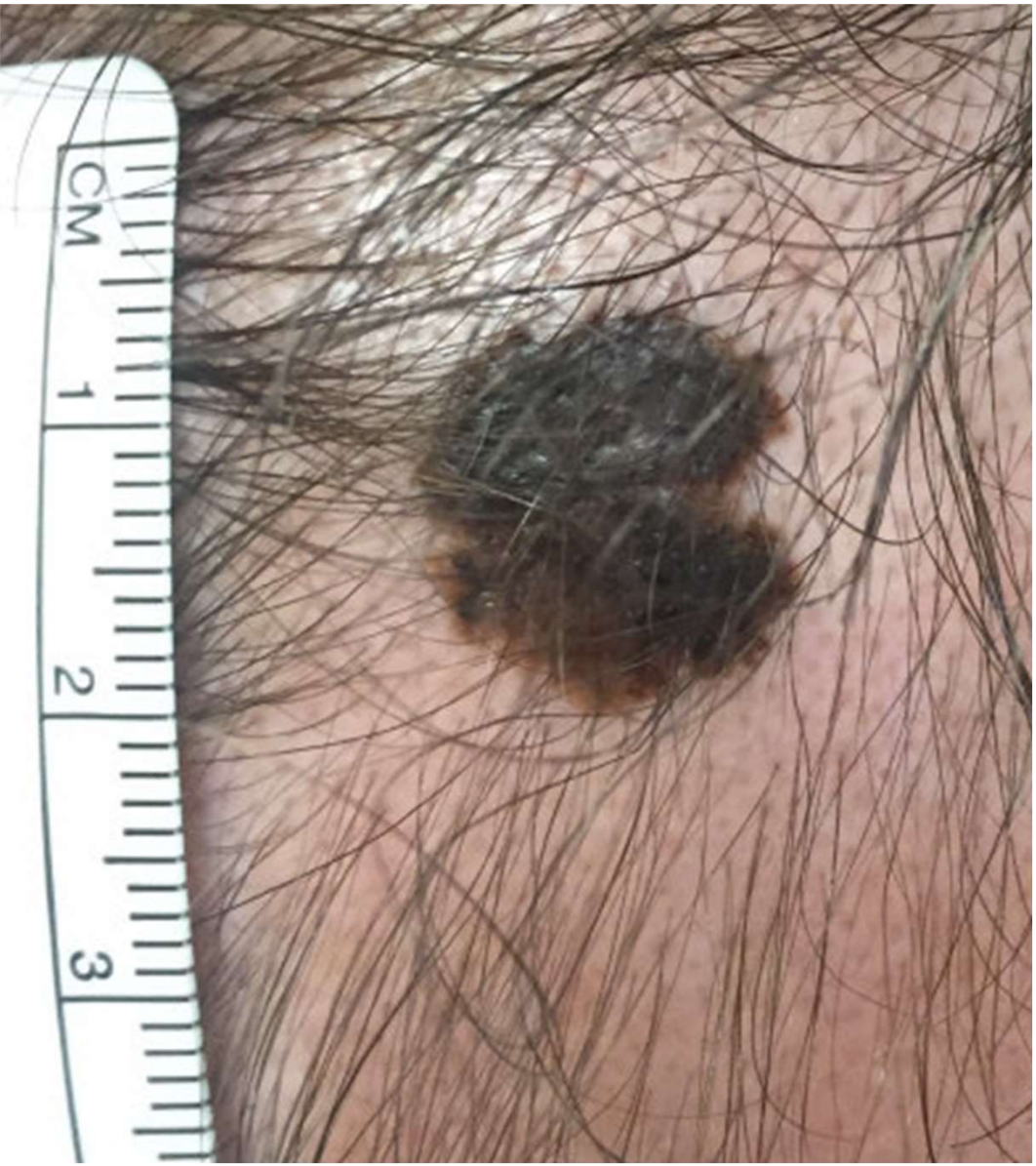

How to Identify, Biopsy, and Treat Skin Cancer

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Dallas, Texas

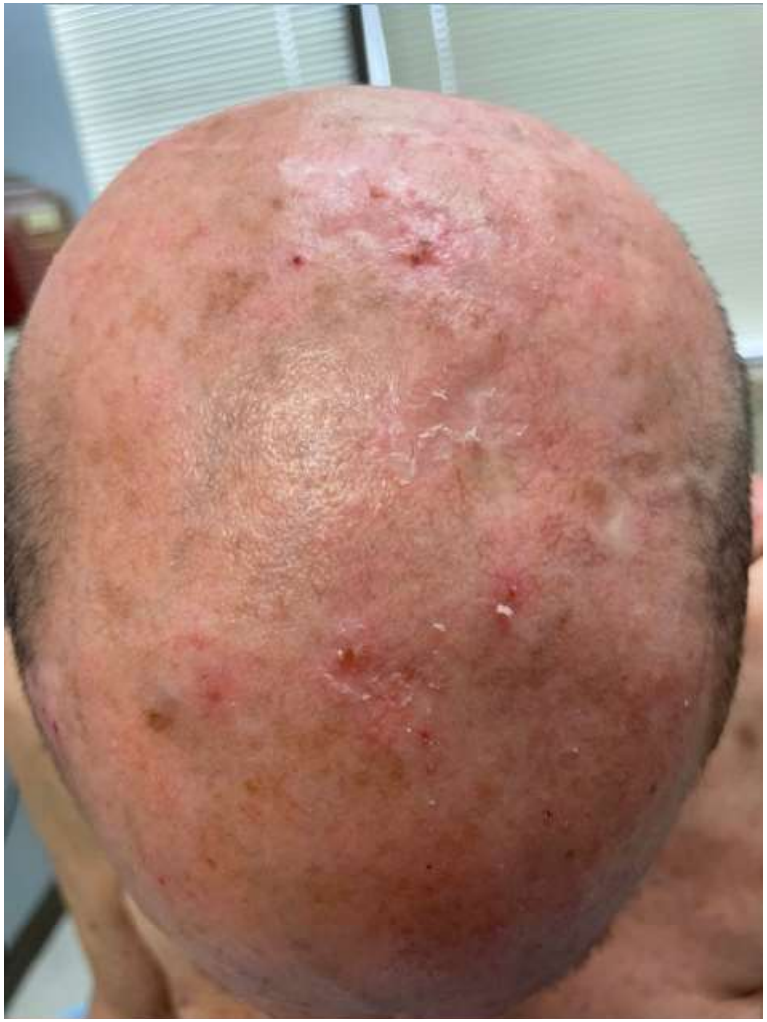
Conflicts of Interest

- None

How to Identify, Biopsy, and Treat Skin Cancer

At the conclusion of this session, participants should be able to:

- Distinguish between lesions that are benign vs. malignant
- Recognize how to biopsy including techniques and considerations for special populations (i.e. pregnancy) or special body sites (i.e. penis, vulva, fingers, or nose)
- Analyze treatment and referral options based on NCCN guidelines

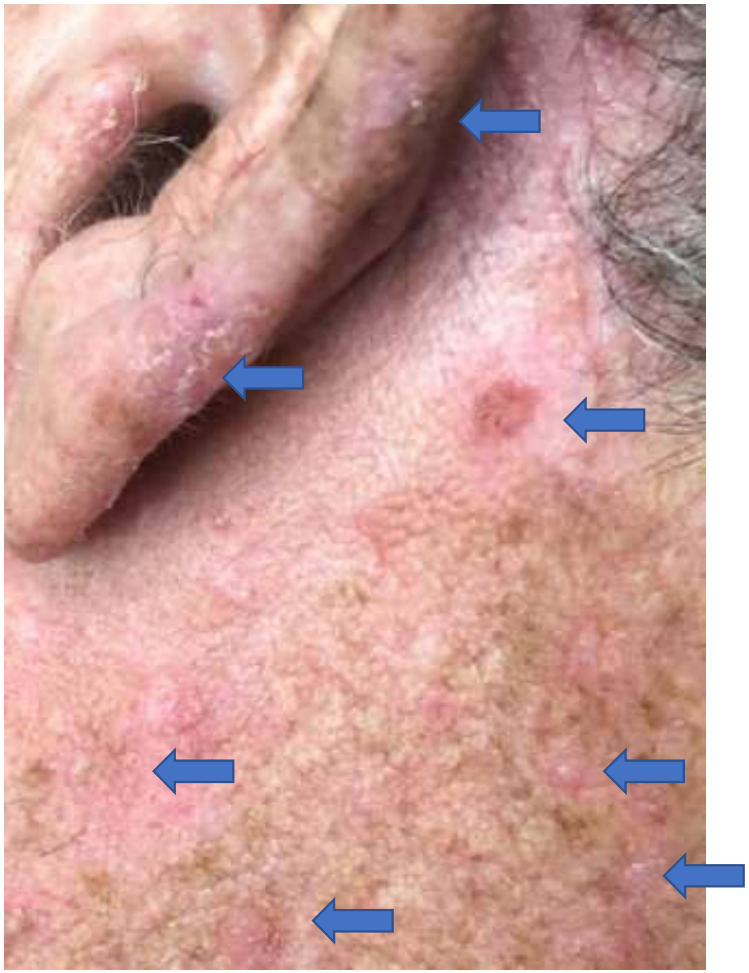


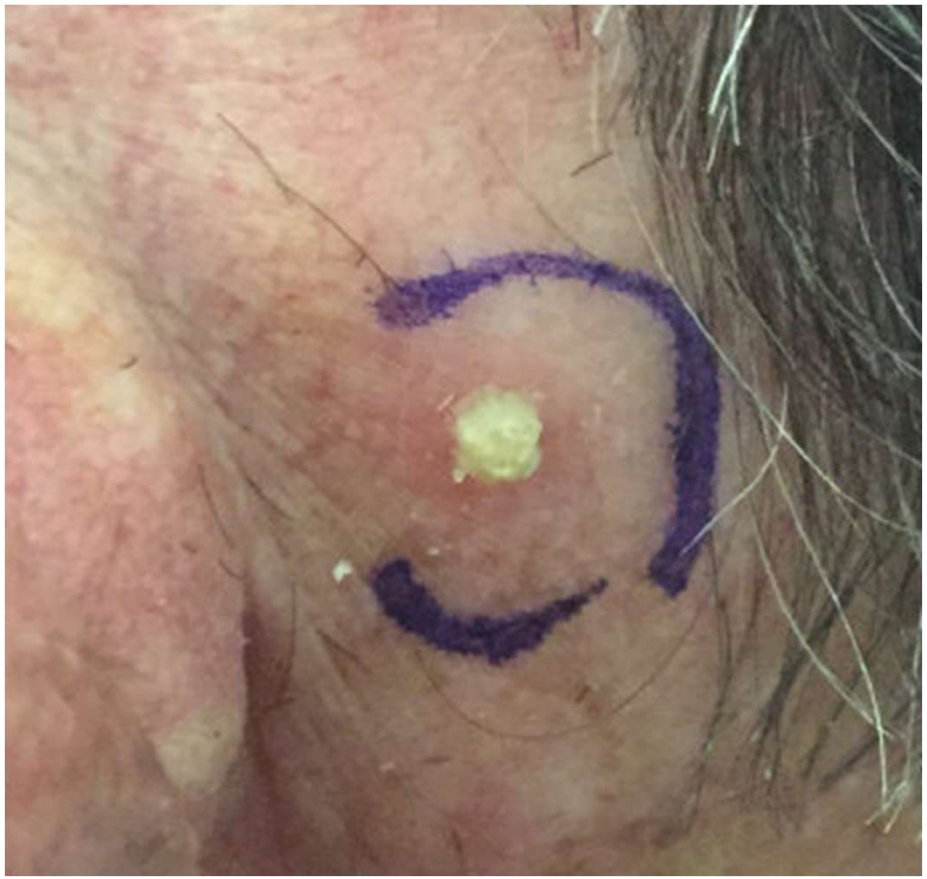
Actinic Keratoses

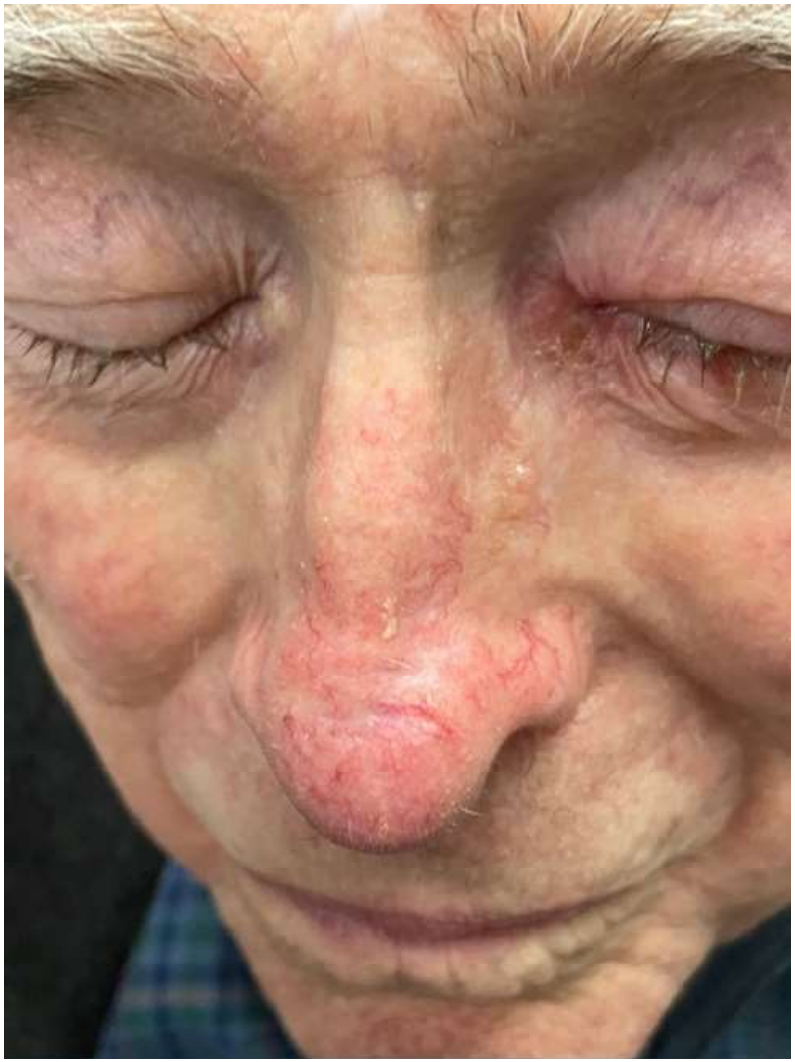
- Precursor to Squamous Cell Carcinoma
- Rough, scaly on sun exposed skin (scalp, dorsal hands, lower lip, ears, nose)
- Can self resolve in most cases

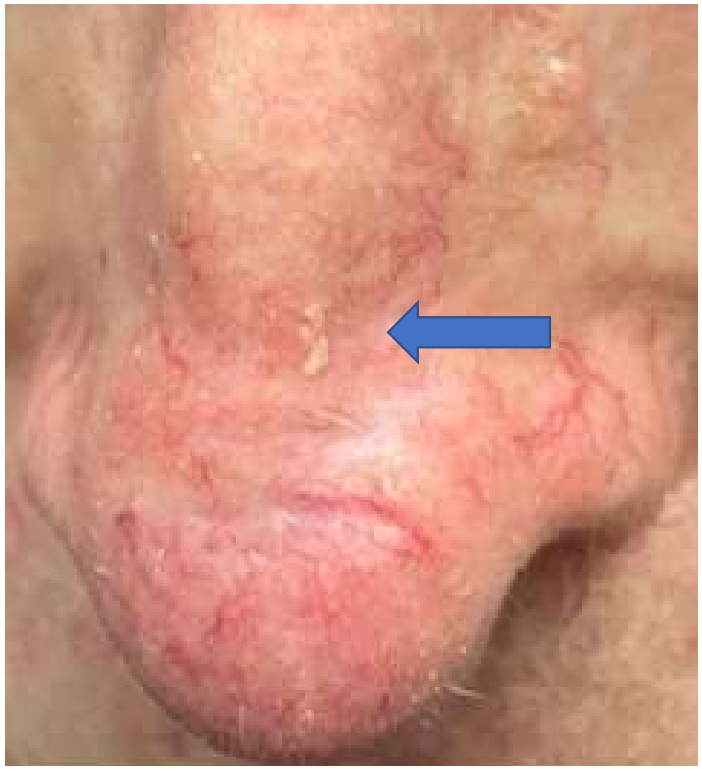
Actinic Keratoses

- frequency of actinic keratoses increases with age and cumulative lifetime sun exposure
- more common in immunosuppressed individuals (especially after solid organ transplantation) and in males
- Some medications (ie, capecitabine, sorafenib) may induce inflammation of existing actinic keratoses



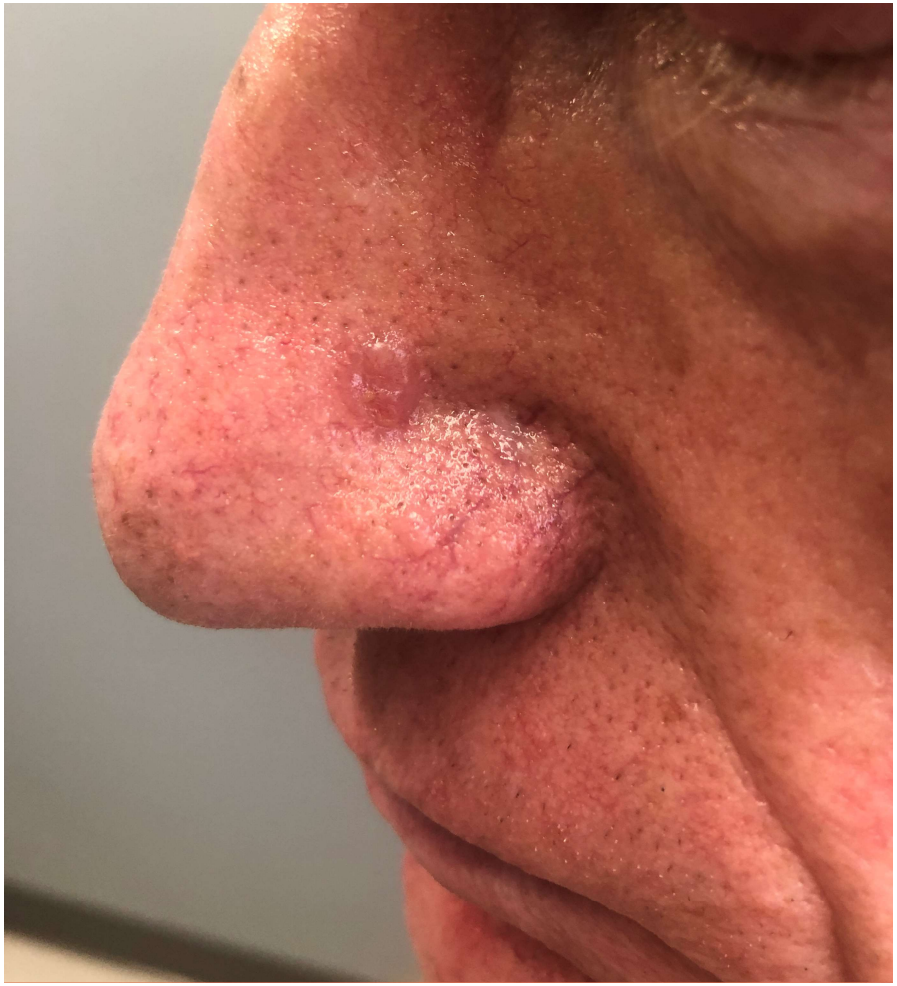






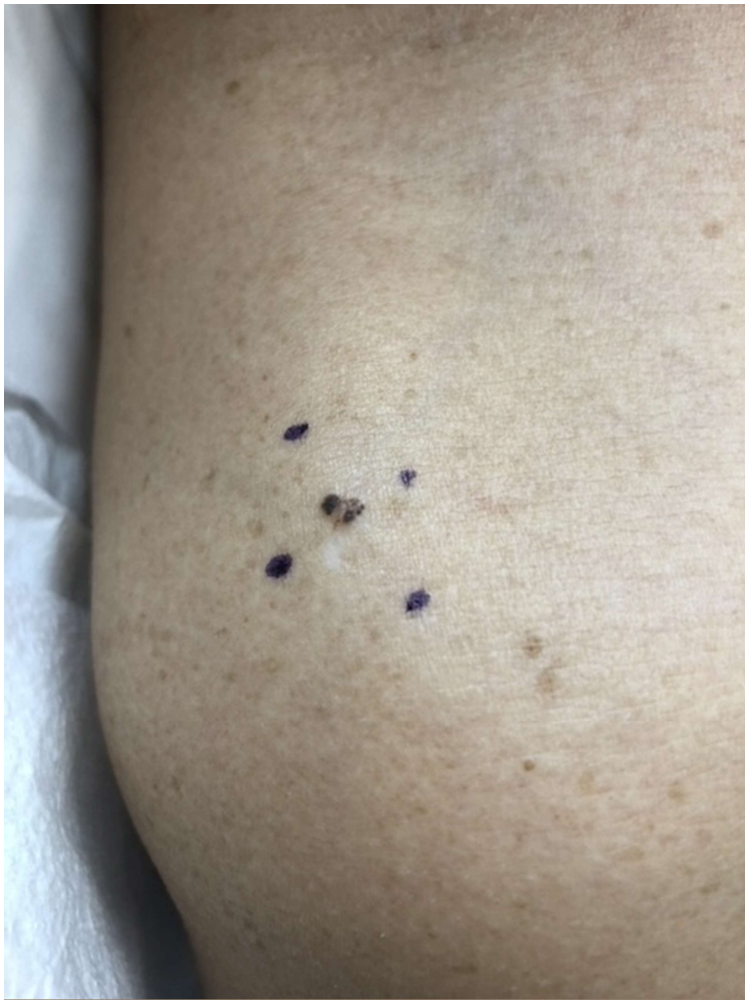
Basal Cell Carcinoma

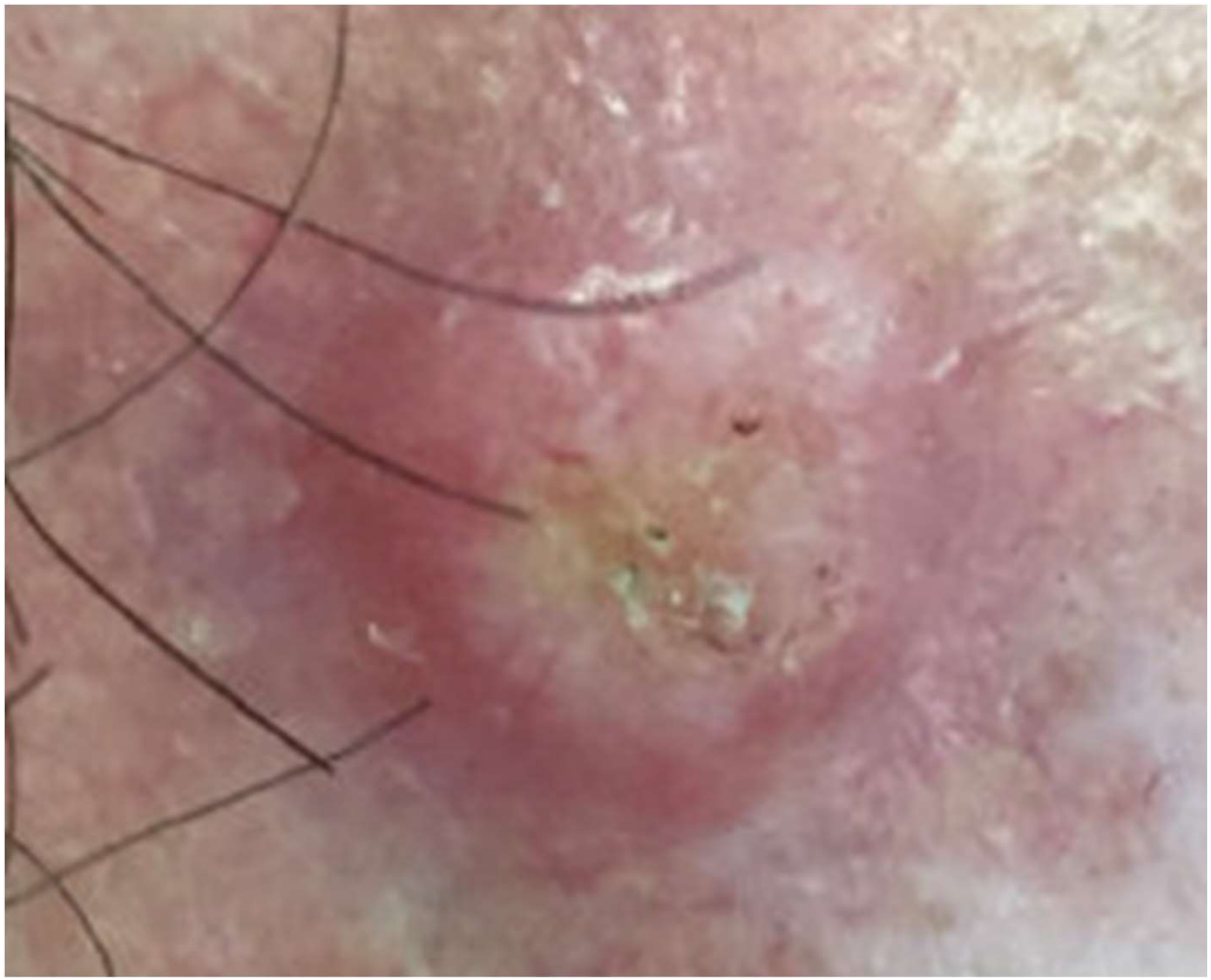
- most common type of skin cancer
- Typically in sites of intermittent sun exposure
- Pearly papules with rolled borders and telangiectasia

