithelium is included.
  - If pathology comes back benign, use cryotherapy to destroy remaining lesion.
  - Otherwise, manage per previously discussed recommendations.
- Surgical excision (***SOR C***)
  - if with high suspicion for malignancy

9. The Color Atlas of Family Medicine, 2nd ed. 2013, 986. 32

## Treatment: Keratoacanthoma[10]

- KA
  - Surgical excision (***SOR C***)
    - **Recommended margins: 3-5mm**
  - Curettage and Electrodesiccation (***SOR C***)
    - small, less aggressive KA
  - Cryotherapy (***SOR C***) – 60 secs w/ 3-5mm halo
  - Mohs micrographic surgery (***SOR C***)
    - large, recurrent KA's, in sites where margins are difficult to achieve
  - Oral retinoids, methotrexate, or cyclophosphamide (***SOR C***)
    - for multiple eruptive KA's

10. The Color Atlas of Family Medicine, 2nd ed. 2013, 978-80. 33

## Follow-up and Monitoring[1]

- Hx of NMSC confers:
  - 35% subsequent NMSC risk at 3 years; 50% risk at 5 years
- Risk factors for recurrent NMSC:
  - male
  - >60yo
  - greater number of prior skin cancer
  - severe actinic skin damage
  - increased ease of burning w/ sun exposure
  - smoking hx – for SCC only
- No clear guidelines for follow-up of BCC
- SCC – consistent f/u for up to 5yrs (***SOR C***)
  - 95% of recurrence detected w/in 5yrs; 70-90% w/in 2 yrs

1. Am Fam Physician. 2012 Jul 15;86(2):161-168. 34

## Summary

- Risk factors: fair skin, UV exposure, ionizing radiation, immune suppression, arsenic exposure, chronically inflamed skin (SCC only)
- Prevention: advise 10-24yo fair skin individuals on sun avoidance and sun protective behaviors ***[SOR B]***
- Clinical features: vary by histologic subtype
- Diagnosis: skin exam, dermoscopy, biopsy ***[SOR C]***
- Treatment: observation, topical, destructive, surgical ***[SOR A-C]***
- Monitoring: monitor pts with SCC for ~5yrs ***[SOR C]***

35

## References


1. Am Fam Physician. 2012 Jul 15;86(2):161-168.
2. Cancer Care Ontario; 2005 Feb [In review 2011 Sep].
3. Ann Intern Med. 2009 Feb 3;150(3):188-93 .
4. Ann Intern Med. 2012 Jul 3;157(1):59-65.
5. The Color Atlas of Family Medicine, 2nd ed. 2013, 996.
6. The Color Atlas of Family Medicine, 2nd ed. 2013, 972-3.
7. The Color Atlas of Family Medicine, 2nd ed. 2013, 973-4.
8. The Color Atlas of Family Medicine, 2nd ed. 2013, 1005-6.
9. The Color Atlas of Family Medicine, 2nd ed. 2013, 986.
10. 10. The Color Atlas of Family Medicine, 2nd ed. 2013, 978-80.


36