Top Dermatologic Issues in Primary Care

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EXPLORE HEALTHCARE SUMMIT

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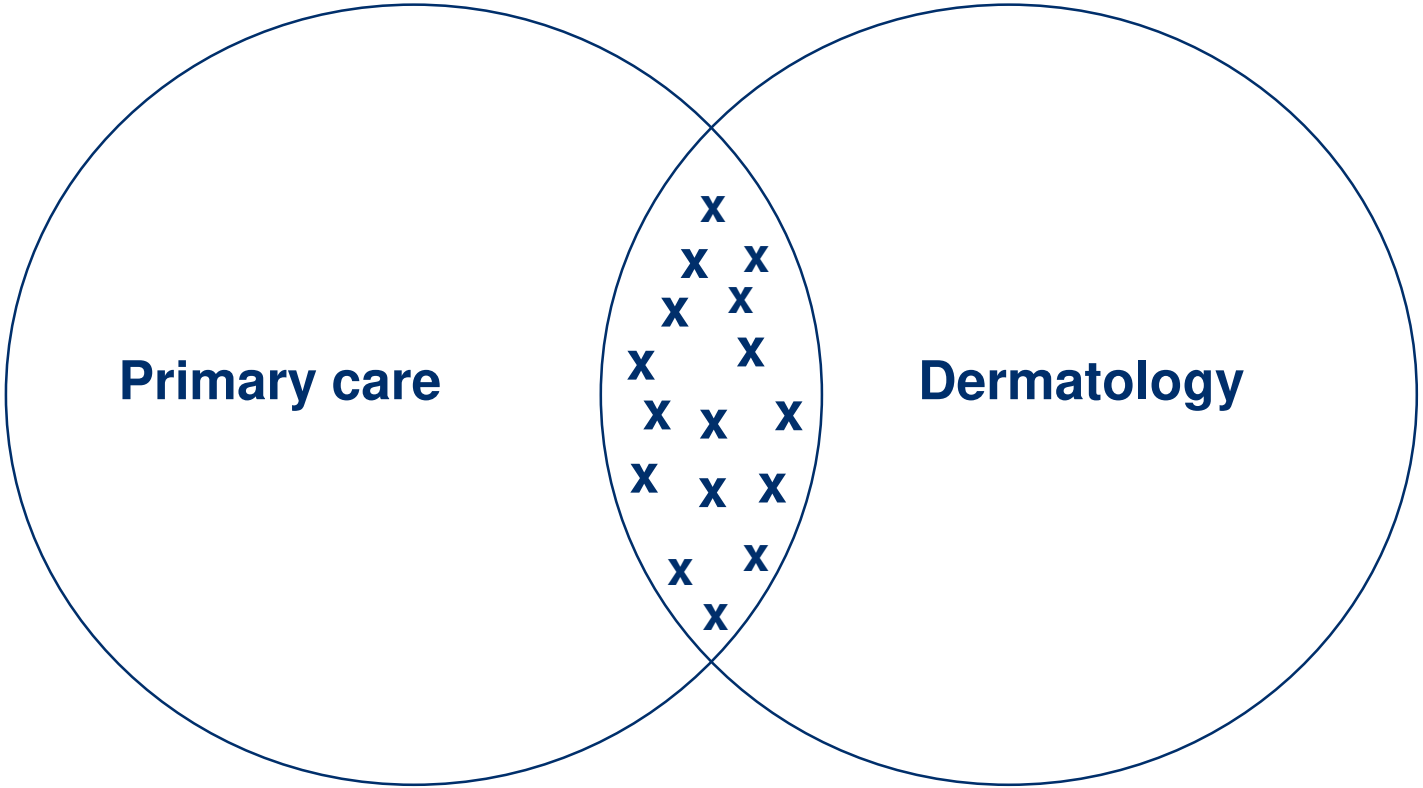
Disclosure

- I have served as a consultant for Castle Biosciences
- I have served as a consultant for Aegle Therapeutics