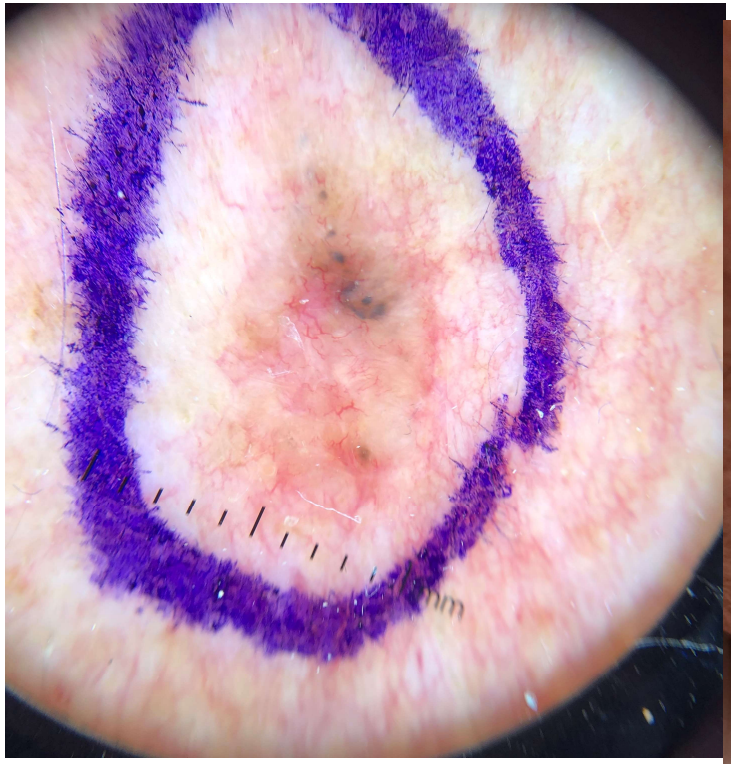


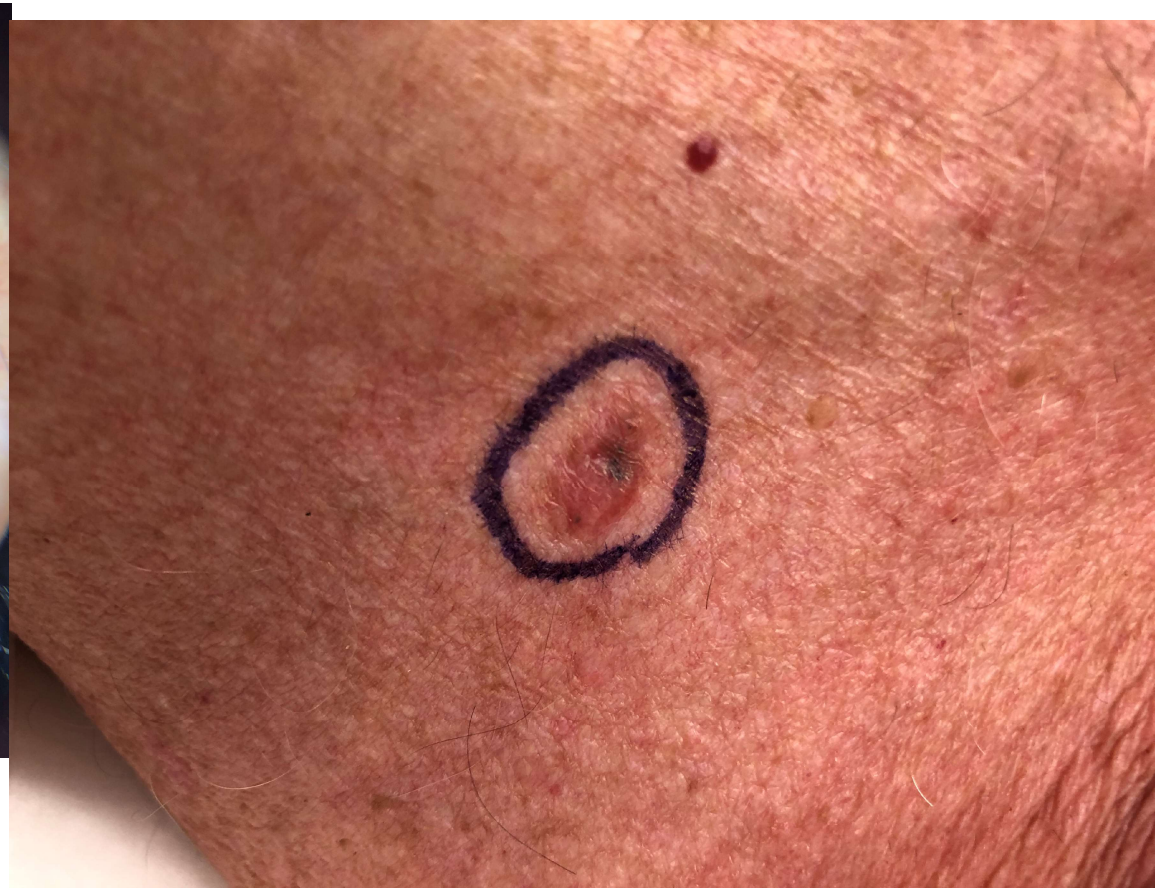
Basal Cell Carcinoma

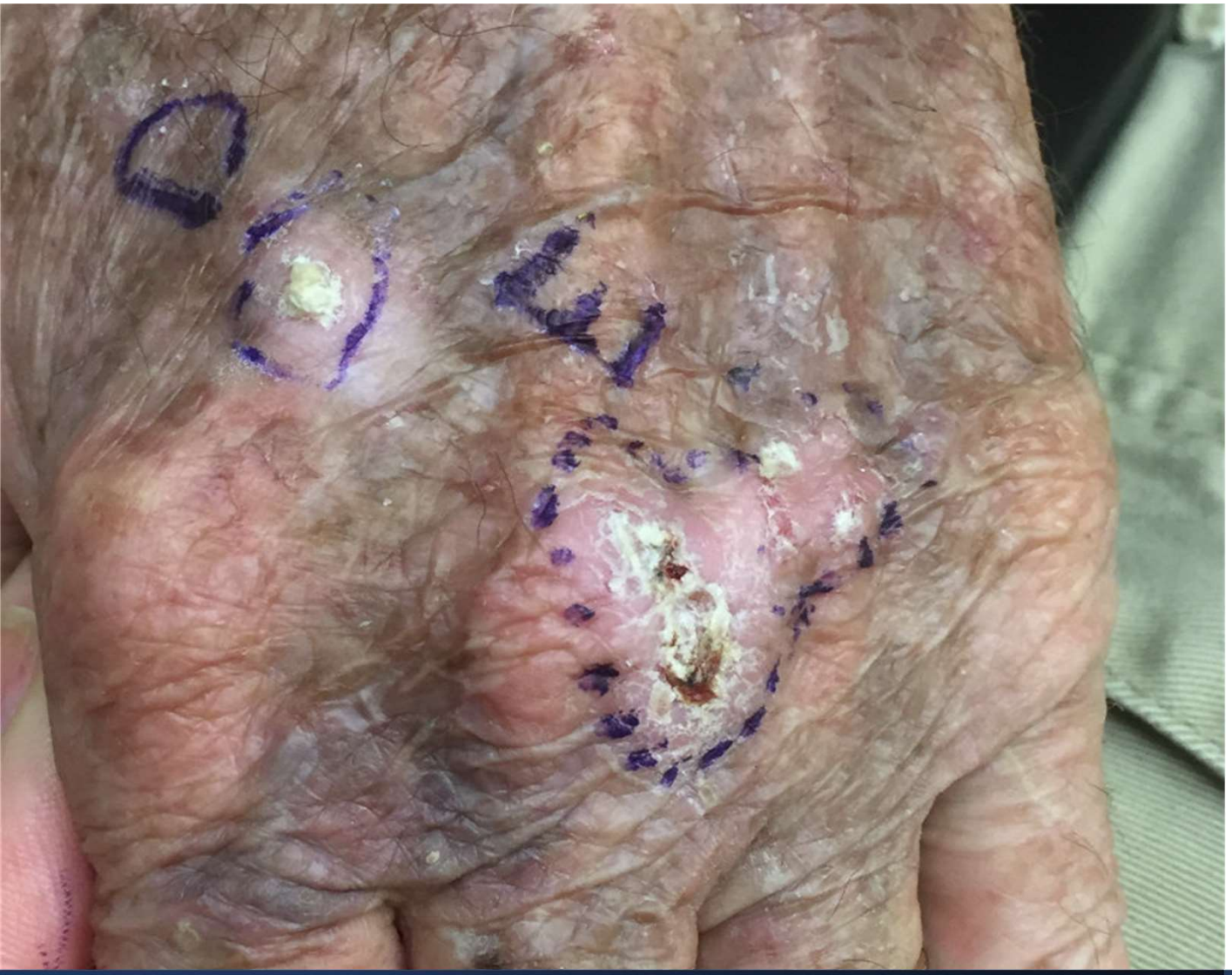
- many subtypes of BCC, including superficial, nodular, pigmented, and infiltrating
- risk factors for BCCs include environmental exposure (ie, ionizing radiation, indoor tanning, chemicals such as arsenic, psoralen plus UVA, and coal tar), phenotype (freckling, red hair, fair skin that always burns and never tans), immunosuppression such as organ transplantation
- almost never fatal, local tissue destruction and disfiguration occur









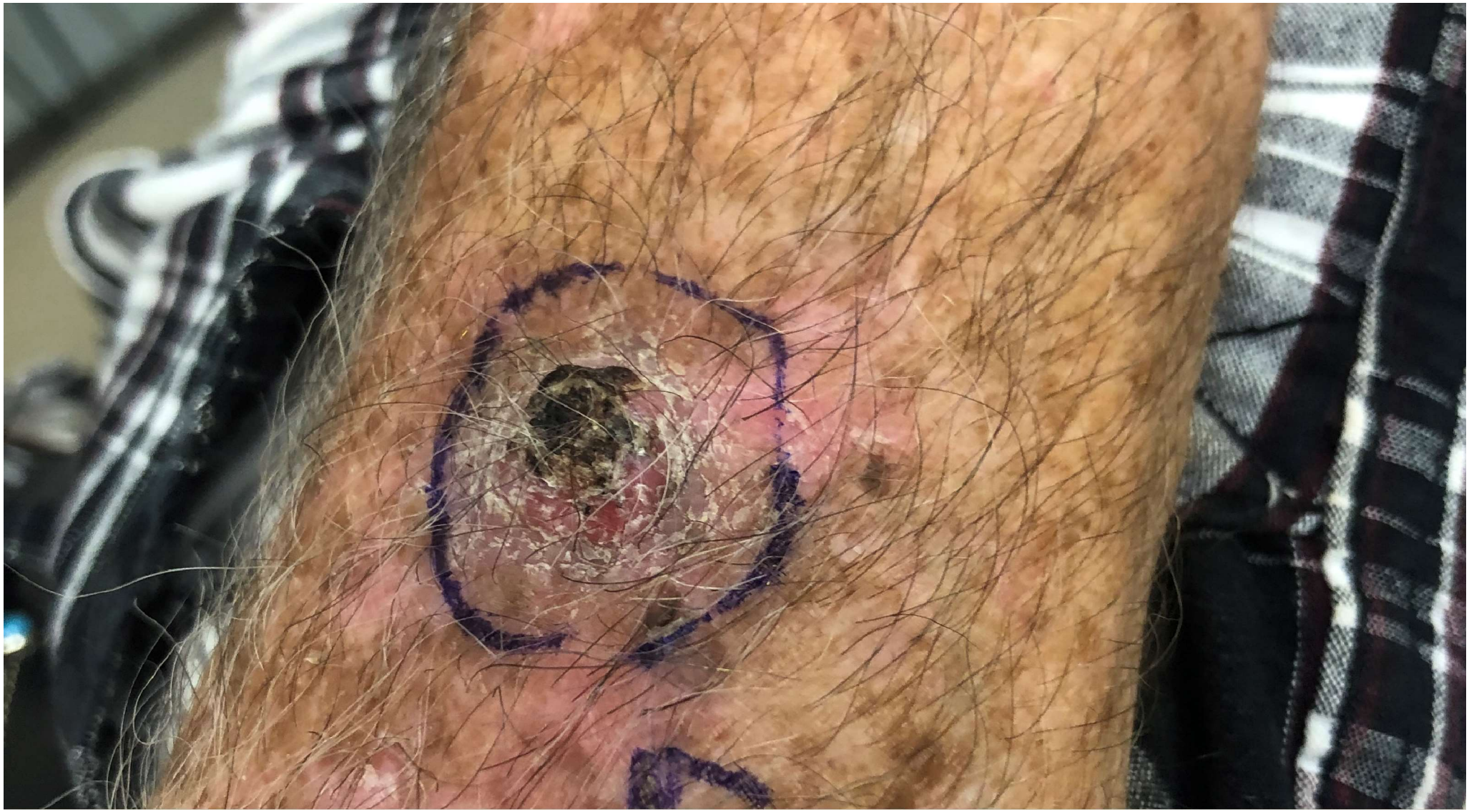


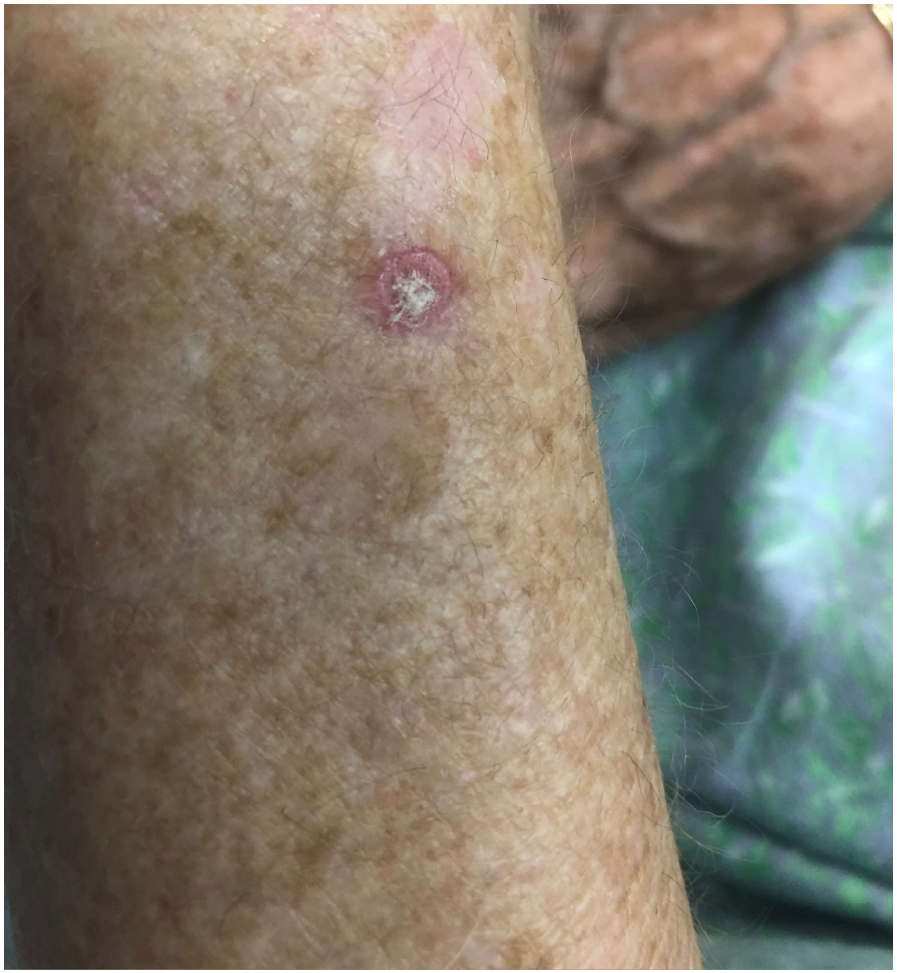
Squamous cell carcinoma

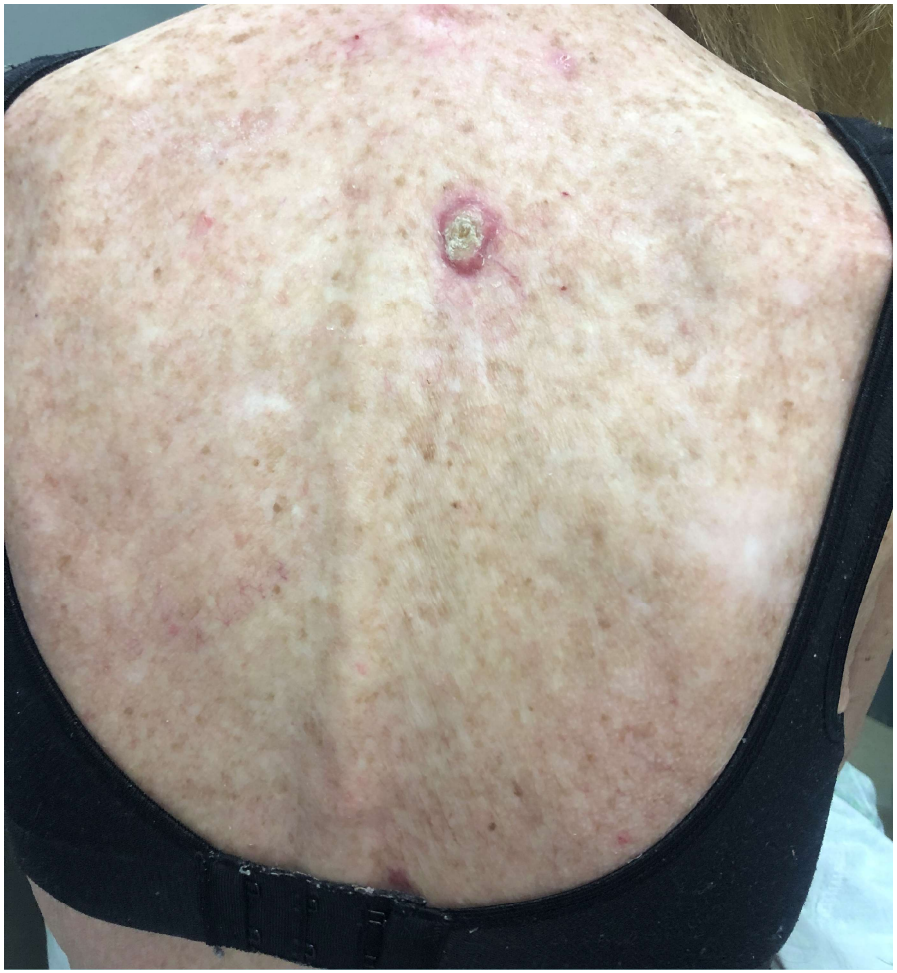
- Commonly on chronically sun exposed skin, dorsal hands, lower lips, ears
- Scaly, hyperkeratotic papule

Squamous Cell Carcinoma

- Risk factors: ultraviolet (UV) exposure, solid organ transplantation, ionizing radiation exposure, cigarette smoking, human papillomavirus (HPV), chemical exposure (ie, arsenic, mineral oil, coal tar, soot, mechlorethamine, polychlorinated biphenyls, and psoralen plus UVA treatment), freckling, red hair, immunosuppression such as HIV disease / AIDS, and chronic nonhealing wounds

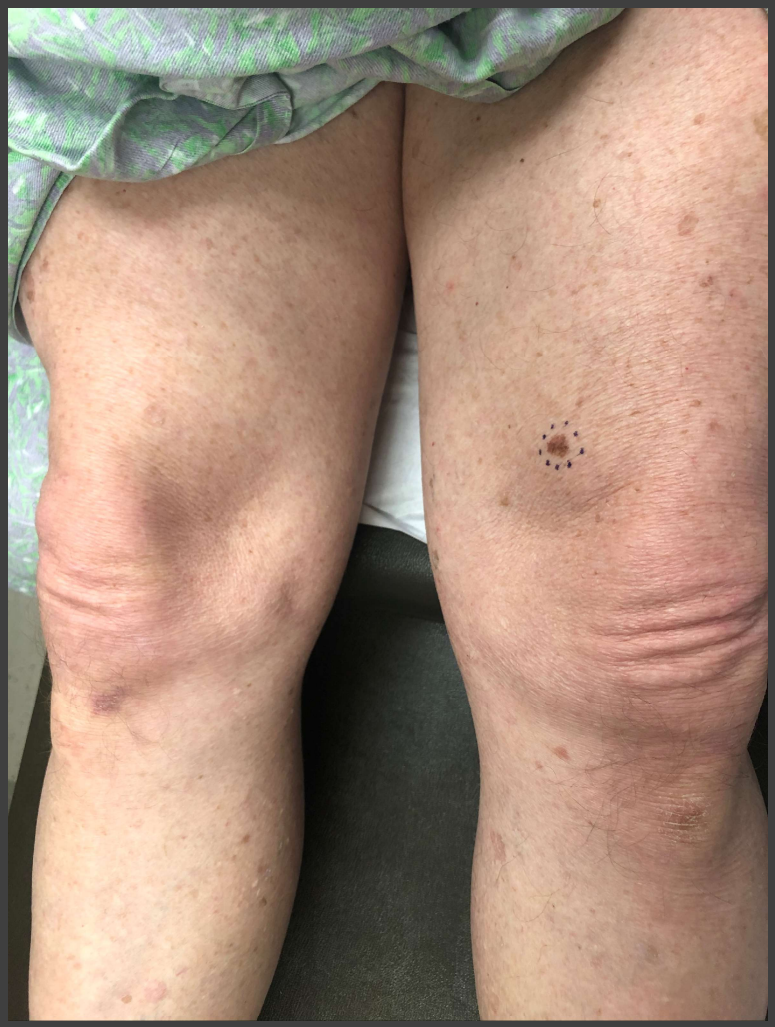


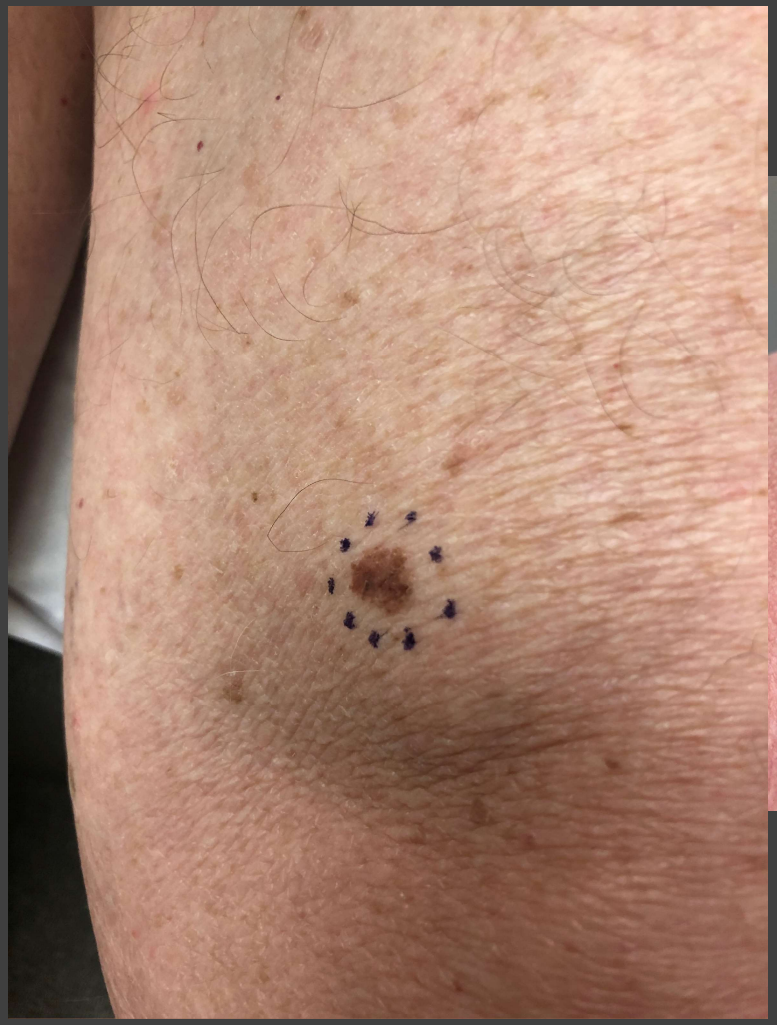


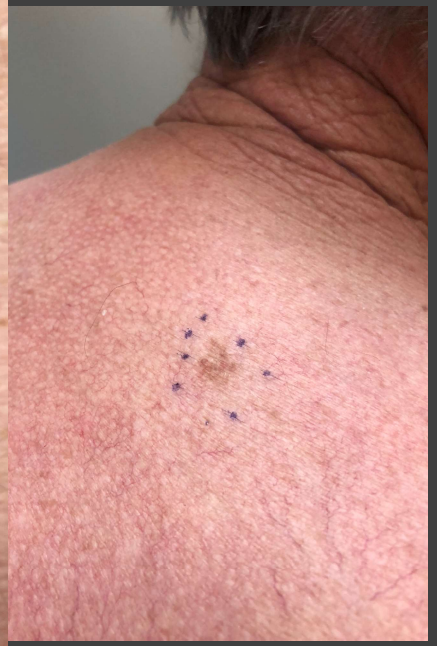


Melanoma

- Aggressive malignancy of melanocytes, can present on skin, mucous membranes, nails or eye
- Risk factors: family history or prior personal history of melanoma, a history of severe or blistering sunburns, a changing mole, a giant congenital nevus (greater than 20 cm), older age, lighter skin phototype, and multiple atypical nevi.
- Primary prognostic feature of melanoma is the depth of invasion

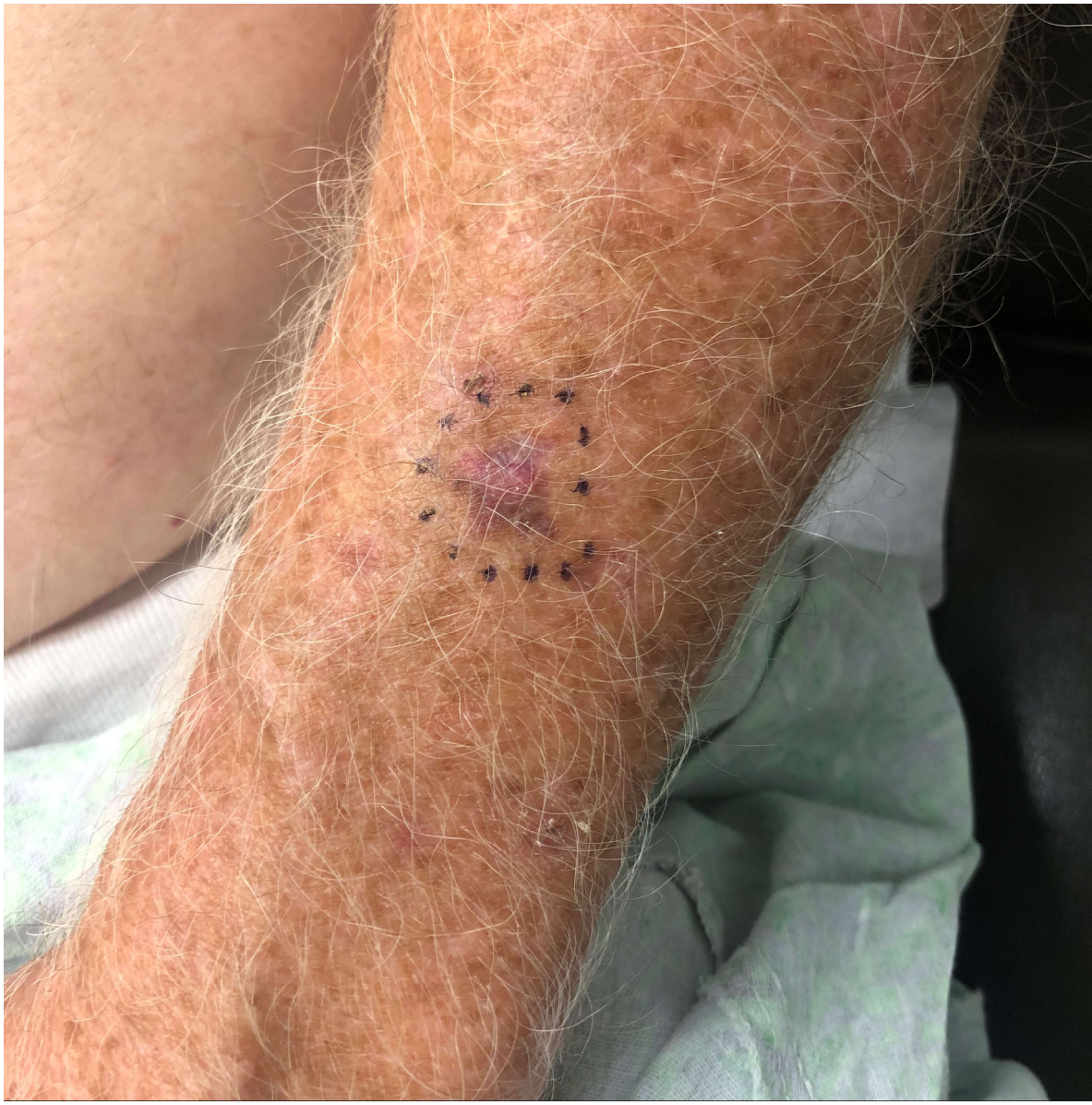


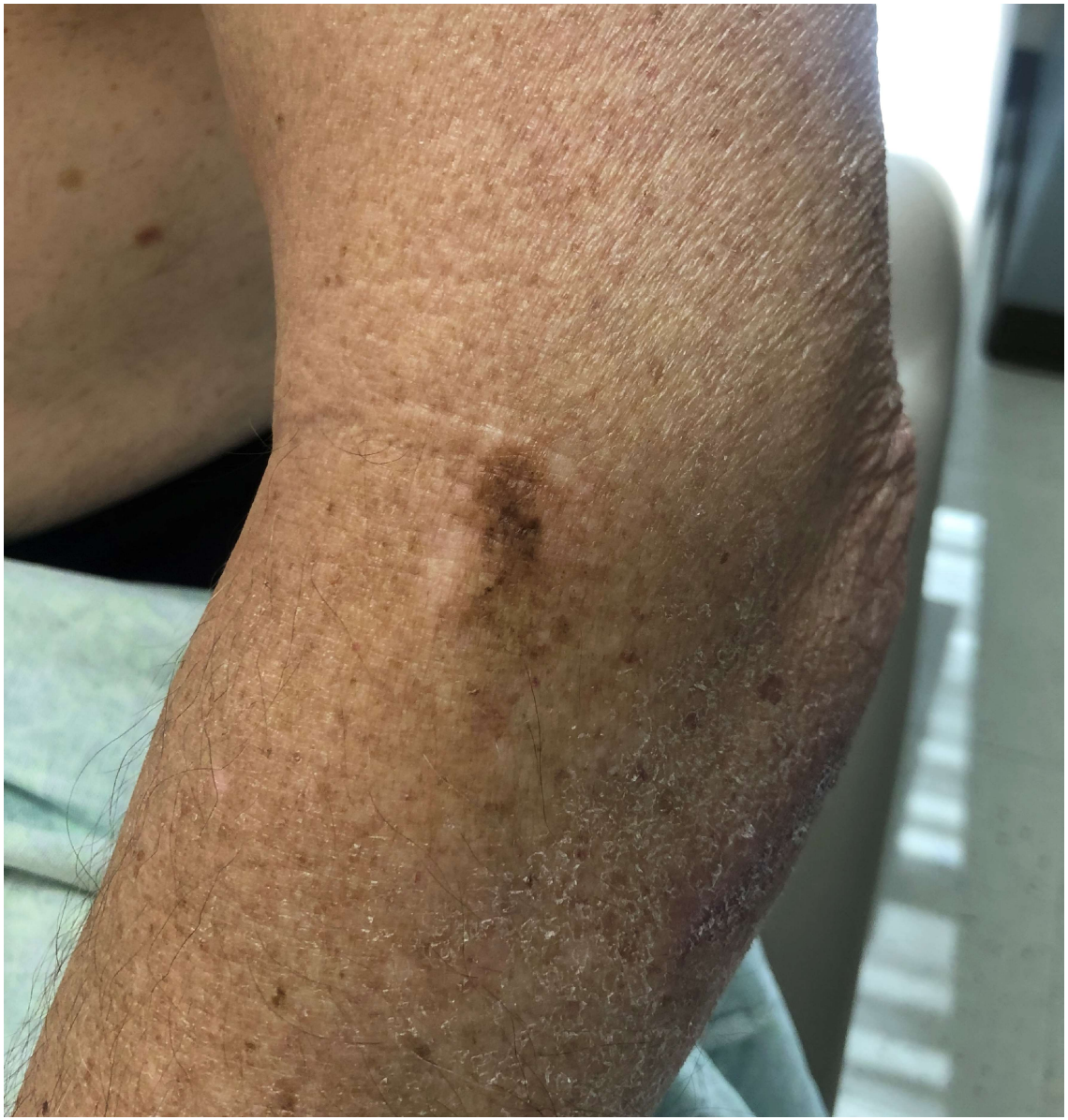




Eval of pigmented skin lesions

- Asymmetric
- Borders that are irregular
- Colors, different colors specifically red, white, blue, pink within the mole
- Diameter greater than pencil eraser
- Evolving or changing over time

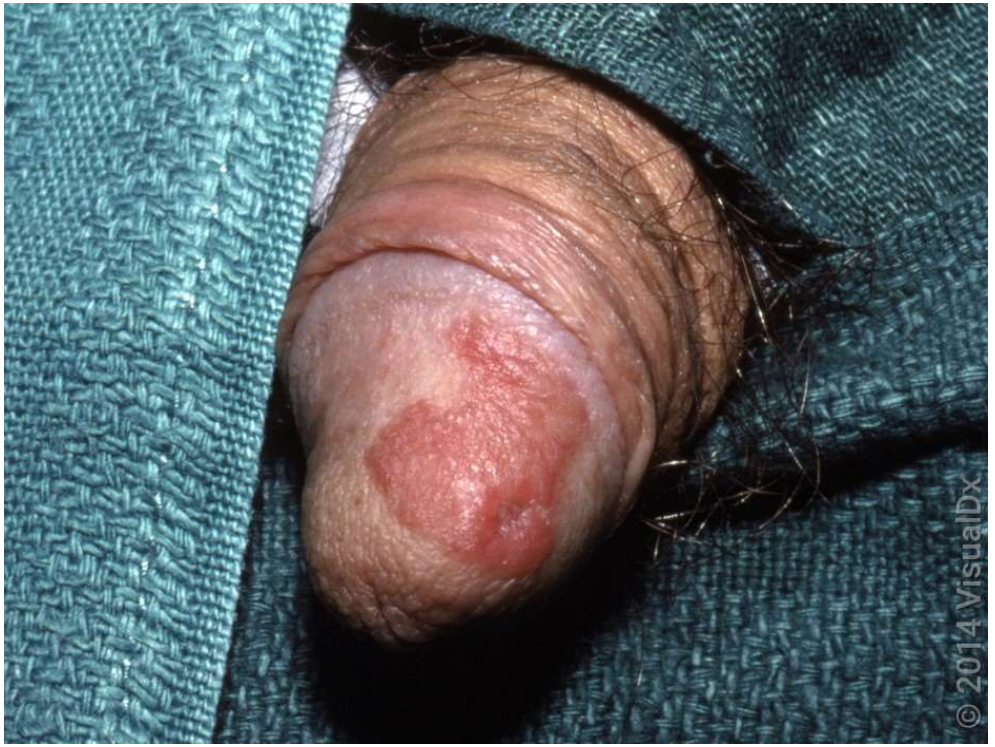




Zebras – Less common types of skin cancer

Squamous cell carcinoma of the penis

- AKA Erythroplasia of Queyrat, AKA, Bowen's disease
- well-demarcated, velvety, erythematous plaque, but its appearance may be variable
- most commonly due to human papillomavirus (HPV) type 16
- common in elderly, uncircumcised males



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Squamous cell carcinoma of the penis

- Risk factors HPV infection, immunosuppression (such as human immunodeficiency virus [HIV] infection), ultraviolet (UV) light exposure, phimosis, multiple sexual partners, smoking, other underlying dermatoses (lichen sclerosis or lichen planus), and any form of chronic irritation
- Biopsy should be performed for any genital lesion that is pigmented, erosive, bleeding, and/or resistant to topical steroid therapy

Cutaneous metastases

- Can be subtle or appear to be a subcutaneous growth
- Cyst without a punctum should be biopsied
- May or may not have a history of malignancy
- most frequent primary tumors are carcinomas of the breast, stomach, lung, uterus, kidney, ovary, colon, bladder.
- Cutaneous metastases usually indicate a very poor prognosis, with an approximate 75% one-year mortality rate
- firm, red to pink nodules
- most common on the chest, abdomen, and head and neck
- Sister Mary Joseph nodule is metastatic carcinoma to the umbilicus from intraabdominal carcinoma

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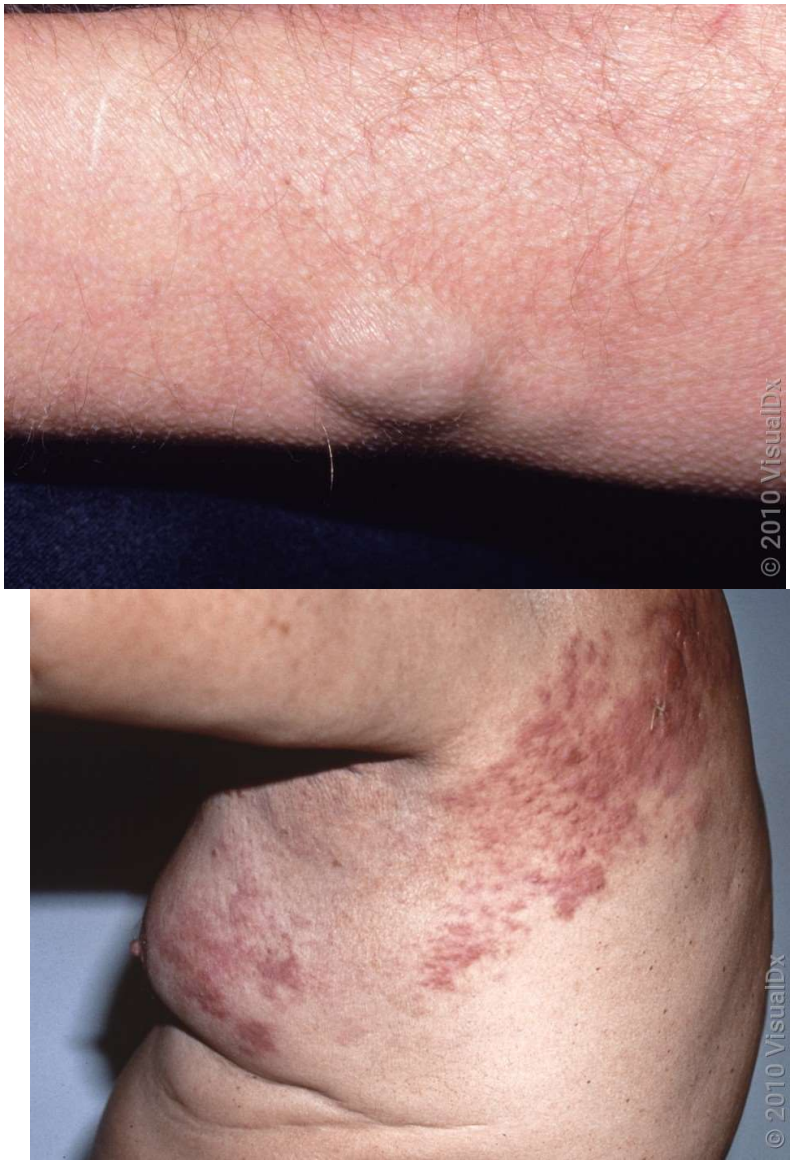
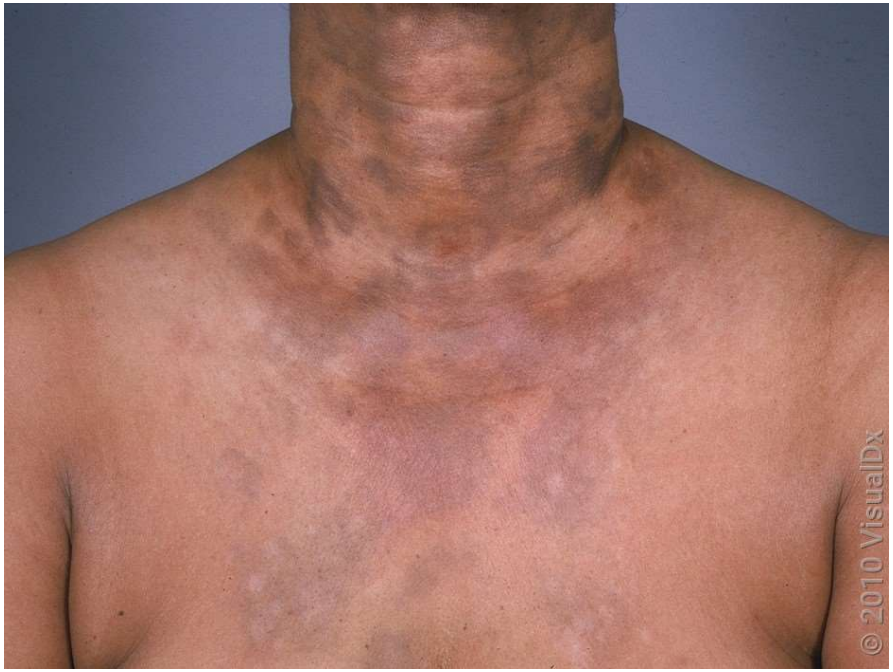


Mycosis Fungoides



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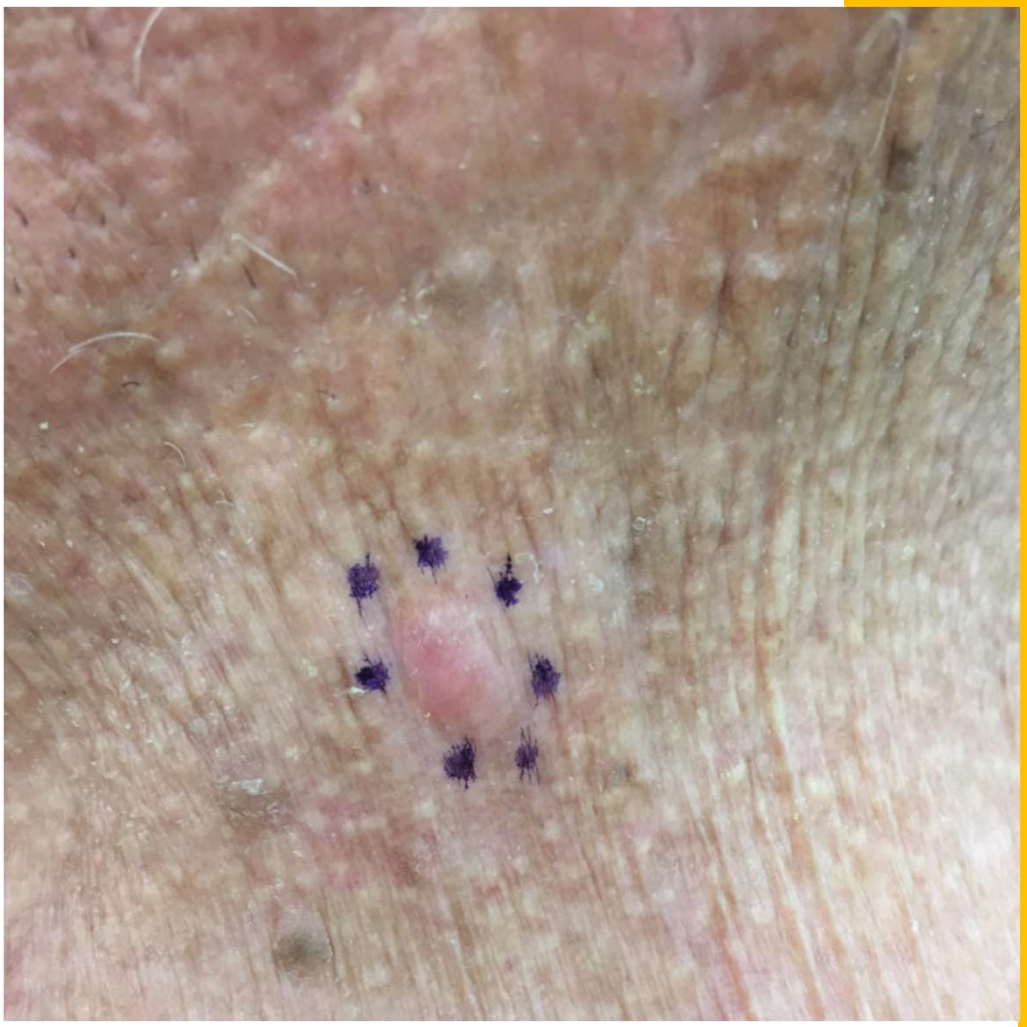
- Most common type of Cutaneous T cell lymphoma
- CP: patches or thin plaques with fine scale that measure 2-20 cm and favor the sun-protected areas of the body, including buttocks and posterior axillary folds
- Many patients have a long history of generalized eczematous or psoriasiform dermatitis before being diagnosed with MF.
- Early patch stage disease may not be diagnostic on histopathology, Numerous biopsies are necessary
- Typically mistaken for atopic dermatitis, psoriasis, tinea corporis for years

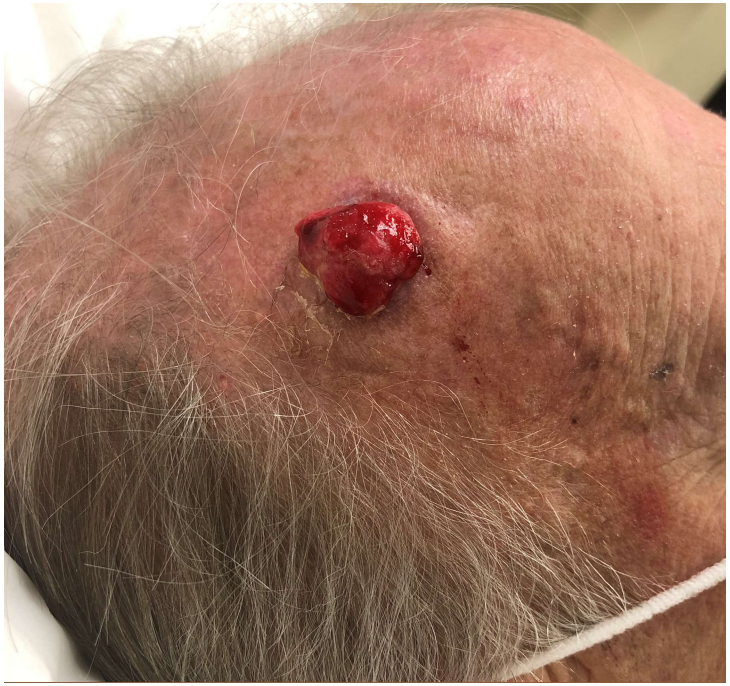
Merkle cell Carcinoma

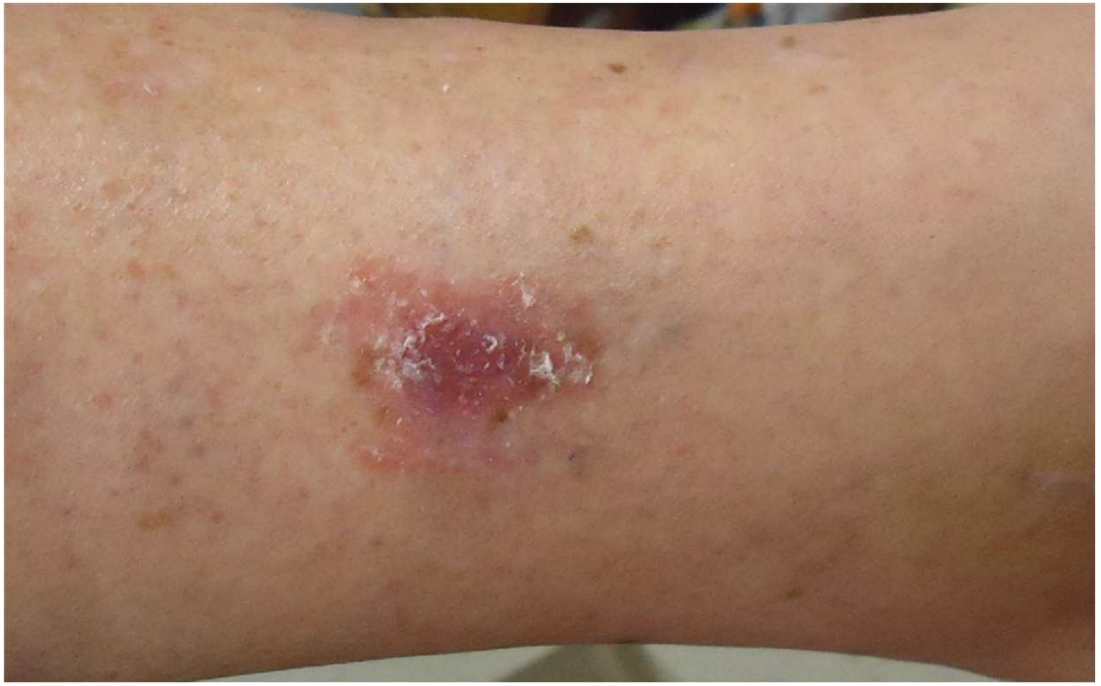
- Cutaneous neuroendocrine carcinomas
- They most frequently occur on the head and neck but can also be seen elsewhere on the body
- MCC favors older adults with a median age of 75-80 years old at the time of diagnosis
- More common among individuals of Northern European descent
- Two important etiologic factors for MCC are the Merkel cell polyomavirus and ultraviolet (UV) exposure
- Asymptomatic solitary nodule
- Despite aggressive treatment, recurrence rates are high, metastases are common, and 5-year relative survival is approximately 60%

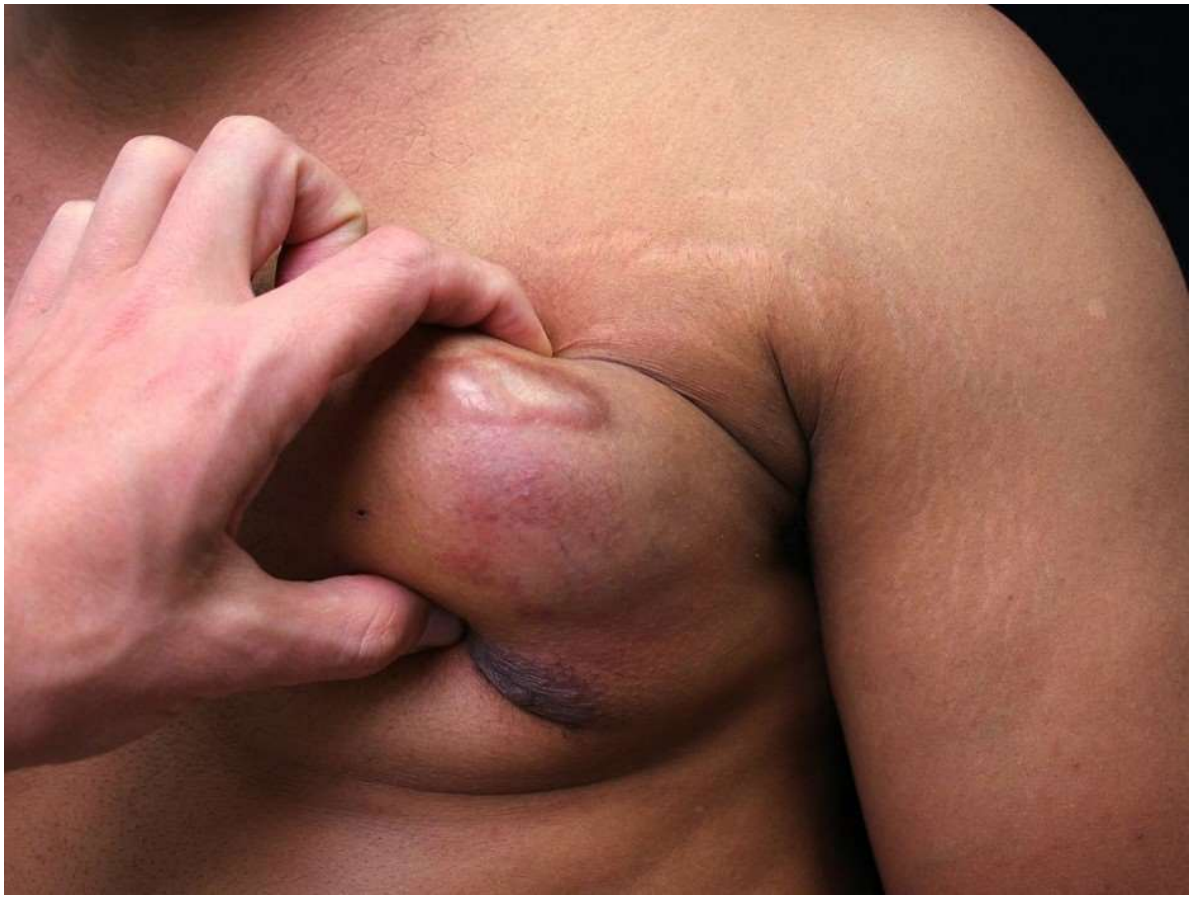


Amelanotic melanoma

- clinical subtype of cutaneous melanoma with little to no pigment on visual inspection
- ranging from 2%-8% of all cases
- worse overall survival rate than the pigmented counterpart
- associated with the presence of red hair, older age