Goals of today's talk

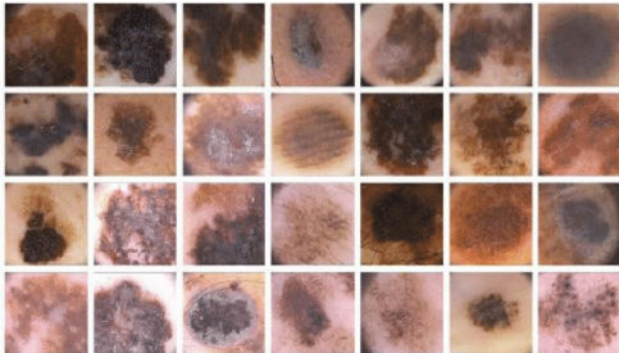
- Review the morphologic range of dermatologic disease
- Emphasize dermatologic diagnoses in primary care setting
- NOT to review the entirety of relevant dermatology
- Emphasize the essential role of a biopsy in making a diagnosis

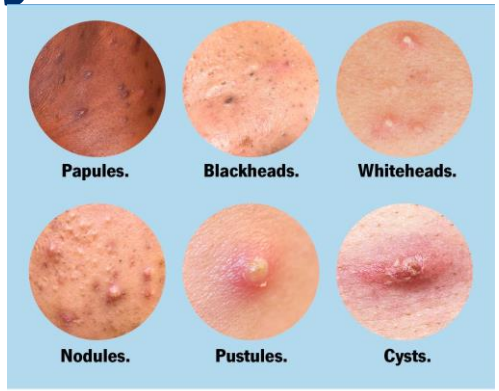
Scope of this talk

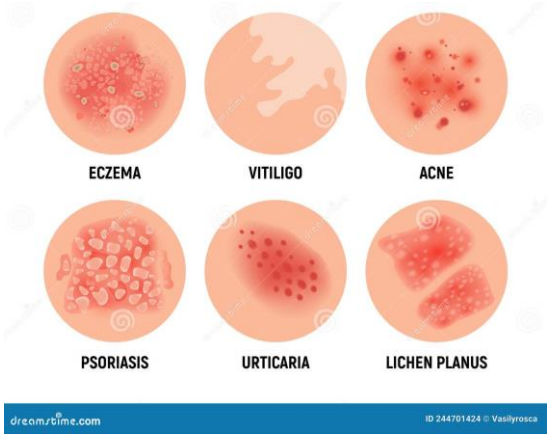


Our why:

- **“Skin conditions are the most common reason for a new presentation to a primary care physician”***







* Roux E Le, Edwards PJ, Sanderson E, Barnes RK, Ridd MJ. The content and conduct of GP consultations for dermatology problems: A cross-sectional study. *Br J Gen Pract.* 2020;70(699):e723–30.

A quick tour through the world of dermatologic morphology

Describing Lesions

- Size
- Color
- Primary Lesion Type
- Secondary Lesion Type (if present)
- Configuration
- Location

Lesion Types

Primary

Changes in the skin directly caused by the disease process.

Secondary

Changes in the skin caused by external forces (scratching, trauma, infection, or the healing process).

Primary Lesions

- Macule
- Patch
- Papule
- Plaque
- Nodule
- Tumor
- Vesicle
- Bulla
- Pustule
- Wheal
- Telangiectasia
- Cyst
- Comedones (open & closed)

Macule < 1cm flat, non-palpable, change of skin color.

Examples

Freckles (Ephilides)

Solar Lentigines

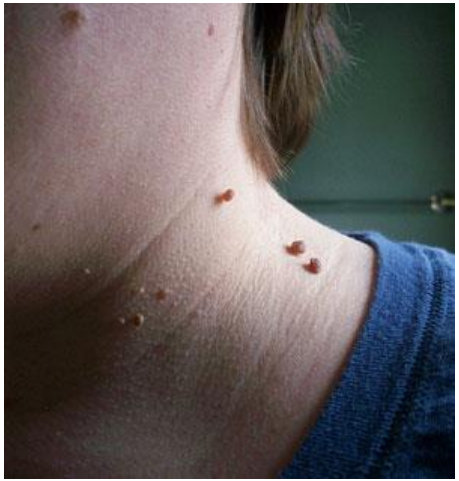
Junctional Nevus

Patch > 1cm flat, non-palpable, change of skin color.