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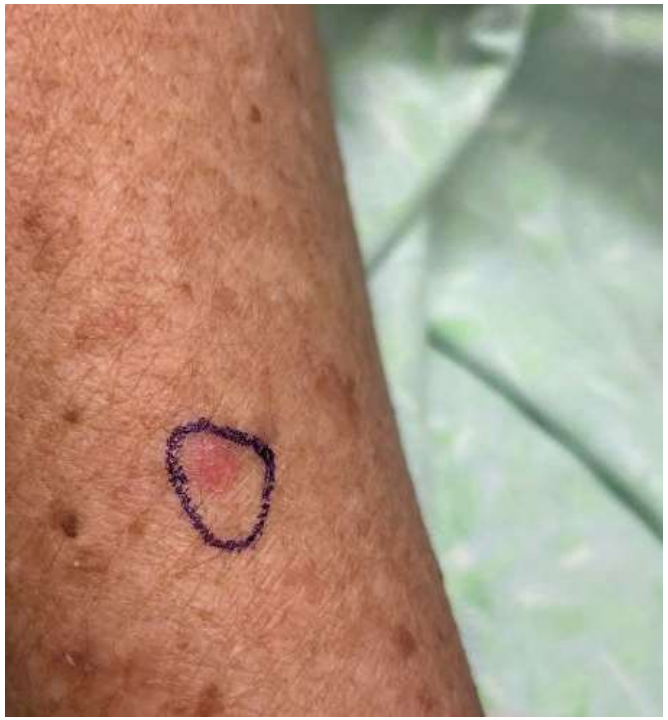
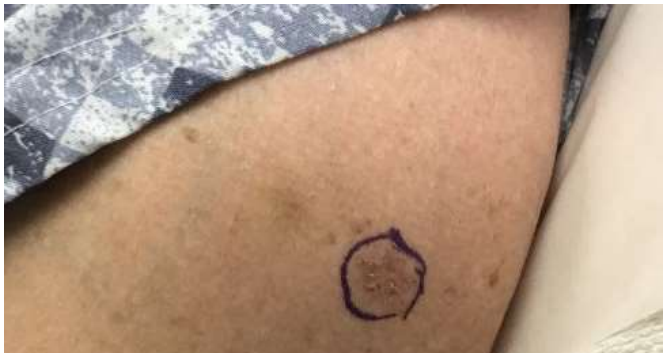
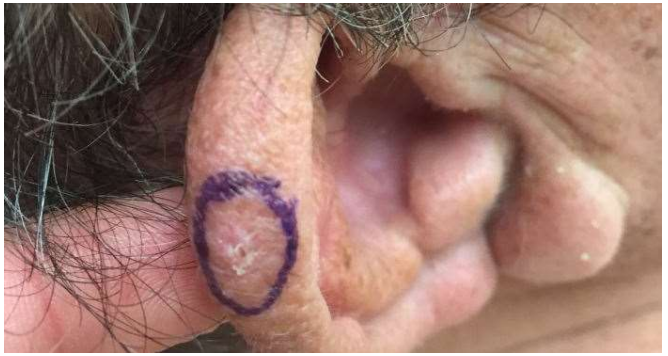
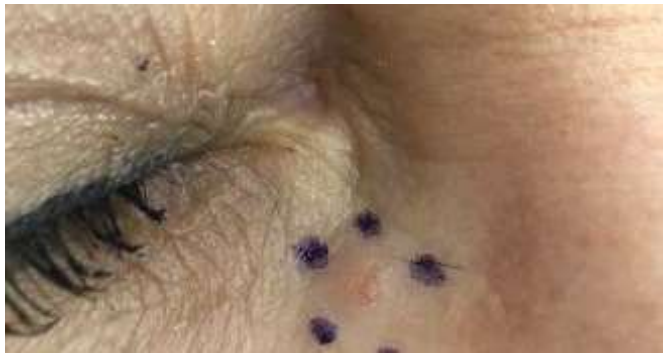
Dermatofibrosarcoma protuberans (DFSP)

- intermediate-grade soft tissue sarcoma
- slow-growing, red-brown, indurated plaque with irregular nodularity
- most common site is the trunk, followed by the proximal extremities, head, and neck
- uncommon neoplasm with low metastatic potential, carrying a 2%-5% risk of distant metastasis.
- it can be locally aggressive and has a high rate of recurrence after surgical excision







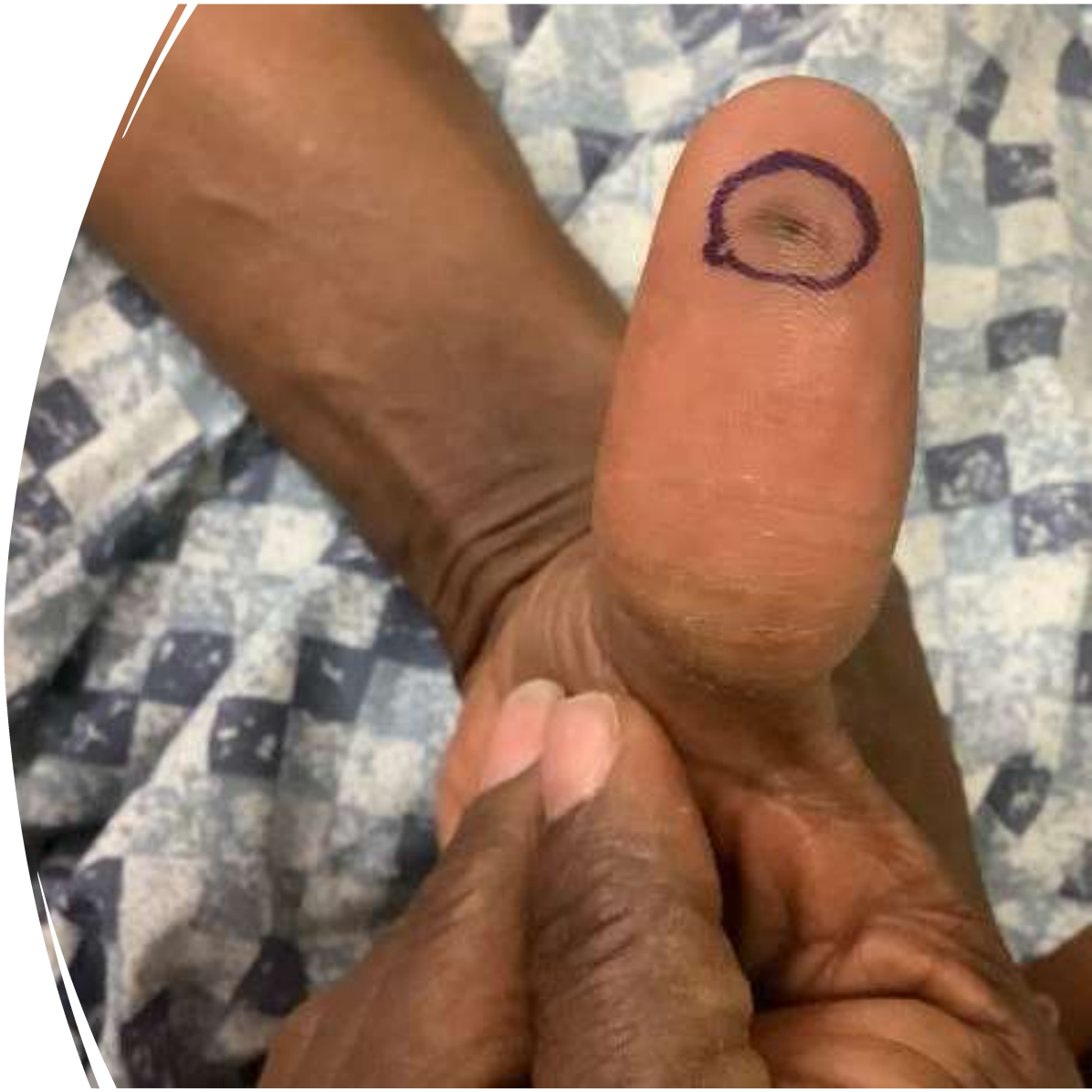


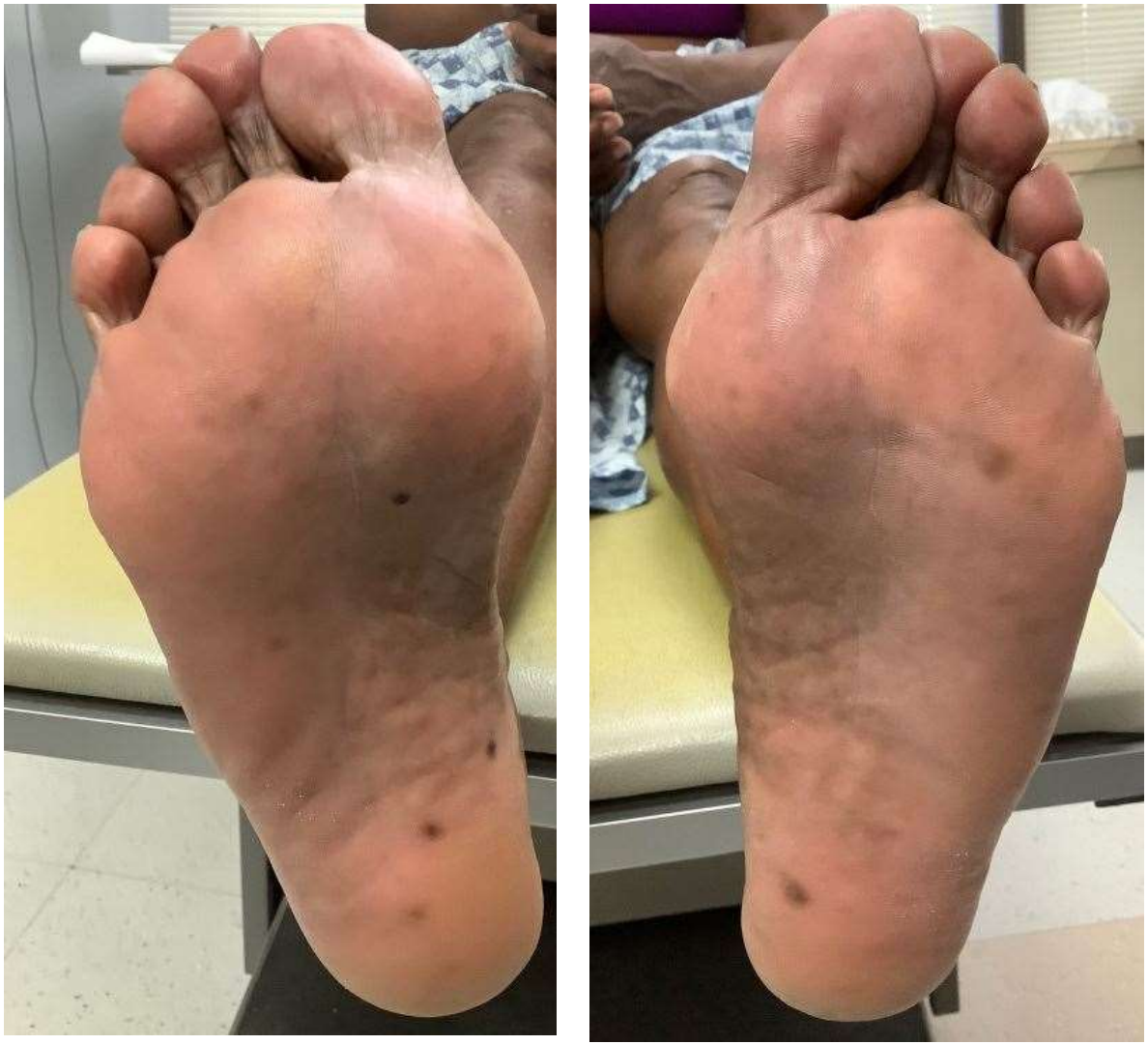
Non melanoma Skin cancer in Skin of Color

Add pics here

Melanoma in Skin of Color: Disparities in Care

- Tendency for increased proportion of aggressive subtypes among SOC
- Patients more commonly present with ulceration, advanced disease, regional or distant disease and thicker tumors.
- Differences persist when we control for socioeconomic factors like insurance coverage, neighborhood, education
- Nonwhite patients more likely to receive less than standard of care (excisions, sentinel lymph node biopsy, immunotherapy)





Skin Biopsy Principles

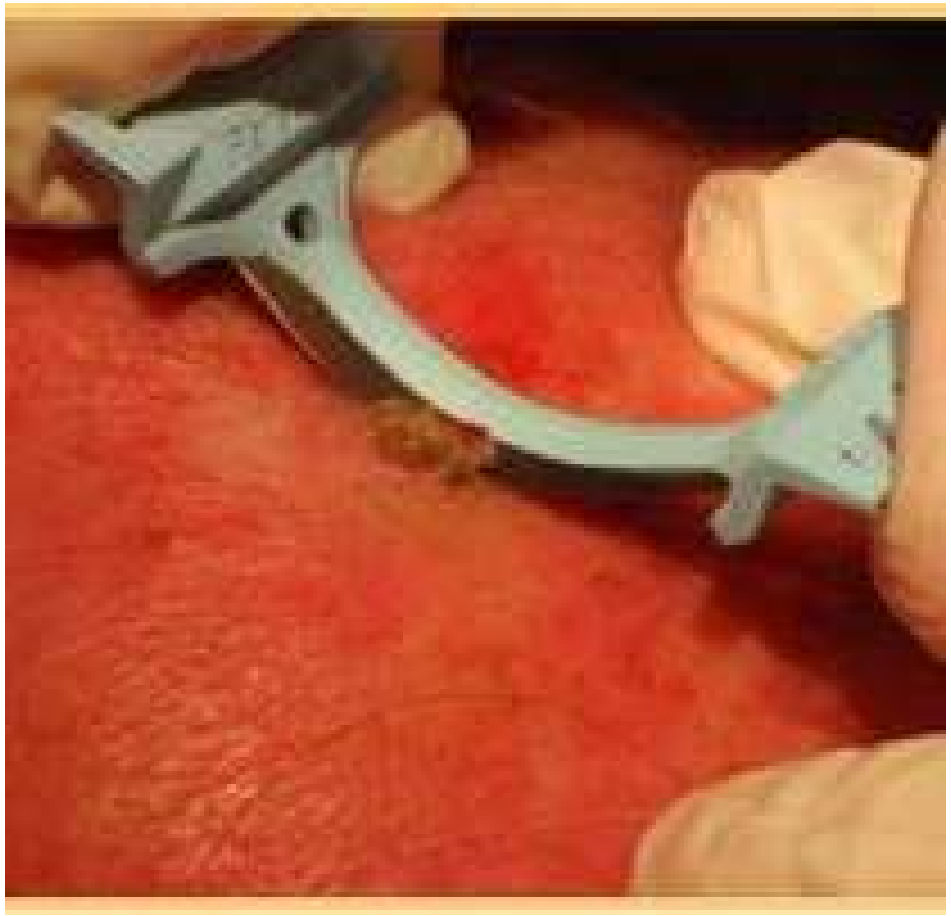
- Provide complete, accurate clinical description and differential diagnosis to the pathologist → if this is not possible refer to avoid taking the wrong type of biopsy
- Inflammatory conditions can involve the subcutaneous fat and blood vessels and need a punch biopsy
- If melanoma in suspected biopsy the entire lesion (depth is important for prognosis and treatment)
- Ulcers should be biopsied from the edge of the lesion
- Tumors should be sampled from the thickest portion when possible
- Annular lesions biopsy from the leading edge

Skin Biopsy Principles

- Prepare for bleeding in vascular areas like scalp
- If possible avoid biopsies below the knee, especially in diabetics, as they are prone to infection and long healing times
- Prepared patients for the type of scarring expected
- Do not put multiple specimens in one container

Tangential Shave biopsy

- Materials required: alcohol prep swab, local anesthetic (xylocaine with epi), drysol, cotton tipped applicator, Vaseline, bandage, stainless steel blade
- Cleanse the area with alcohol prep swab
- Inject local anesthetic
- Remove the entire lesion by applying pressure to the ends of the blade to bend the blade and using a back and forth sawing motion to remove the lesion from the skin, you need at least pin point bleeding to ensure correct depth
- Apply drysol to the wound for bleeding
- Place specimen in formalin bottle for pathology



Punch Shave biopsy

- Materials required: alcohol prep swab, local anesthetic (xylocaine with epi), gauze, topical surgical prep swab, gloves, punch biopsy tool (2-8mm in size) forceps, scissors, needle holder, formalin, sutures, Vaseline, bandage, stainless steel blade
- Cleanse the area with alcohol prep swab
- Inject local anesthetic
- Surgical prep scrub applied to the skin in concentric rings from the lesion
- Stretch the skin perpendicular to the relaxed skin tension lines, punch instrument inserted into skin in a rotating fashion down to the subcutaneous fat. Forceps used to grab the specimen at the subcutaneous fat, curved sharp scissors used to cut the specimen at the fat.
- Suture with interrupted sutures
- Place specimen in formalin bottle for pathology

Considerations for pregnancy

- safest during the second trimester (weeks 13-24) or postpartum, but should not be delayed for high-risk cutaneous malignancies, such as melanoma
- Maternal positioning in the left lateral tilt position of 30 using a wedge or pillow under the hip or between the knees can prevent inferior vena cava compression and fetal oxygen compromise.
- Chlorhexidine and alcohol are safe antiseptics, while iodine and hexachlorophene have reported associations with fetal hypothyroidism and teratogenesis, respectively.
- Small locally administered doses of lidocaine and epinephrine are generally considered safe if not injected intravascularly, because endogenous epinephrine release during times of stress is greater than what would be introduced via injection during cutaneous surgery.

Techniques for special body sites (i.e. penis, vulva, lip, fingers, or nose)

- However, toxicity can occur when maximum allowable doses are exceeded, and it is imperative to be aware of dosage guidelines. The maximum dose of plain 1% lidocaine should not exceed 5 mg/kg (or 300 mg total), while the dose of 1% lidocaine with epinephrine should not exceed 7 mg/kg (or 500 mg total).

Allergy to anesthestics

- Minor reactions to local anesthetics (LAs) include type IV delayed contact dermatitis, which usually results from exposure to topical antibiotics, antiseptics, or wound dressings.
- True type I immunoglobulin E mediated anaphylaxis to LA is rare (<1%)
- Anaphylaxis to preservatives within LA, or other concomitant exposures, including antibiotics or latex, are more common than true LA reactions
- If concern for true type I allergy exists, the patient should be referred to an allergist for testing of alternatives, which may include preservative-free lidocaine, prilocaine, or bupivacaine because there is limited amide crossreactivity
- Other alternatives include tumescent anesthesia with normal saline, benzyl alcohol, or diphenhydramine. Type I latex allergy can range from mild (urticaria) to rare severe reactions (angioedema or anaphylaxis).

Treatment of Actinic keratoses

- Cryotherapy with liquid nitrogen
- Topical chemotherapy creams to treat one area of a field of disease
  - Imiquimod
  - 5-fluoururacil

Imiquimod

Selection of patients – Patients with field of disease (face, nose, ears, scalp, dorsal hands)

Pharmacokinetics

Metabolism: minimal systemic absorption

Excretion: urine and feces <1%; Half-life: 29h

Subclass: Antineoplastics, Topical; Immunomodulators; Warts

Mode of action - exact mechanism of action unknown; stimulates Toll-like receptor 7, modifying immune responses

Dosage-1 packet per application, limit treatment area to 25 cm^2 on face or scalp 2x per week for 16 weeks

Side effects – irritation at application site, flu like symptoms, photosensitivity, reactivation of HSV

Safety – no additional monitoring, No significant interactions known or found for this drug.

Imiquimod – use in pregnancy

Pregnancy

Clinical Summary

use alternative during pregnancy; inadequate human data available to assess risk

Lactation

Clinical Summary

may use while breastfeeding; no human data available, though risk of infant harm and adverse effects on milk production not expected based on minimal maternal systemic absorption

5- Fluorouracil

Selection of patients – Patients with field of disease (face, nose, ears, scalp, dorsal hands)

Pharmacokinetics
Metabolism: liver primarily, tissues; 6% systemic absorption
Excretion: expired CO_2, urine; Half-life: unknown
Mechanism of Action- inhibits DNA and RNA synthesis, used intravenous to treat breast and colon CA

Dosage forms: CRM: 0.5%, 5%; SOL: 2%, 5% apply 0.5% cream qd x1-4wk

Side effects – irritation at application site, flu like symptoms, photosensitivity, reactivation of HSV
Safety – no additional monitoring, No significant interactions known or found for this drug.

5- Fluorouracil – use in pregnancy

Pregnancy

Clinical Summary

avoid use during pregnancy; inadequate human data available, though risk of fetal harm low based on expected limited systemic absorption; risk of teratogenicity based on conflicting human data w/ systemic fluorouracil

Individuals of Reproductive Potential

avoid pregnancy by using effective contraception during tx and x1mo after D/C in female pts

Lactation

Clinical Summary

avoid use on nipple while breastfeeding, otherwise caution advised on other areas; no human data available to assess risk of infant harm, though possible drug excretion into milk if large application site; no human data available to assess effects on milk production

Treatment Basal and Squamous Cell Carcinomas

- This is dependent on the depth and type of skin cancer, for specifics use the NCCN guidelines treatment algorithms
- Electrodessication and curettage
- Excision
- Mohs surgery

National Comprehensive Cancer Network®

NCCN Guidelines Version 2.2022
Basal Cell Skin Cancer

NCCN Guidelines Index
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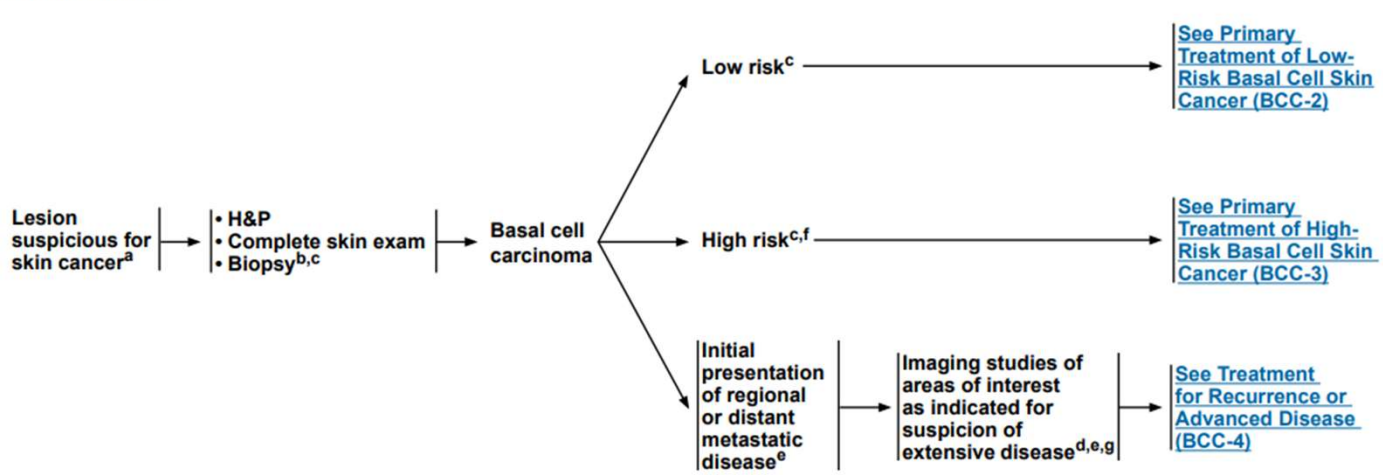
Discussion



[a] For more information, see American Academy of Dermatology Association.
[b] See Principles of Pathology (BCC-A).
[c] See Risk Factors for Recurrence (BCC-B).
[d] Extensive disease includes deep structural involvement such as bone, perineural disease, and deep soft tissue. If perineural disease is suspected, MRI with contrast is preferred. If bone disease is suspected, CT with contrast is preferred unless contraindicated.
[e] For rare cases that present with regional or distant metastatic disease at diagnosis, treat as nodal or distant metastases pathway on BCC-4.
[f] Any high-risk factor places the patient in the high-risk category.
[g] Imaging modality and targeted area should be at the discretion of the treating team based on the suspected extent of disease (ie, local, regional, metastatic). Histologic confirmation is often sufficient to diagnose local recurrence, but MRI can be considered to assess extent of local disease. For nodal or distant metastasis, histologic analysis and/or CT imaging can be employed for confirmation and to gauge extent of disease.

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.

STRATIFICATION TO DETERMINE TREATMENT OPTIONS FOR LOCAL BCC BASED ON RISK FACTORS FOR RECURRENCE[1]

Risk Group	Low Risk	High Risk
Treatment Options	See BCC-2	See BCC-3
H&P		
Location/size	Trunk, extremities <2 cm	Trunk, extremities ≥2 cm
		Cheeks, forehead, scalp, neck, and pretibia (any size)
		Head, neck, hands, feet, pretibia, and anogenital (any size)[3]
Borders	Well-defined	Poorly defined
Primary vs. recurrent	Primary	Recurrent
Immunosuppression	(-)	(+)
Site of prior RT	(-)	(+)
Pathology (See BCC-A)		
Subtype	Nodular, superficial[2]	Aggressive growth pattern[4]
Perineural involvement	(-)	(+)

[1] Any high-risk factor places the patient in the high-risk category.
[2] Low-risk histologic subtypes include nodular, superficial, and other non-agressive growth patterns such as keratotic, infundibulocystic, and fibroepithelioma of Pinkus.
[3] This area constitutes high risk based on location, independent of size. Narrow excision margins due to anatomic and functional constraints are associated with increased recurrence rates with standard histologic processing. Complete margin assessment such as with Mohs or PDEMA is recommended for optimal tumor clearance and maximal tissue conservation. For tumors <6 mm in size, without other high-risk features, other treatment modalities may be considered if at least 4-mm clinically tumor-free margins can be obtained without significant anatomic or functional distortions.
[4] Having (mixed) infiltrative, micronodular, morpheaform, basosquamous, sclerosing, or carcinosarcomatous differentiation features in any portion of the tumor. In some cases basosquamous tumors may be prognostically similar to SCC; clinicopathologic correlation is recommended in these cases.

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National Comprehensive Cancer Network®

NCCN Guidelines Version 2.2022
Basal Cell Skin Cancer

NCCN Guidelines Index
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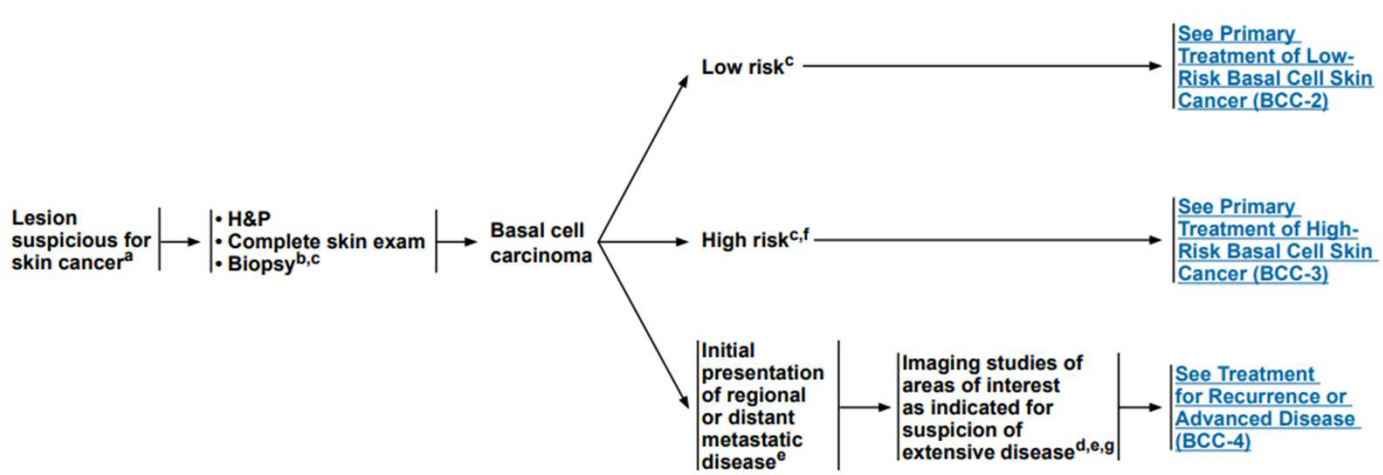
Discussion



[a] For more information, see American Academy of Dermatology Association.
[b] See Principles of Pathology (BCC-A).
[c] See Risk Factors for Recurrence (BCC-B).
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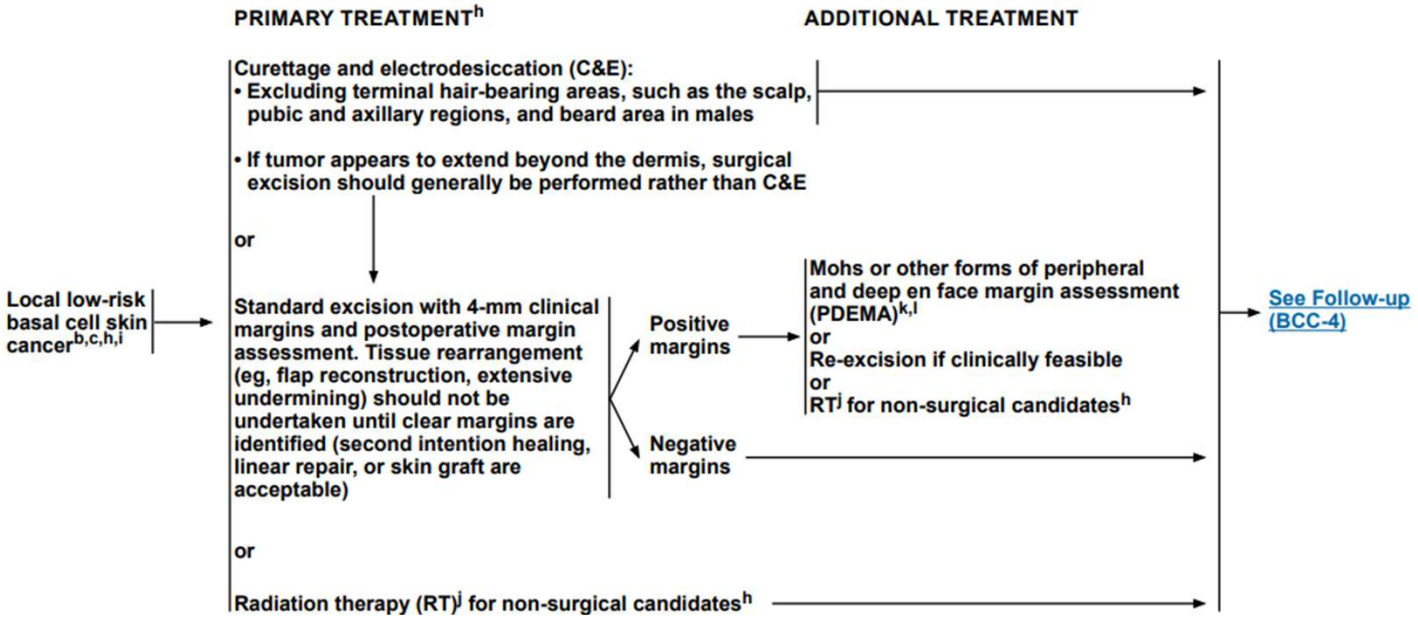

[b] See Principles of Pathology (BCC-A).
[c] See Risk Factors for Recurrence (BCC-B).
[h] See Principles of Treatment (BCC-C).
[i] In patients with superficial basal cell skin cancer, therapies such as topical imiquimod, topical 5-fluorouracil, photodynamic therapy, or cryotherapy may be considered, though cure rates are approximately 10% lower than for surgical treatment modalities. Jansen MHE, et al. J Invest Dermatol 2018;138:527-533. Drew BA, et al. Dermatol Surg 2017;43:1423-1430.
[j] See Principles of Radiation Therapy (BCC-D).
[k] PDEMA with permanent section analysis or intraoperative frozen section analysis is an alternative to Mohs. See Principles of PDEMA Technique (SCC-G).
[l] For tumors on cheeks, forehead, scalp, neck, and pretibia that are <6 mm in depth and confined to the dermis, C&E may be considered as an alternative primary treatment option if Mohs, resection with PDEMA, and standard excision are not feasible due to patient comorbidities. See Risk Factors for Recurrence (BCC-B).

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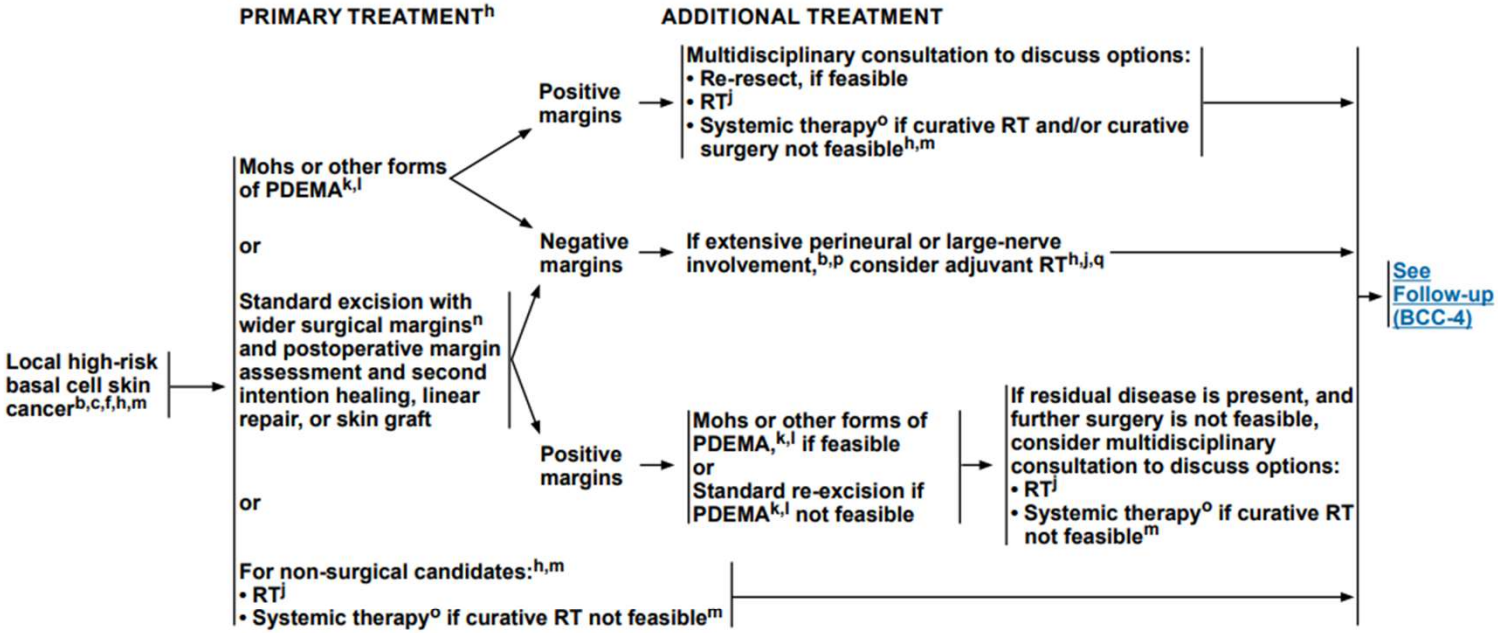

See footnotes on BCC-3A

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Treatment of melanoma

- Referral to dermatologist, med oncologist, surgical oncologist for treatment
- Excision
- Sentinel lymph node biopsy
- Chemotherapy/immunotherapy

Need for skin cancer screenings post cancer diagnosis

- Actinic keratosis – once yearly
- NMSC or Melanoma
  - skin examination should be performed at least every 6-12 months for 2 years and then annually

Patient education

Daily sun protection of the hand, ears, dorsal hands, forearms, v of the neck

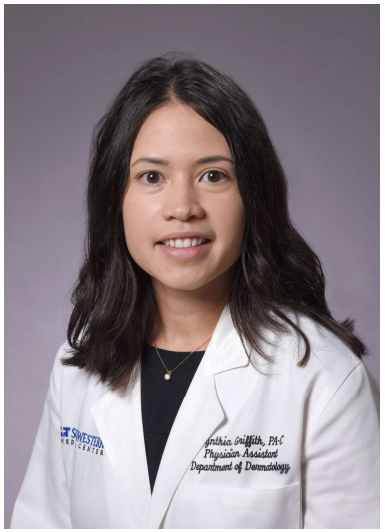
- SPF 30 at least

Wide brim hats

Protecting children prior to age 18 from blistering sun burns

High Risk Skin Cancer Transplant Clinic
UT Southwestern
Department of Dermatology
214-645-2400

Dermatology Physician Assistant:
Cynthia Griffith, PA-C
903-926-6111



References

Strickler AG, Shah P, Bajaj S, et al. Preventing complications in dermatologic surgery: Presurgical concerns [published correction appears in J Am Acad Dermatol. 2021 Aug;85(2):535]. *J Am Acad Dermatol*. 2021;84(4):883-892. doi:10.1016/j.jaad.2020.10.099

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Zakhem GA, Pulavarty AN, Lester JC, Stevenson ML Skin cancer in people of color: a systematic review. American Journal of Clinical Dermatology. (2022) 23:137-151

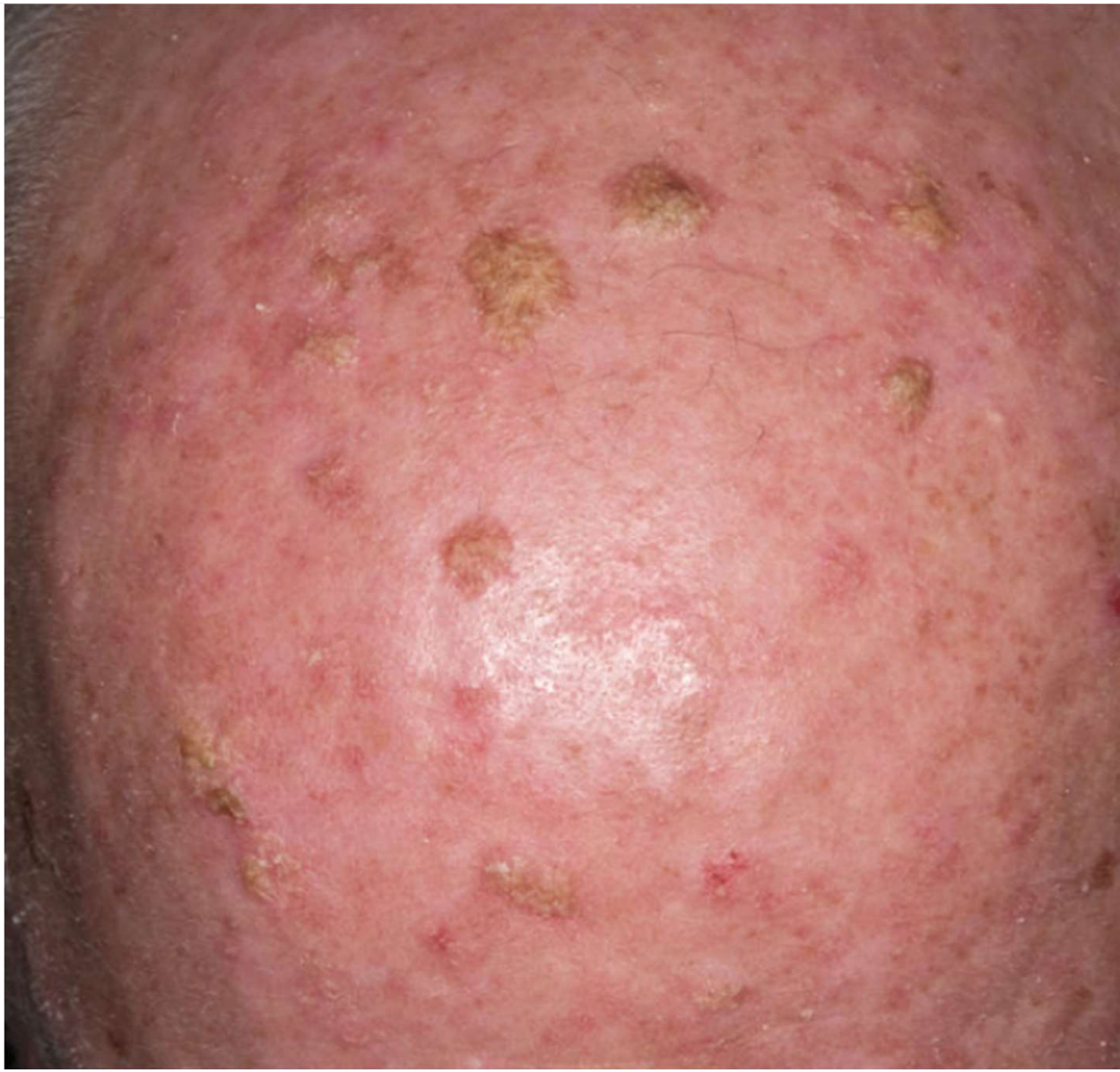
UT Southwestern Medical Center

Questions and discussion


Recognize malignant skin lesions,
risk factors for
development, diagnosis and
treatment options

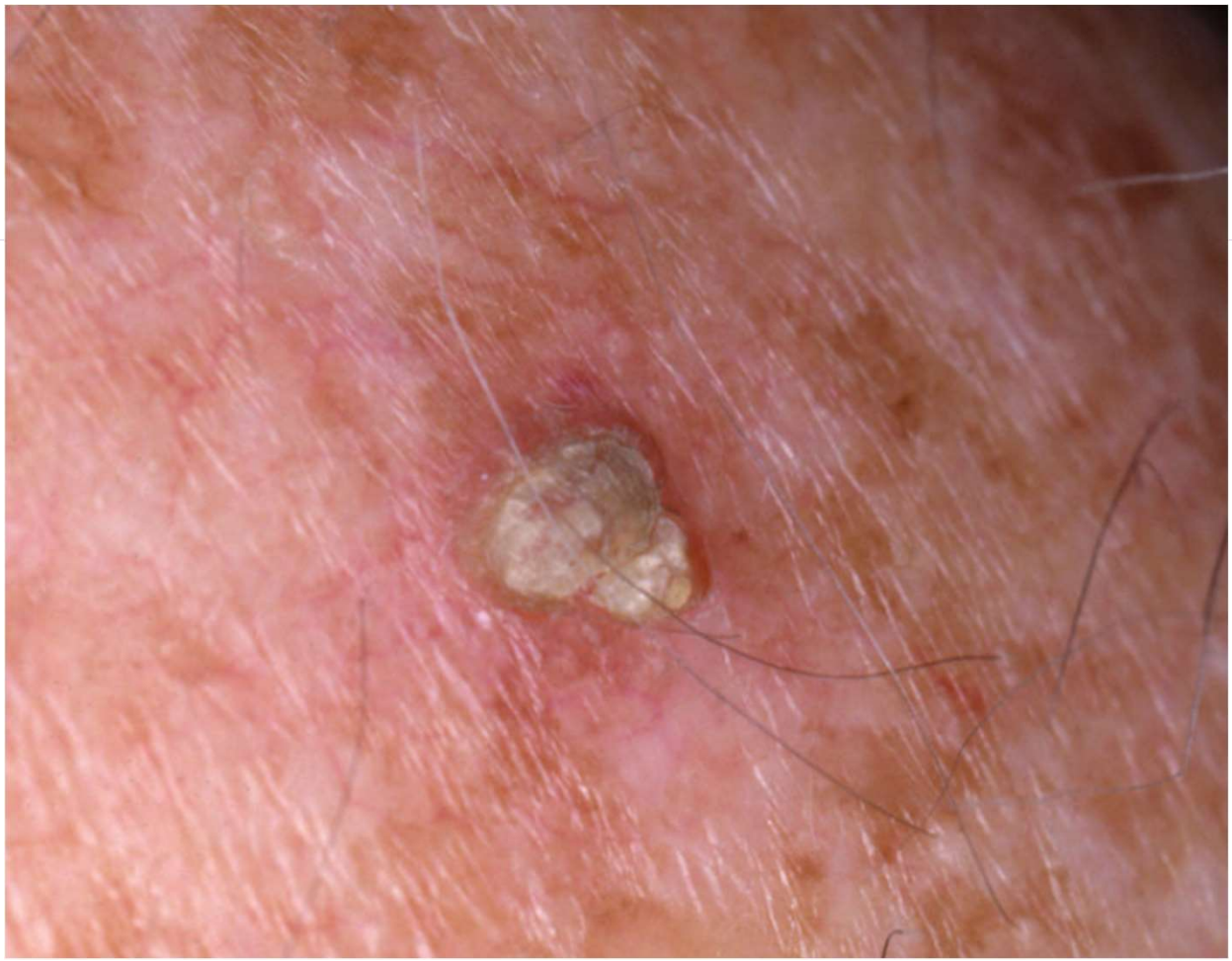
Actinic Keratoses

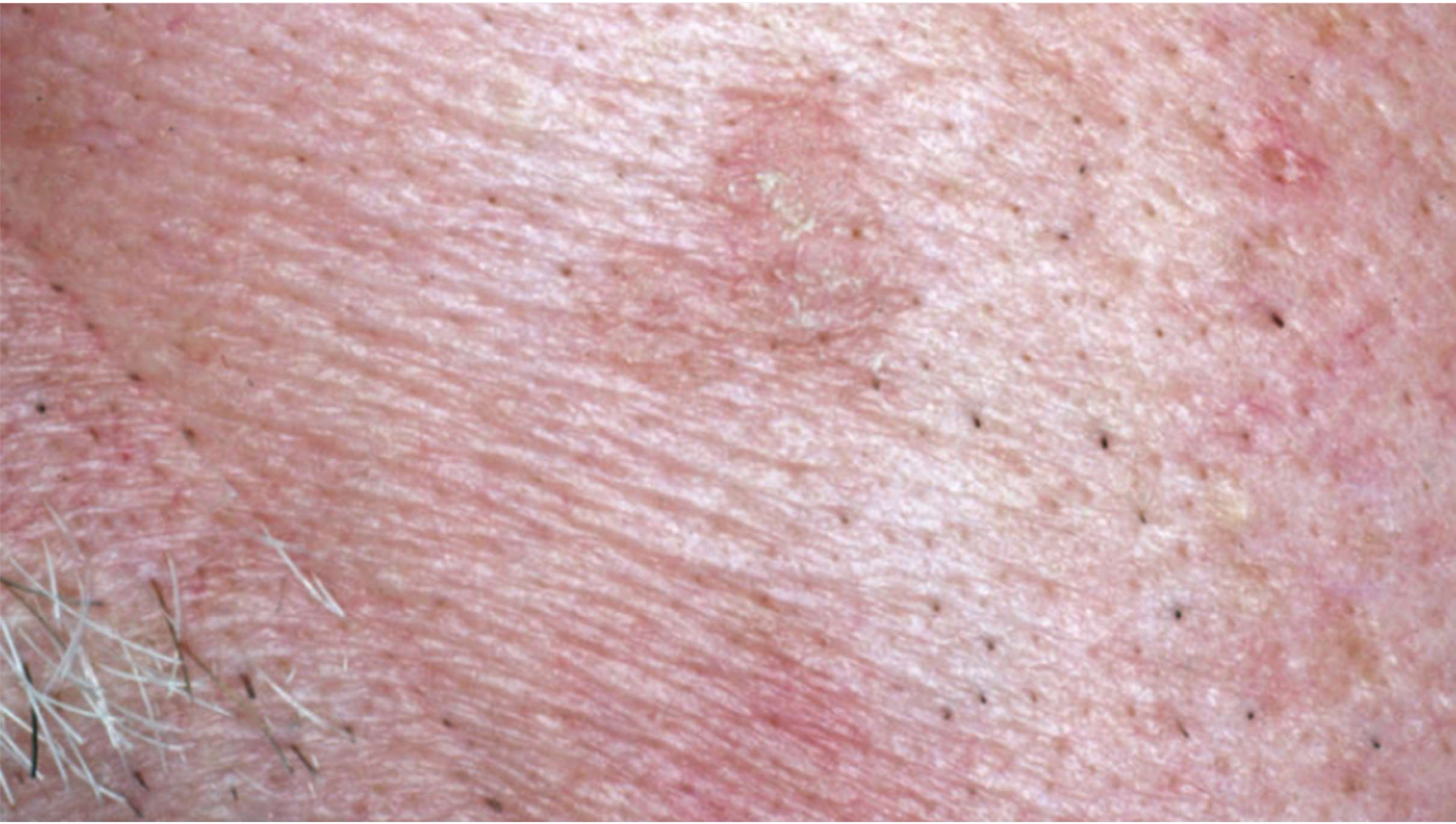
- Precursor to Squamous Cell Carcinoma
- Rough, scaly on sun exposed skin (scalp, dorsal hands, lower lip, ears, nose)
- Can self resolve in most cases