Vitiligo

Port Wine Stain

Papule < 1cm superficial, raised, palpable lesion with distinct borders



Skin Tags
(Acrochordons)

Molluscum
Contagiosum

Seborrheic
keratoses

Lichen
Planus

Intradermal nevus

Plaque >1 cm raised, flat-topped, palpable lesion greater than 1 cm in diameter.

Psoriasis

Atopic Dermatitis

Nodule – Firm lesion less than 1 cm in diameter. It can be located in epidermis, dermis, or subcutaneous tissue. Increased depth differentiates nodules from papules.

Rheumatoid Nodules

Nodular Acne

Lipoma

Tumor – Solid mass in skin or subcutaneous tissue > 2 cm.

Fluid filled sacs:

< 1 cm → Vesicle

> 1 cm → Bulla

Herpes Simplex (vesicle)

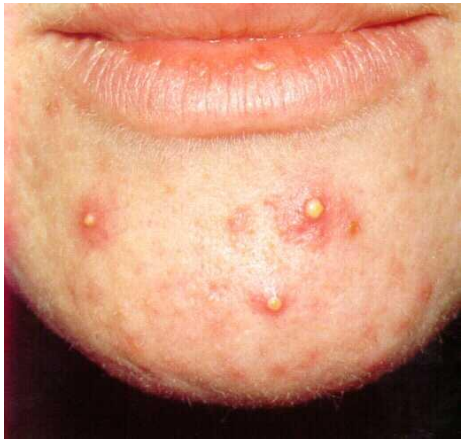
Bullous Pemphigoid (Bulla)

Contact Dermatitis

Pustule – vesicle containing "puss" which is neutrophil-rich.

Can be sterile or infectious.

Folliculitis



Acne

Pustular psoriasis

Wheal – Edema in upper dermis.

Urticaria

Telangiectasia – Dilated superficial blood vessel.

Cyst – Cavity containing fluid, solid or semi-solid material

Epidermal Inclusion Cyst

Comedones – A plug of keratin or sebum within the dilated orifice of a hair follicle (non-inflammatory)

Closed “whitehead” Open “blackhead”

Secondary Lesions

Scale
Excoriation
Lichenification
Fissure
Erosion
Ulcer

Crust
Atrophy
Purpura
Hyper/Hypo-
pigmentation

Scale – Flakes or plates of desquamated stratum corneum

Seborrheic Dermatitis

Xerosis

Crust – Dried plasma or exudates.

Impetigo

Atrophy – Thinning or absence of epidermis, dermis, or subcutaneous fat.

Lichenification – **Thickening of epidermis with exaggerated skin lines. Usually from chronic scratching/rubbing.**

Erosion – Loss of part or all of the epidermis.

(Pemphigus Vulgaris)

Ulcer – Loss of epidermis and dermis due to necrosis.

Excoriation – Loss of superficial epidermis due to trauma.

(ie: scratching, picking)

Fissure – Crack in skin due to dryness.

Petechiae, Purpura, & Ecchymosis –

Non-blanchable bleeding in skin.

Size: petechiae < 3 mm
purpura 3 mm – 1 cm
ecchymosis > 1 cm

Petechiae

Palpable Purpura

Ecchymosis

Hypo/ Hyper-pigmentation

Secondary lightening or darkening of the skin.

Skin Configurations

Annular
Linear
Grouped
Serpiginous
Arcuate

Disseminated/Generalized
Confluent
Reticulated

Annular: Ring shaped

Tinea
Corporis

Linear: In a line.

Koebner’s Phenomenon

Grouped: Lesions that are clustered together.

Serpiginous: wavy or “snake-like” in appearance.

FIGURE 1
A rash on the run

Arcuate: crescent or “half-moon” shaped

Reticular: lesions with a “net-like” arrangement.