Actinic Keratoses

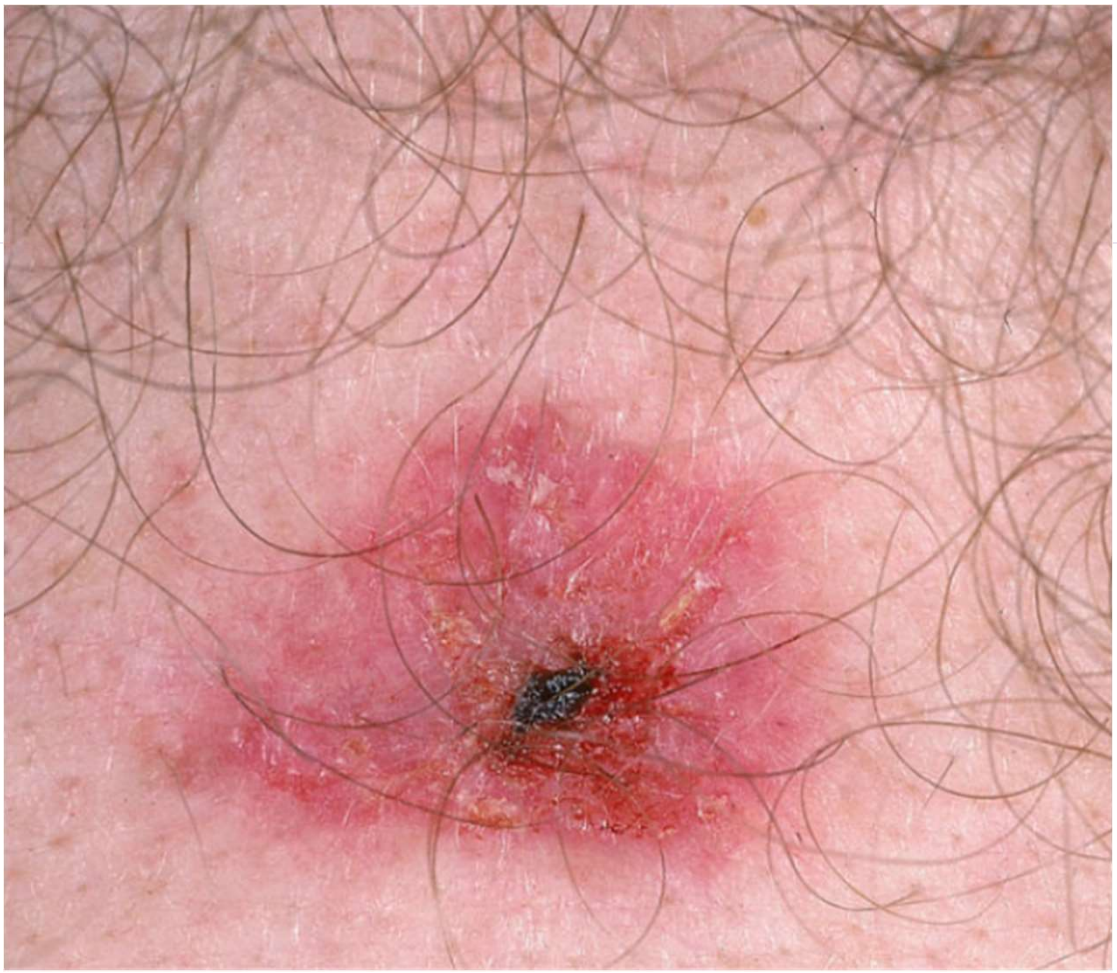
- frequency of actinic keratoses increases with age and cumulative lifetime sun exposure
- more common in immunosuppressed individuals (especially after solid organ transplantation) and in males
- Some medications (ie, capecitabine, sorafenib) may induce inflammation of existing actinic keratoses





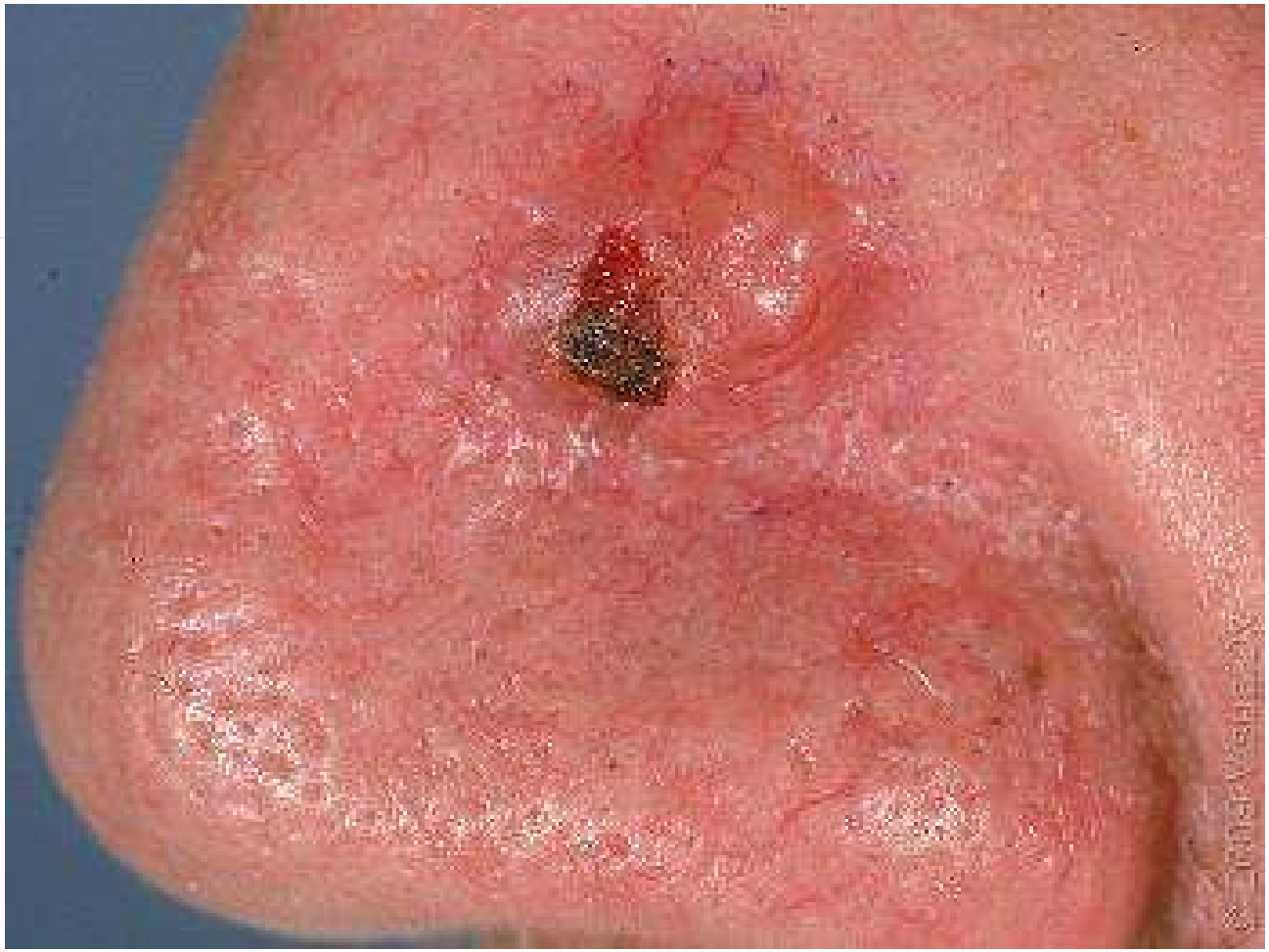
Basal Cell Carcinoma

- most common type of skin cancer
- Typically in sites of intermittent sun exposure
- Pearly papules with rolled borders and telangiectasia



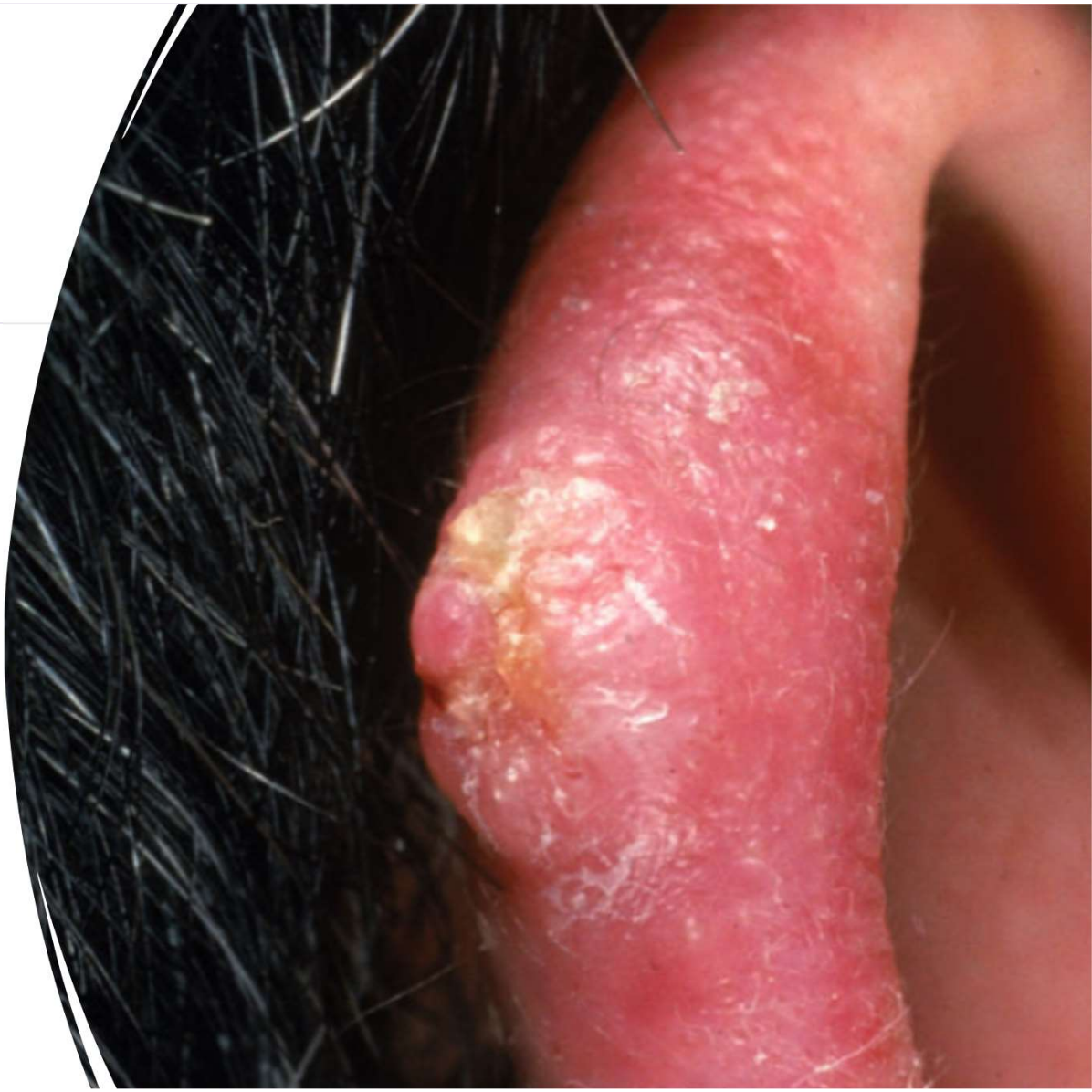
Basal Cell Carcinoma

- many subtypes of BCC, including superficial, nodular, pigmented, and infiltrating
- risk factors for BCCs include environmental exposure (ie, ionizing radiation, indoor tanning, chemicals such as arsenic, psoralen plus UVA, and coal tar), phenotype (freckling, red hair, fair skin that always burns and never tans), immunosuppression such as organ transplantation
- almost never fatal, local tissue destruction and disfiguration occur



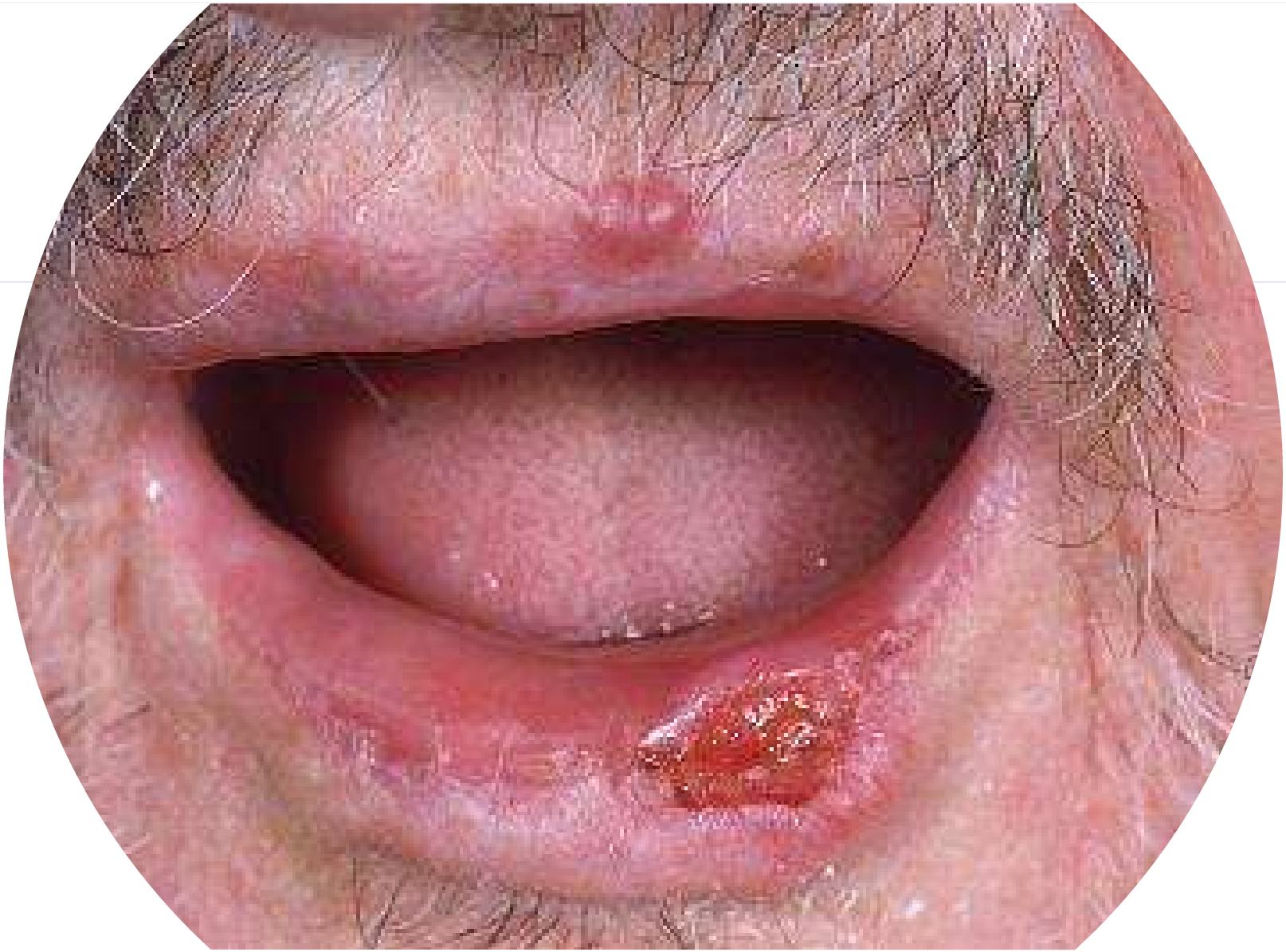
Squamous cell carcinoma

- Commonly on chronically sun exposed skin, dorsal hands, lower lips, ears
- Scaly, hyperkeratotic papule



Squamous Cell Carcinoma

- Risk factors: ultraviolet (UV) exposure, solid organ transplantation, ionizing radiation exposure, cigarette smoking, human papillomavirus (HPV), chemical exposure (ie, arsenic, mineral oil, coal tar, soot, mechlorethamine, polychlorinated biphenyls, and psoralen plus UVA treatment), freckling, red hair, immunosuppression such as HIV disease / AIDS, and chronic nonhealing wounds

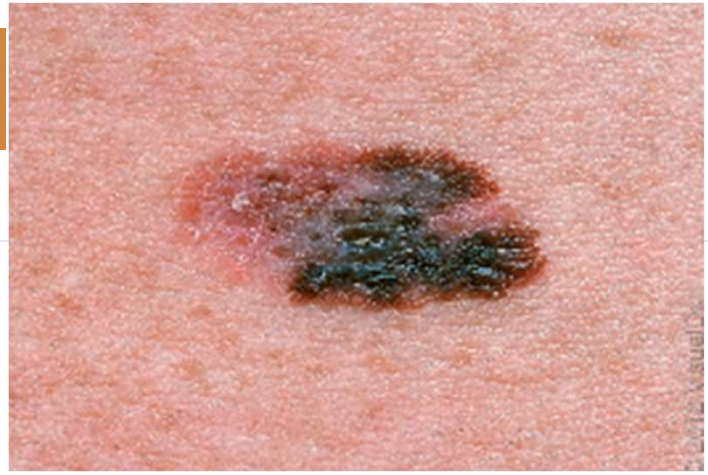


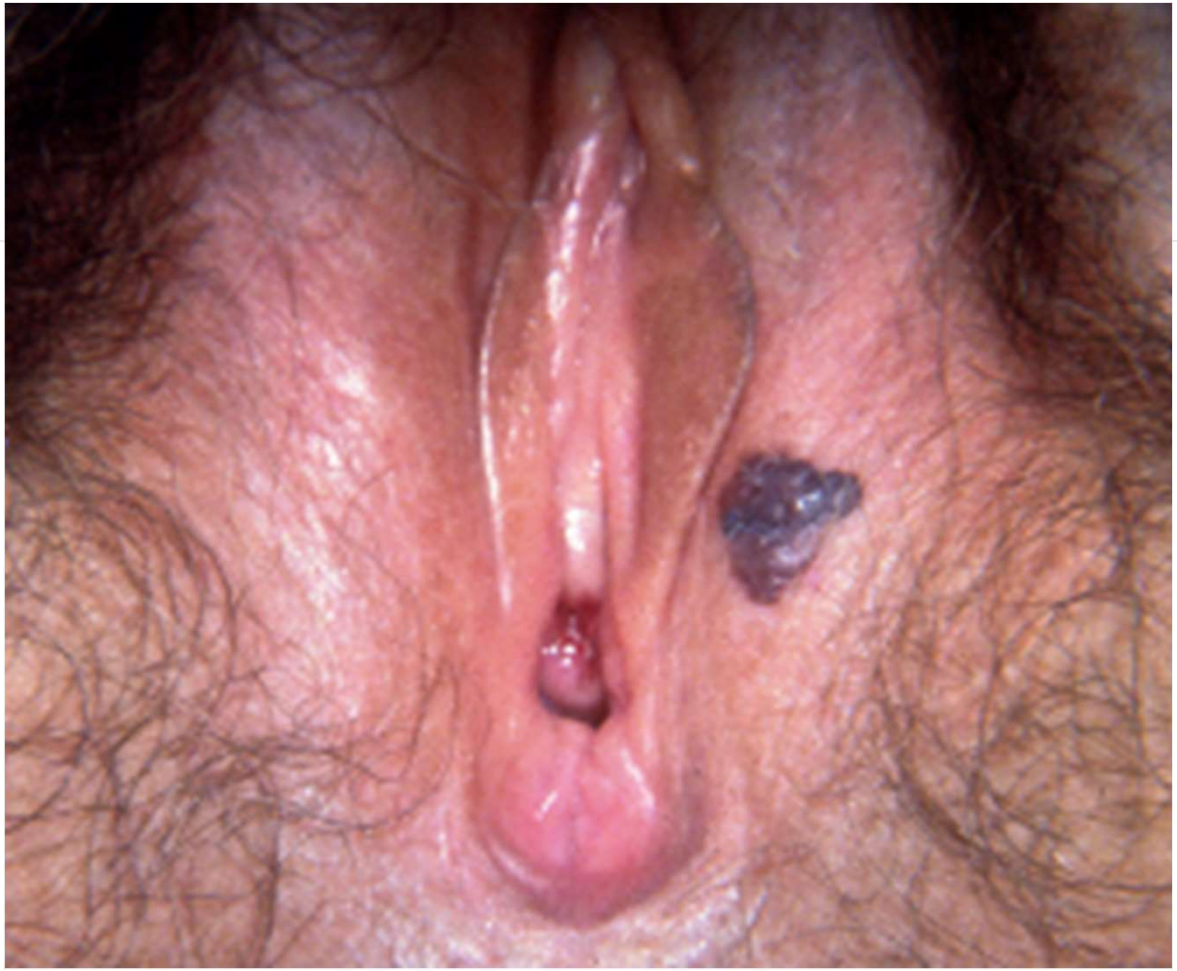
Melanoma

Aggressive malignancy of melanocytes, can present on skin, mucous membranes, nails or eye

Risk factors: family history or prior personal history of melanoma, a history of severe or blistering sunburns, a changing mole, a giant congenital nevus (greater than 20 cm), older age, lighter skin phototype, and multiple atypical nevi.

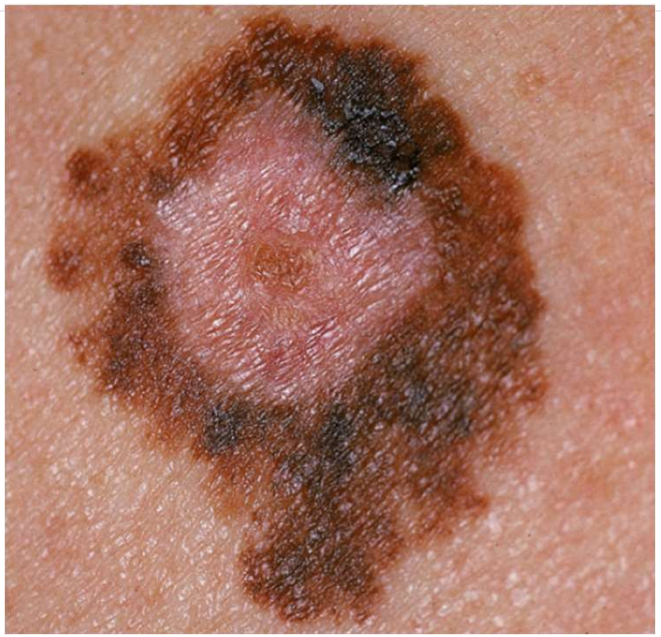
Primary prognostic feature of melanoma is the depth of invasion





Eval of pigmented skin lesions

- Asymmetric
- Borders that are irregular
- Colors, different colors specifically red, white, blue, pink within the mole
- Diameter greater than pencil eraser
- Evolving or changing over time



Skin Biopsy Principles

Provide complete, accurate clinical description and differential diagnosis to the pathologist → if this is not possible refer to avoid taking the wrong type of biopsy

Inflammatory conditions can involve the subcutaneous fat and blood vessels and need a punch biopsy

If melanoma in suspected biopsy the entire lesion (depth is important for prognosis and treatment)

Ulcers should be biopsied from the edge of the lesion

Tumors should be sampled from the thickest portion when possible

Annular lesions biopsy from the leading edge

Skin Biopsy Principles

Prepare for bleeding in vascular areas like scalp

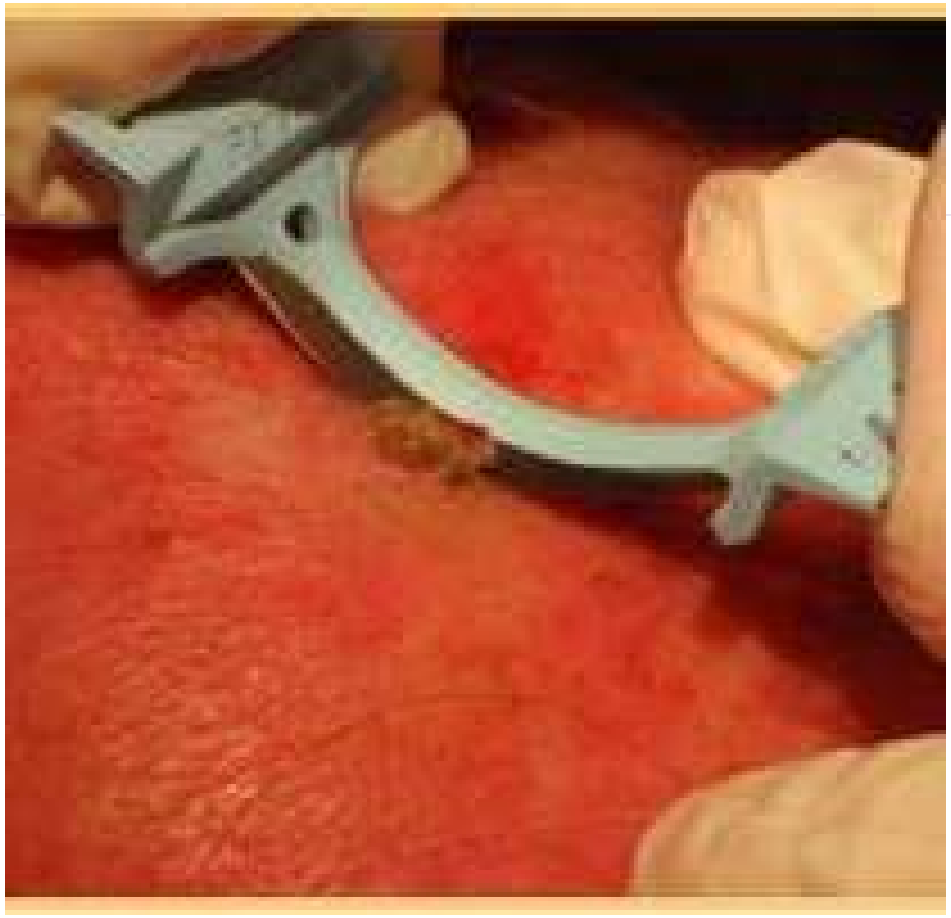
If possible avoid biopsies below the knee, especially in diabetics, as they are prone to infection and long healing times

Prepared patients for the type of scarring expected

Do not put multiple specimens in one container

Tangential Shave biopsy

- Materials required: alcohol prep swab, local anesthetic (xylocaine with epi), drysol, cotton tipped applicator, Vaseline, bandage, stainless steel blade
- Cleanse the area with alcohol prep swab
- Inject local anesthetic
- Remove the entire lesion by applying pressure to the ends of the blade to bend the blade and using a back and forth sawing motion to remove the lesion from the skin, you need at least pin point bleeding to ensure correct depth
- Apply drysol to the wound for bleeding
- Place specimen in formalin bottle for pathology



Punch Shave biopsy

- Materials required: alcohol prep swab, local anesthetic (xylocaine with epi), gauze, topical surgical prep swab, gloves, punch biopsy tool (2-8mm in size) forceps, scissors, needle holder, formalin, sutures, Vaseline, bandage, stainless steel blade
- Cleanse the area with alcohol prep swab
- Inject local anesthetic
- Surgical prep scrub applied to the skin in concentric rings from the lesion
- Stretch the skin perpendicular to the relaxed skin tension lines, punch instrument inserted into skin in a rotating fashion down to the subcutaneous fat. Forceps used to grab the specimen at the subcutaneous fat, curved sharp scissors used to cut the specimen at the fat.
- Suture with interrupted sutures
- Place specimen in formalin bottle for pathology

Treatment of Actinic keratoses

- Cryotherapy with liquid nitrogen
- Topical chemotherapy creams to treat one area of a field of disease
  - Imiquimod
  - 5-fluoururacil

Imiquimod

Selection of patients – Patients with field of disease (face, nose, ears, scalp, dorsal hands)

Pharmacokinetics

Metabolism: minimal systemic absorption

Excretion: urine and feces <1%; Half-life: 29h

Subclass: Antineoplastics, Topical; Immunomodulators; Warts

Mode of action - exact mechanism of action unknown; stimulates Toll-like receptor 7, modifying immune responses

Dosage-1 packet per application, limit treatment area to 25 cm^2 on face or scalp 2x per week for 16 weeks

Side effects – irritation at application site, flu like symptoms, photosensitivity, reactivation of HSV

Safety – no additional monitoring, No significant interactions known or found for this drug.

Imiquimod – use in pregnancy

Pregnancy

Clinical Summary

use alternative during pregnancy; inadequate human data available to assess risk

Lactation

Clinical Summary

may use while breastfeeding; no human data available, though risk of infant harm and adverse effects on milk production not expected based on minimal maternal systemic absorption

5- Fluorouracil

Selection of patients – Patients with field of disease (face, nose, ears, scalp, dorsal hands)

Pharmacokinetics

Metabolism: liver primarily, tissues; 6% systemic absorption

Excretion: expired CO_2, urine; Half-life: unknown

Mechanism of Action- inhibits DNA and RNA synthesis, used intravenous to treat breast and colon CA

Dosage forms: CRM: 0.5%, 5%; SOL: 2%, 5% apply 0.5% cream qd x1-4wk

Side effects – irritation at application site, flu like symptoms, photosensitivity, reactivation of HSV

Safety – no additional monitoring, No significant interactions known or found for this drug.

5- Fluorouracil – use in pregnancy

Pregnancy

Clinical Summary

avoid use during pregnancy; inadequate human data available, though risk of fetal harm low based on expected limited systemic absorption; risk of teratogenicity based on conflicting human data w/ systemic fluorouracil

Individuals of Reproductive Potential

avoid pregnancy by using effective contraception during tx and x1mo after D/C in female pts

Lactation

Clinical Summary

avoid use on nipple while breastfeeding, otherwise caution advised on other areas; no human data available to assess risk of infant harm, though possible drug excretion into milk if large application site; no human data available to assess effects on milk production

Treatment Basal and Squamous Cell Carcinomas

- This is dependent on the depth and type of skin cancer, for specifics use the NCCN guidelines treatment algorithms
- Electrodessication and curettage
- Excision
- Mohs surgery

Treatment of Melanoma

- Referral to dermatologist, med oncologist, surgical oncologist for treatment
- Excision
- Sentinel lymph node biopsy
- Chemotherapy/immunotherapy

Need for skin cancer screenings post cancer diagnosis

- Actinic keratosis – once yearly
- NMSC or Melanoma
  - skin examination should be performed at least every 6-12 months for 2 years and then annually

Patient education

Daily sun protection of the hand, ears, dorsal hands, forearms, v of the neck

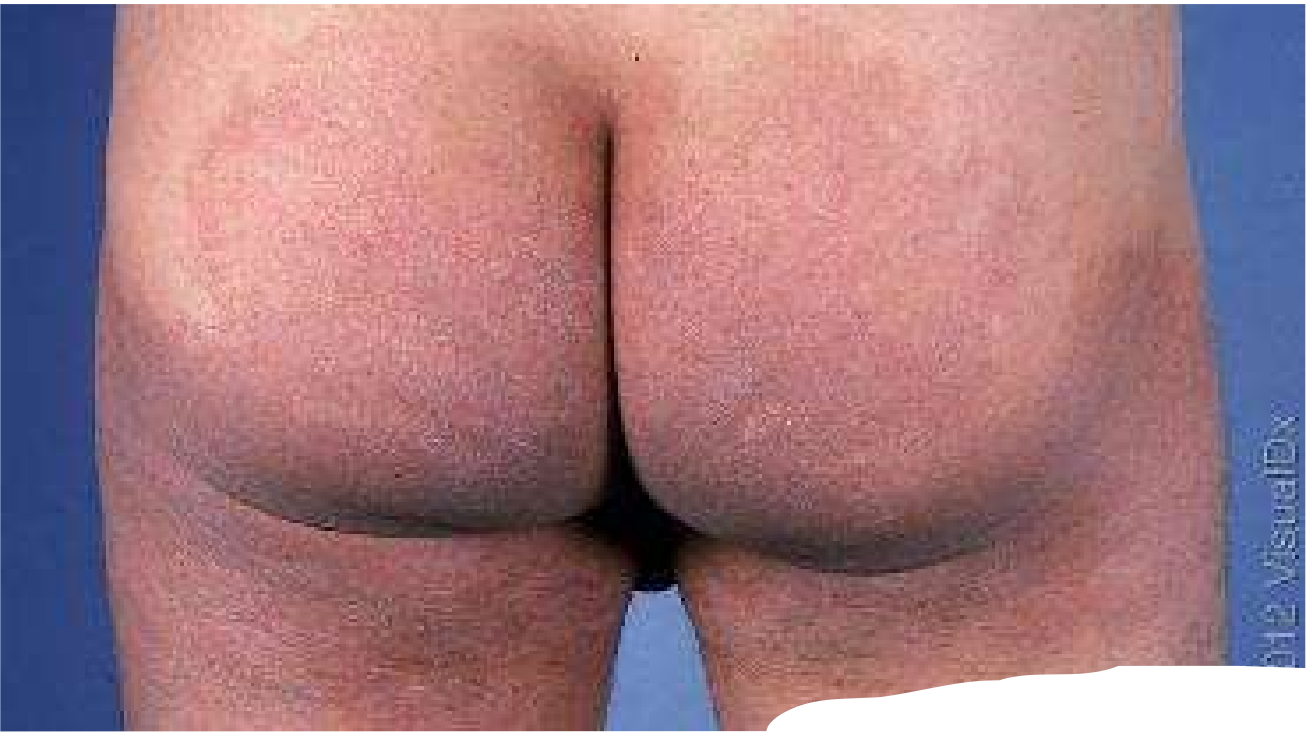
- SPF 30 at least

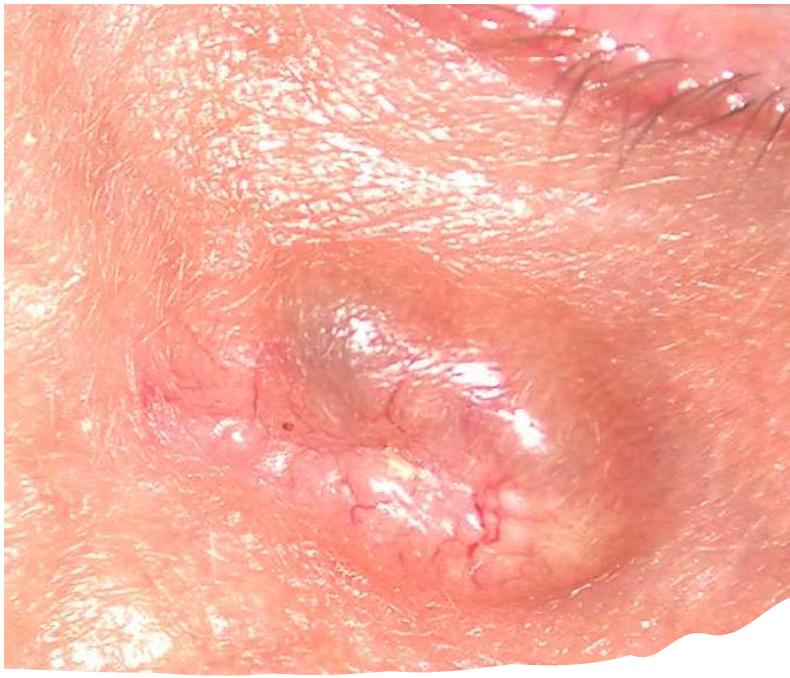
Wide brim hats

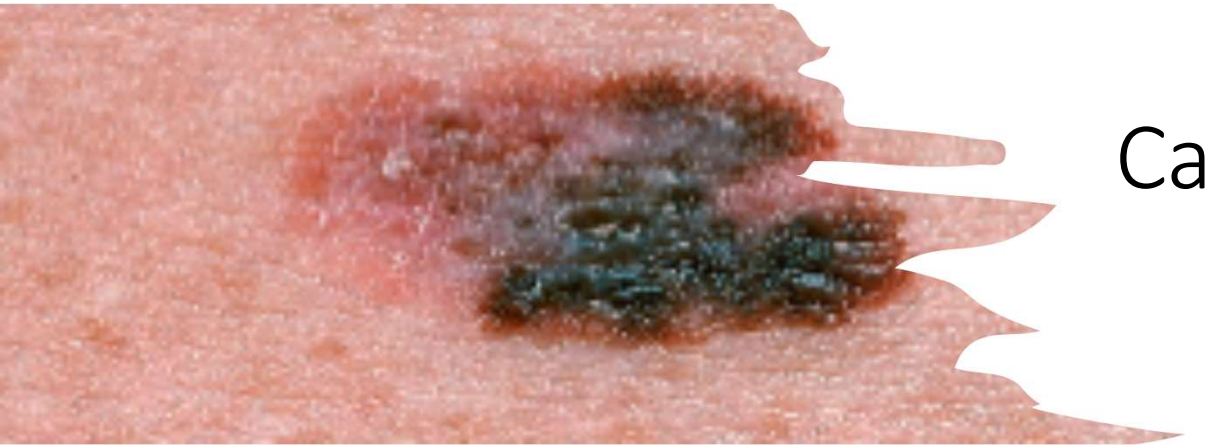
Protecting children prior to age 18 from blistering sun burns

Take Home Points

- Recognize common bacterial infections of the skin and treatment
- Recognize common fungal infections of the skin, diagnosis and treatment
- Recognize malignant skin lesions, risk factors for development, diagnosis and treatment options







Cancer

Melanoma

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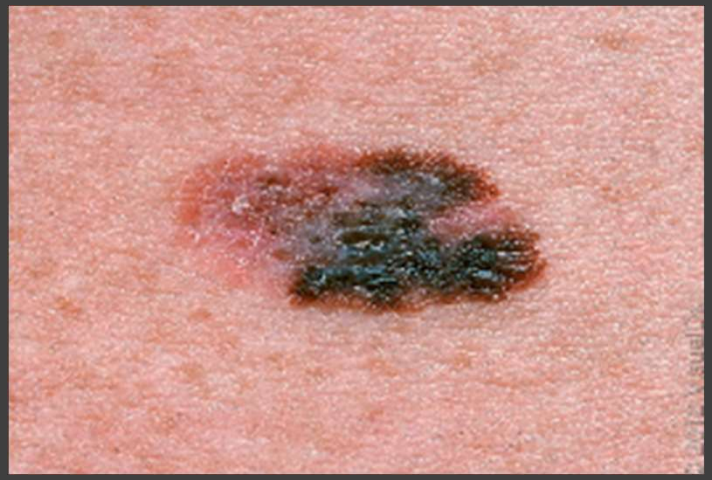

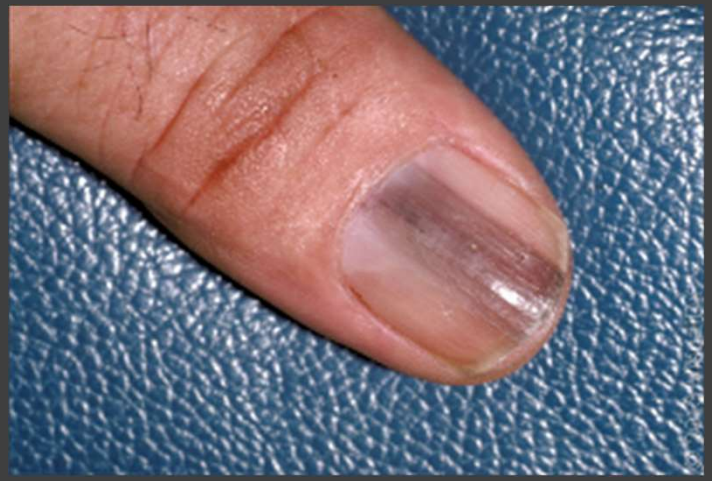

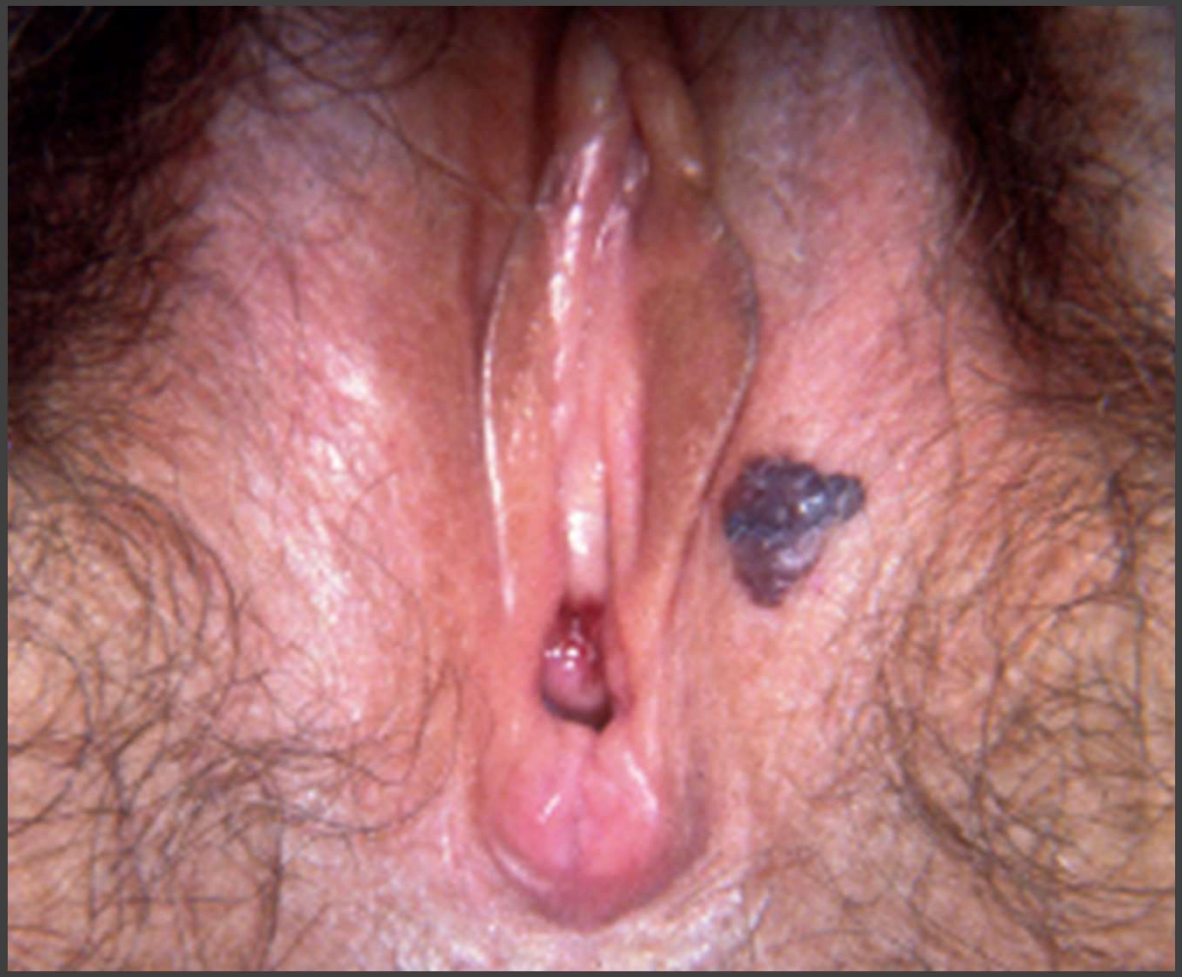

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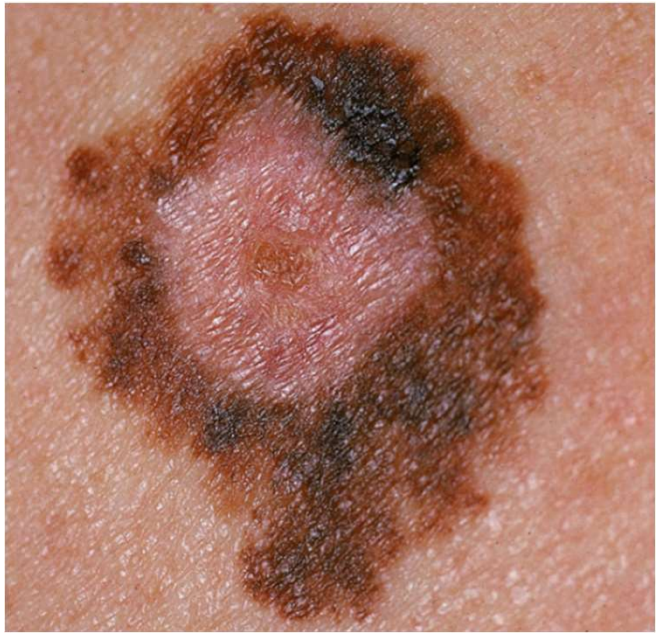
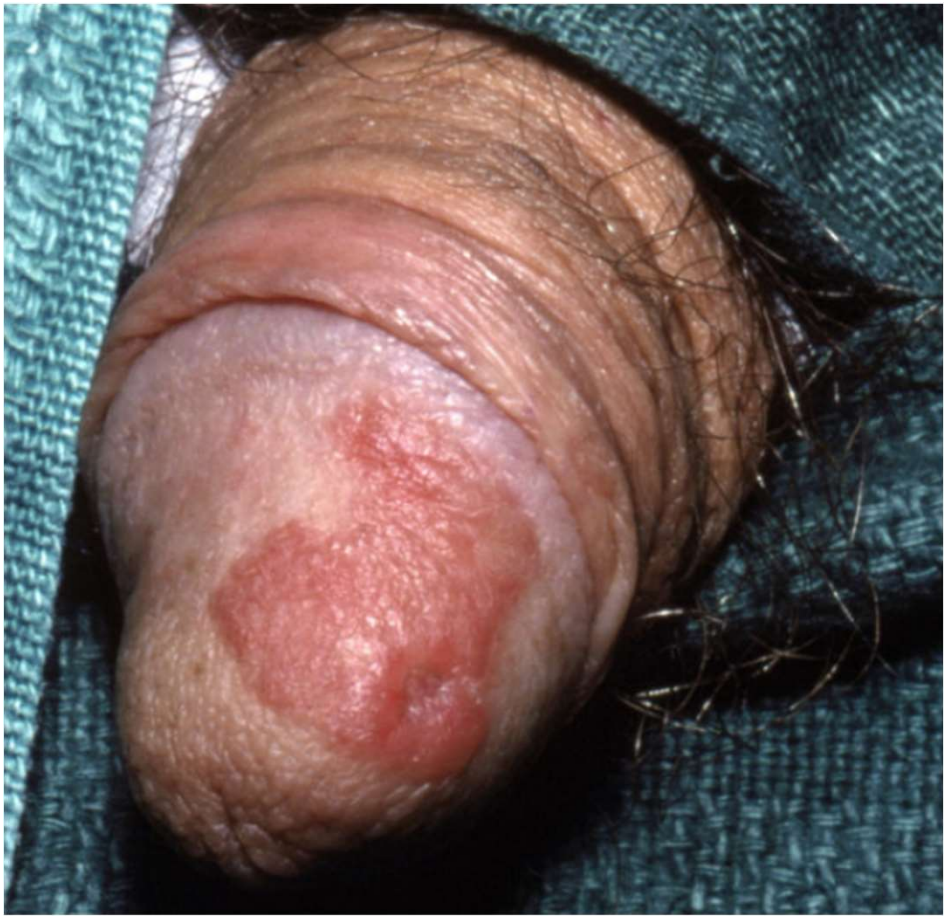


Zebras – Less common types of skin cancer

Squamous cell carcinoma of the penis

- AKA Erythroplasia of Queyrat, AKA, Bowen's disease
- well-demarcated, velvety, erythematous plaque, but its appearance may be variable
- most commonly due to human papillomavirus (HPV) type 16
- common in elderly, uncircumcised males

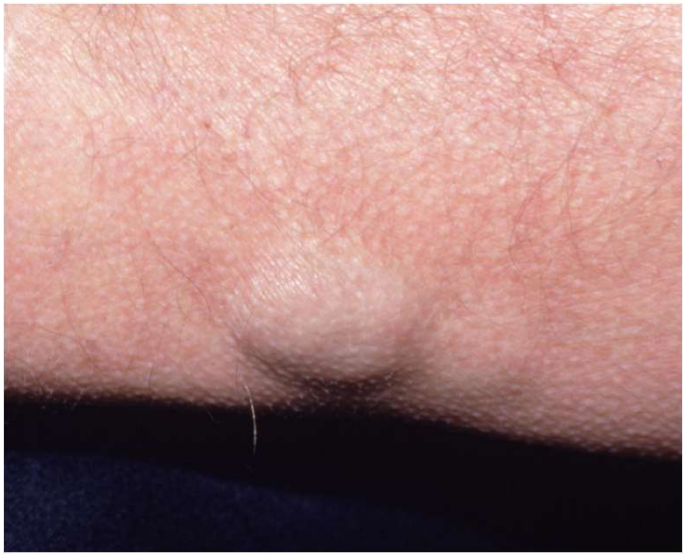


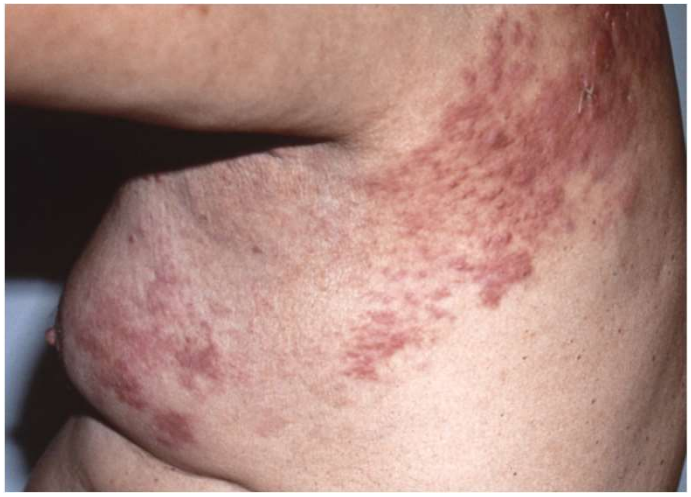
Squamous cell carcinoma of the penis

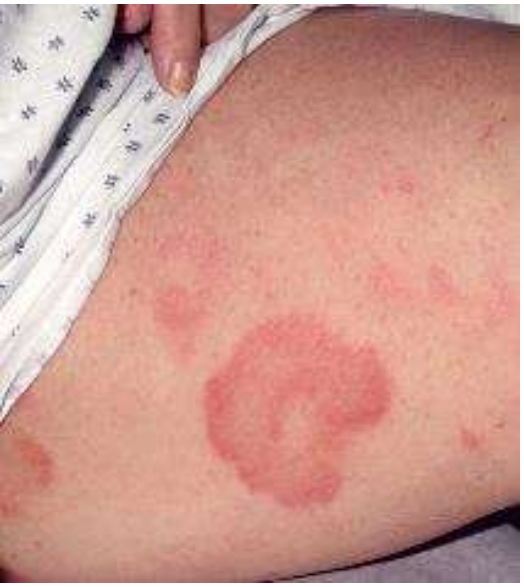
- Risk factors HPV infection, immunosuppression (such as human immunodeficiency virus [HIV] infection), ultraviolet (UV) light exposure, phimosis, multiple sexual partners, smoking, other underlying dermatoses (lichen sclerosis or lichen planus), and any form of chronic irritation
- Biopsy should be performed for any genital lesion that is pigmented, erosive, bleeding, and/or resistant to topical steroid therapy

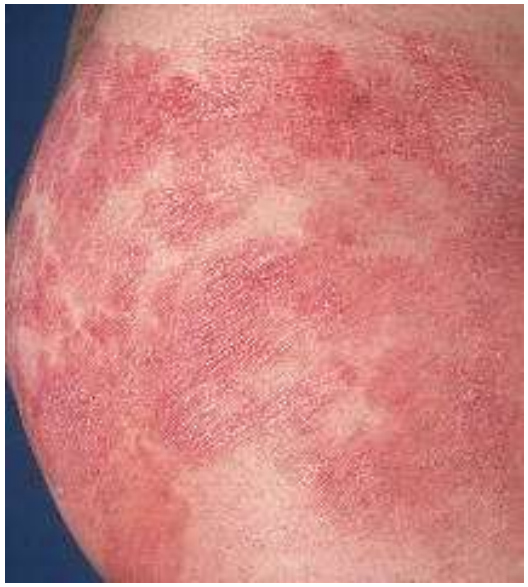
Cutaneous metastases

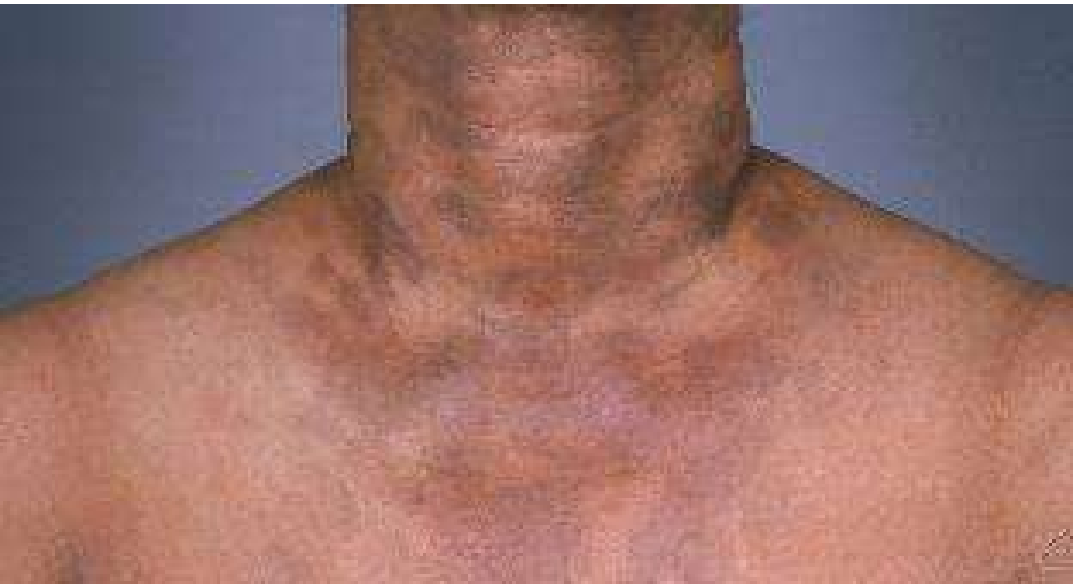
- Can be subtle or appear to be a subcutaneous growth
- Cyst without a punctum should be biopsied
- May or may not have a history of malignancy
- most frequent primary tumors are carcinomas of the breast, stomach, lung, uterus, kidney, ovary, colon, bladder.
- Cutaneous metastases usually indicate a very poor prognosis, with an approximate 75% one-year mortality rate
- firm, red to pink nodules
- most common on the chest, abdomen, and head and neck
- Sister Mary Joseph nodule is metastatic carcinoma to the umbilicus from intraabdominal carcinoma









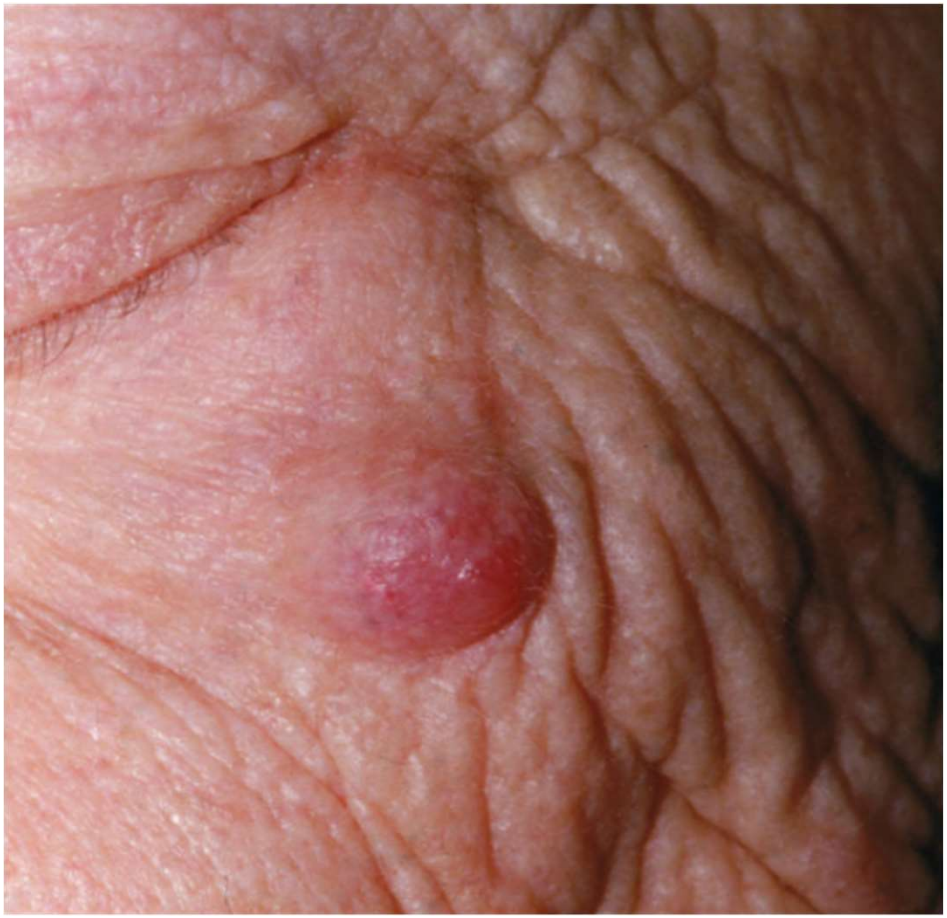


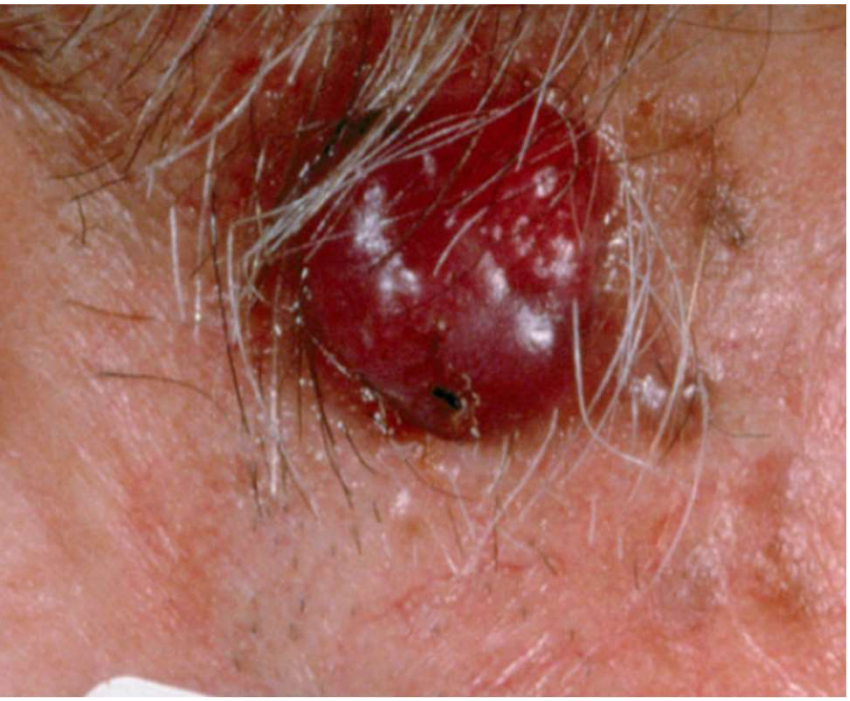
Mycosis Fungoides

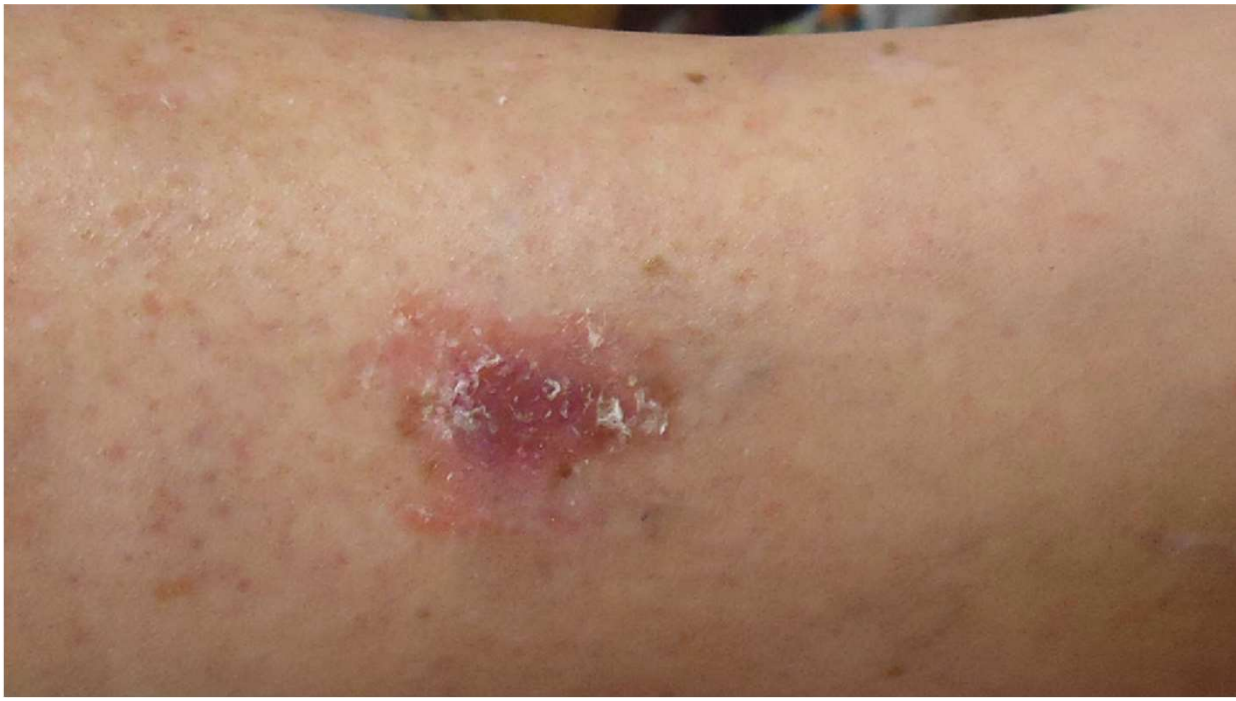
- Most common type of Cutaneous T cell lymphoma
- CP: patches or thin plaques with fine scale that measure 2-20 cm and favor the sun-protected areas of the body, including buttocks and posterior axillary folds
- Many patients have a long history of generalized eczematous or psoriasiform dermatitis before being diagnosed with MF.
- Early patch stage disease may not be diagnostic on histopathology, Numerous biopsies are necessary
- Typically mistaken for atopic dermatitis, psoriasis, tinea corporis for years

Merkle cell Carcinoma

- Cutaneous neuroendocrine carcinomas
- They most frequently occur on the head and neck but can also be seen elsewhere on the body
- MCC favors older adults with a median age of 75-80 years old at the time of diagnosis
- More common among individuals of Northern European descent
- Two important etiologic factors for MCC are the Merkel cell polyomavirus and ultraviolet (UV) exposure
- Asymptomatic solitary nodule
- Despite aggressive treatment, recurrence rates are high, metastases are common, and 5-year relative survival is approximately 60%

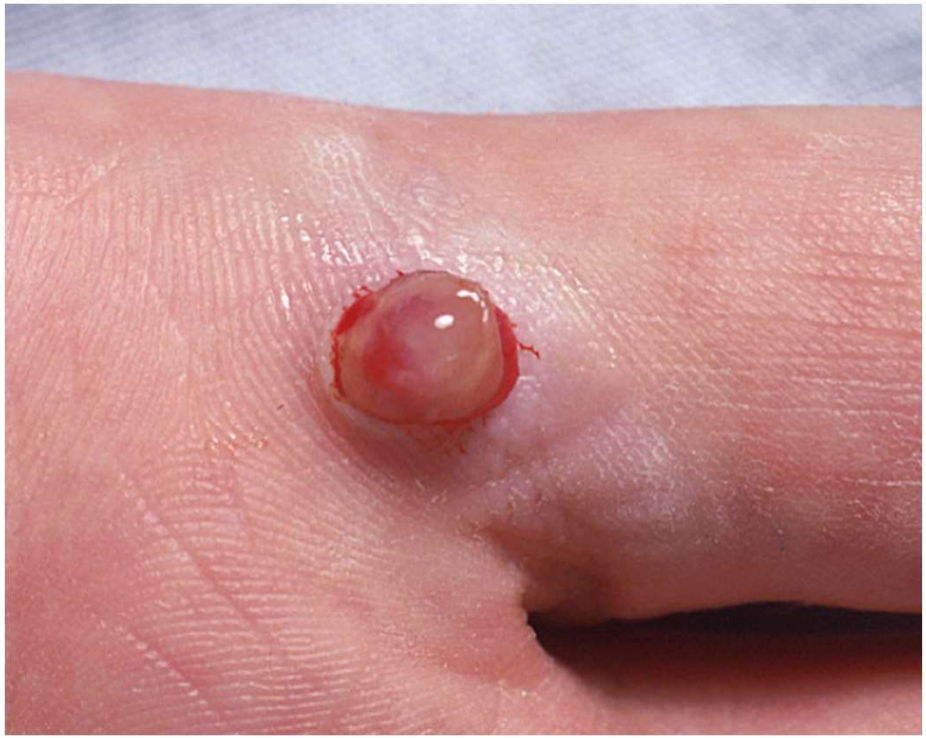


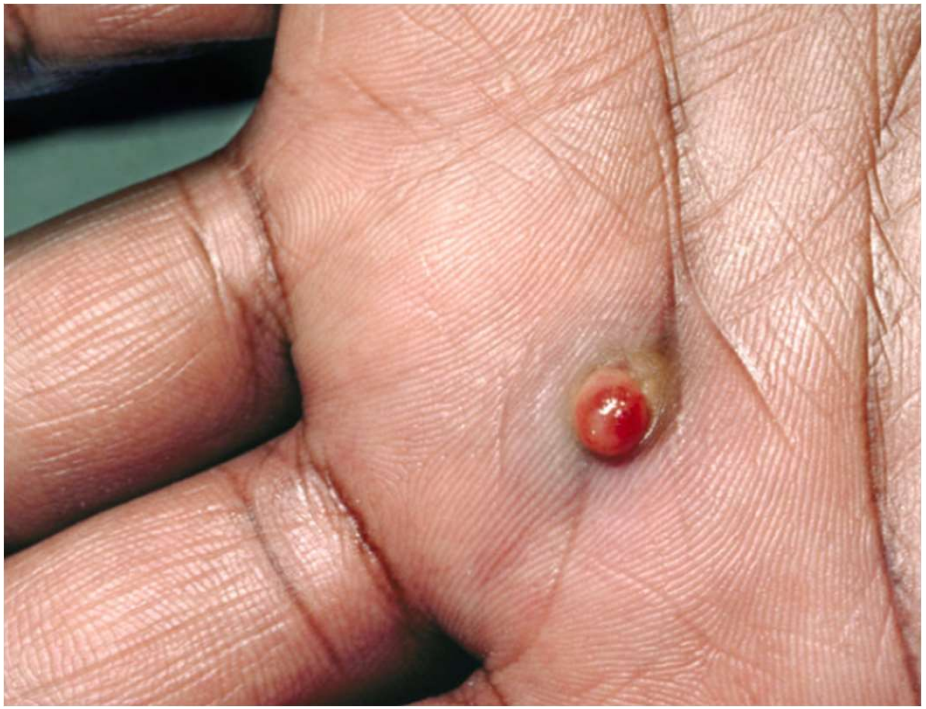




Amelanotic melanoma

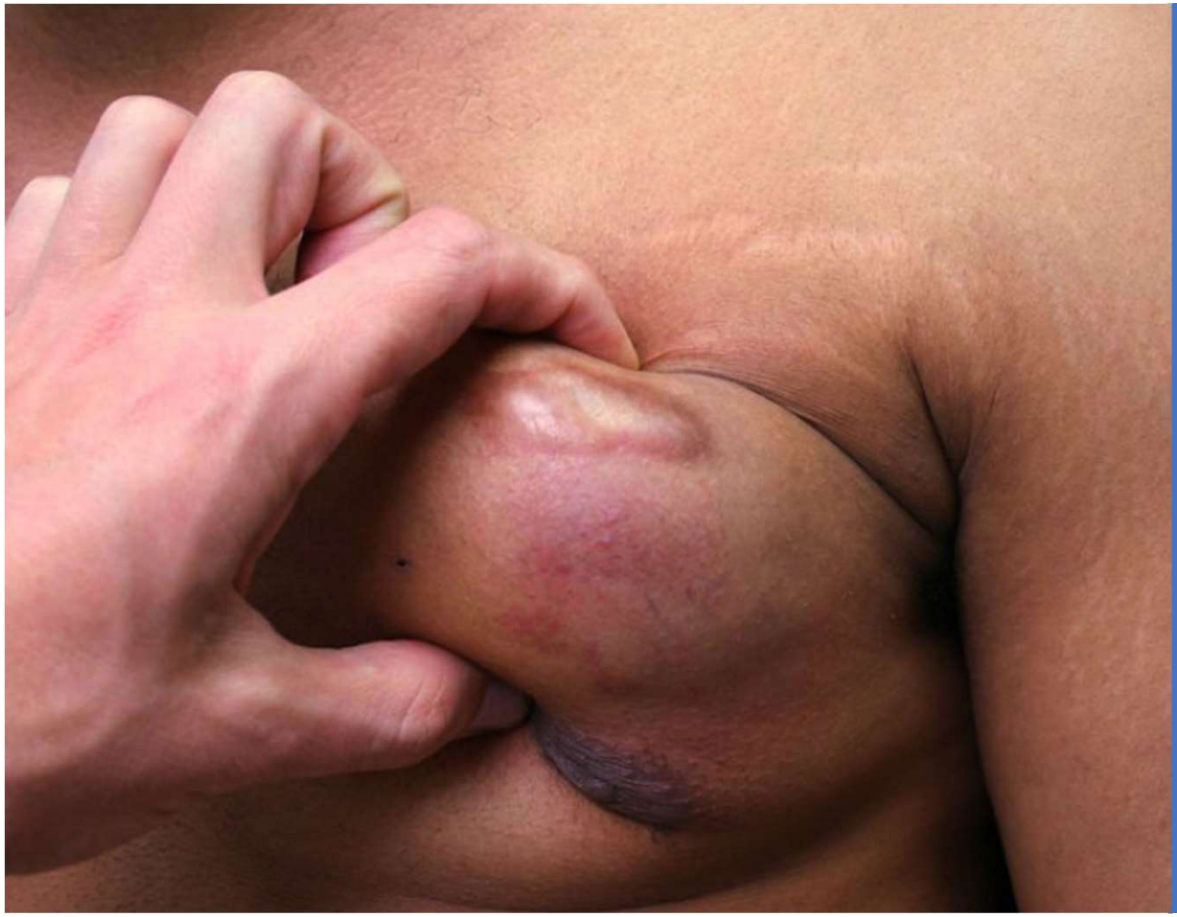
- clinical subtype of cutaneous melanoma with little to no pigment on visual inspection
- ranging from 2%-8% of all cases
- worse overall survival rate than the pigmented counterpart
- associated with the presence of red hair, older age





Pyogenic granuloma

- Rapidly growing, benign vascular proliferations of the skin and mucous membranes
- No predisposing factors
- Nearly 5% of pregnant women develop the lesion
- Friable, bright red papule or nodule that bleeds spontaneously or after trauma



Dermatofibrosarcoma protuberans (DFSP)

- intermediate-grade soft tissue sarcoma
- slow-growing, red-brown, indurated plaque with irregular nodularity
- most common site is the trunk, followed by the proximal extremities, head, and neck
- uncommon neoplasm with low metastatic potential, carrying a 2%-5% risk of distant metastasis.
- it can be locally aggressive and has a high rate of recurrence after surgical excision

Skin Biopsy Principles

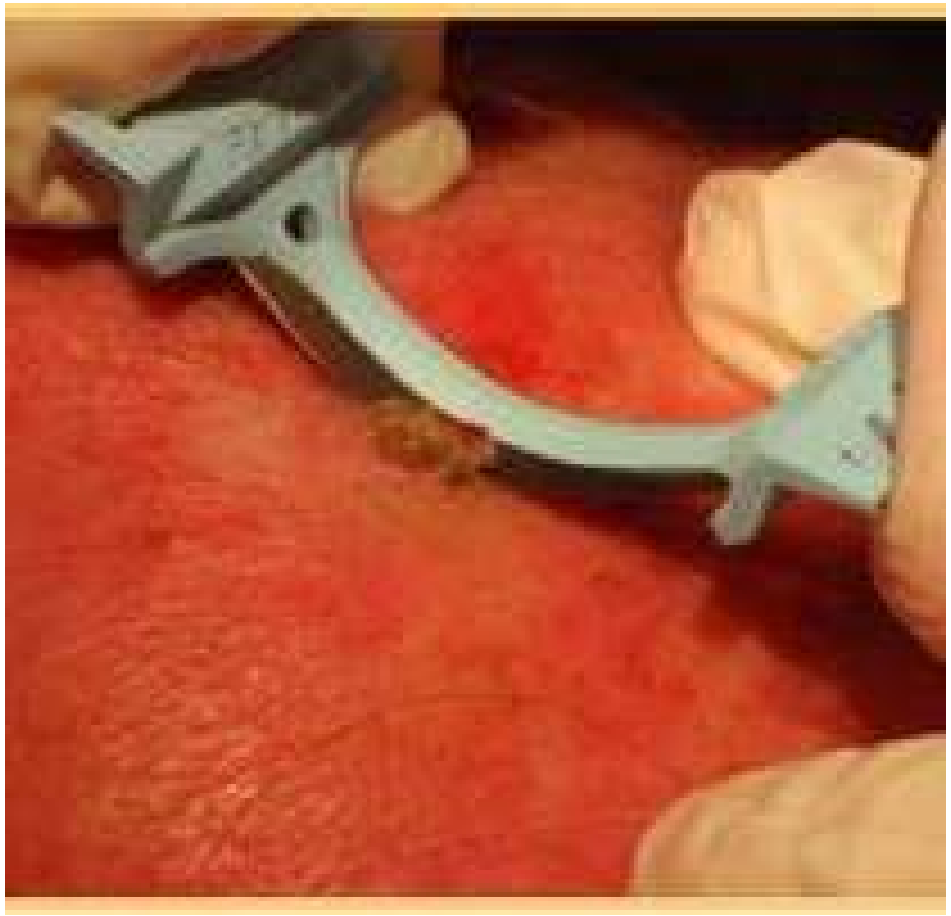
- Provide complete, accurate clinical description and differential diagnosis to the pathologist → if this is not possible refer to avoid taking the wrong type of biopsy
- Inflammatory conditions can involve the subcutaneous fat and blood vessels and need a punch biopsy
- If melanoma in suspected biopsy the entire lesion (depth is important for prognosis and treatment)
- Ulcers should be biopsied from the edge of the lesion
- Tumors should be sampled from the thickest portion when possible
- Annular lesions biopsy from the leading edge

Skin Biopsy Principles

- Prepare for bleeding in vascular areas like scalp
- If possible avoid biopsies below the knee, especially in diabetics, as they are prone to infection and long healing times
- Prepared patients for the type of scarring expected
- Do not put multiple specimens in one container

Tangential Shave biopsy

- Materials required: alcohol prep swab, local anesthetic (xylocaine with epi), drysol, cotton tipped applicator, Vaseline, bandage, stainless steel blade
- Cleanse the area with alcohol prep swab
- Inject local anesthetic
- Remove the entire lesion by applying pressure to the ends of the blade to bend the blade and using a back and forth sawing motion to remove the lesion from the skin, you need at least pin point bleeding to ensure correct depth
- Apply drysol to the wound for bleeding
- Place specimen in formalin bottle for pathology



Punch Shave biopsy

- Materials required: alcohol prep swab, local anesthetic (xylocaine with epi), gauze, topical surgical prep swab, gloves, punch biopsy tool (2-8mm in size) forceps, scissors, needle holder, formalin, sutures, Vaseline, bandage, stainless steel blade
- Cleanse the area with alcohol prep swab
- Inject local anesthetic
- Surgical prep scrub applied to the skin in concentric rings from the lesion
- Stretch the skin perpendicular to the relaxed skin tension lines, punch instrument inserted into skin in a rotating fashion down to the subcutaneous fat. Forceps used to grab the specimen at the subcutaneous fat, curved sharp scissors used to cut the specimen at the fat.
- Suture with interrupted sutures
- Place specimen in formalin bottle for pathology

Treatment of Actinic keratoses

- Cryotherapy with liquid nitrogen
- Topical chemotherapy creams to treat one area of a field of disease
  - Imiquimod
  - 5-fluoururacil

Imiquimod

Selection of patients – Patients with field of disease (face, nose, ears, scalp, dorsal hands)

Pharmacokinetics

Metabolism: minimal systemic absorption

Excretion: urine and feces <1%; Half-life: 29h

Subclass: Antineoplastics, Topical; Immunomodulators; Warts

Mode of action - exact mechanism of action unknown; stimulates Toll-like receptor 7, modifying immune responses

Dosage-1 packet per application, limit treatment area to 25 cm^2 on face or scalp 2x per week for 16 weeks

Side effects – irritation at application site, flu like symptoms, photosensitivity, reactivation of HSV

Safety – no additional monitoring, No significant interactions known or found for this drug.

Imiquimod – use in pregnancy

Pregnancy

Clinical Summary

use alternative during pregnancy; inadequate human data available to assess risk

Lactation

Clinical Summary

may use while breastfeeding; no human data available, though risk of infant harm and adverse effects on milk production not expected based on minimal maternal systemic absorption

5- Fluorouracil

Selection of patients – Patients with field of disease (face, nose, ears, scalp, dorsal hands)

Pharmacokinetics
Metabolism: liver primarily, tissues; 6% systemic absorption
Excretion: expired CO_2, urine; Half-life: unknown
Mechanism of Action- inhibits DNA and RNA synthesis, used intravenous to treat breast and colon CA

Dosage forms: CRM: 0.5%, 5%; SOL: 2%, 5% apply 0.5% cream qd x1-4wk

Side effects – irritation at application site, flu like symptoms, photosensitivity, reactivation of HSV
Safety – no additional monitoring, No significant interactions known or found for this drug.

5- Fluorouracil – use in pregnancy

Pregnancy

Clinical Summary

avoid use during pregnancy; inadequate human data available, though risk of fetal harm low based on expected limited systemic absorption; risk of teratogenicity based on conflicting human data w/ systemic fluorouracil

Individuals of Reproductive Potential

avoid pregnancy by using effective contraception during tx and x1mo after D/C in female pts

Lactation

Clinical Summary

avoid use on nipple while breastfeeding, otherwise caution advised on other areas; no human data available to assess risk of infant harm, though possible drug excretion into milk if large application site; no human data available to assess effects on milk production

Treatment Basal and Squamous Cell Carcinomas

- This is dependent on the depth and type of skin cancer, for specifics use the NCCN guidelines treatment algorithms
- Electrodessication and curettage
- Excision
- Mohs surgery

Treatment of melanoma

- Referral to dermatologist, med oncologist, surgical oncologist for treatment
- Excision
- Sentinel lymph node biopsy
- Chemotherapy/immunotherapy

Need for skin cancer screenings post cancer diagnosis

- Actinic keratosis – once yearly
- NMSC or Melanoma
  - skin examination should be performed at least every 6-12 months for 2 years and then annually

Patient education

Daily sun protection of the hand, ears, dorsal hands, forearms, v of the neck

- SPF 30 at least

Wide brim hats

Protecting children prior to age 18 from blistering sun burns