Disseminated/Generalized: Describes a lesion that is usually localized that has spread

Confluent: running together

Location

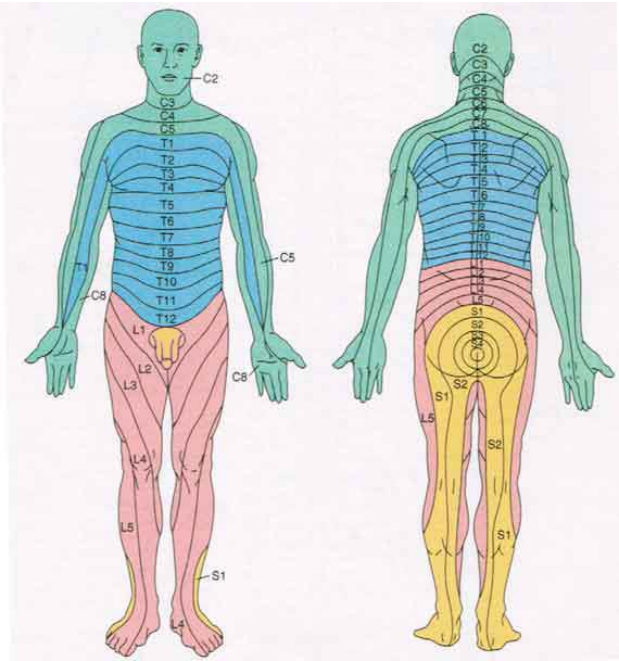
- Intertriginous
- Photodistributed
- Palmar/Plantar
- Dermatomal
- Symmetrical
- Blaschko’s Lines

Intertriginous: Area where two skin surfaces touch or rub together.

Photodistributed: in areas exposed to sunlight.

Palmar/Plantar: relating to the palm of the hand or sole of the foot.

Dermatomal: corresponding to a dermatome of the body.



Symmetrical: Made up of exactly similar parts facing each other or around an axis

Blaschko's Lines: skin lines that trace the migration of embryonic cells.

What are the most common derm diagnoses in primary care?

Study in 2022: on the National Ambulatory Medical Care Survey (NAMCS) between 2007 and 2016, the most recent years available:

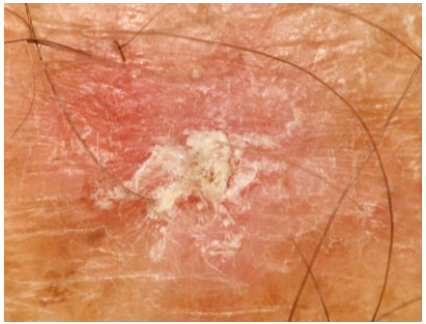
- The NAMCS is an ongoing survey which provides objective information about the use of ambulatory medical services in the United States.
- The survey is conducted annually by the National Center for Health Statistics (NCHS) at the Centers for Disease Control and Prevention (CDC).
- The NAMCS surveys a large, generalizable sample of physicians and non-physician providers and has achieved high response rates of up to 77%.

Ahn CS, Allen MM, Davis SA, Huang KE, Fleischer AB, Feldman SR. The National Ambulatory Medical Care Survey: A resource for understanding the outpatient dermatology treatment. J Dermatolog Treat. 2014;25(6):453–458.

Arafa AE, Anzengruber F, Mostafa AM, Navarini AA. Perspectives of online surveys in dermatology. J Eur Acad Dermatol Venereol. 2019;33:511–520.

The most common skin diagnoses in primary care

- In the population-based, cross-sectional analysis using the National Ambulatory Medical Care Survey between 2007 and 2016:
  - The five most common skin diagnoses among all medical specialties were
    - contact dermatitis
    - acne vulgaris
    - actinic keratosis
    - “benign neoplasm” of the skin
    - epidermoid cyst



Other “Top” Dermatologic Issues *for* Primary Care

- Identify a skin malignancy
- Identify eczematous, psoriasiform, lichenoid, and drug-induced conditions
- Identify potential autoimmune connective tissue diseases
- Identify autoimmune bullous dermatoses

- Barriers to sampling the skin in primary care
  - Requires proper set up, equipment for procedures, photography/ triangulation of lesions, proper sample containers (ex. Michels media for direct immunofluorescence).

- Delay in referral / wait times for patients to be seen by dermatology
- Delay in diagnosis and treatment

A bit of a deeper dive into

The most common issues

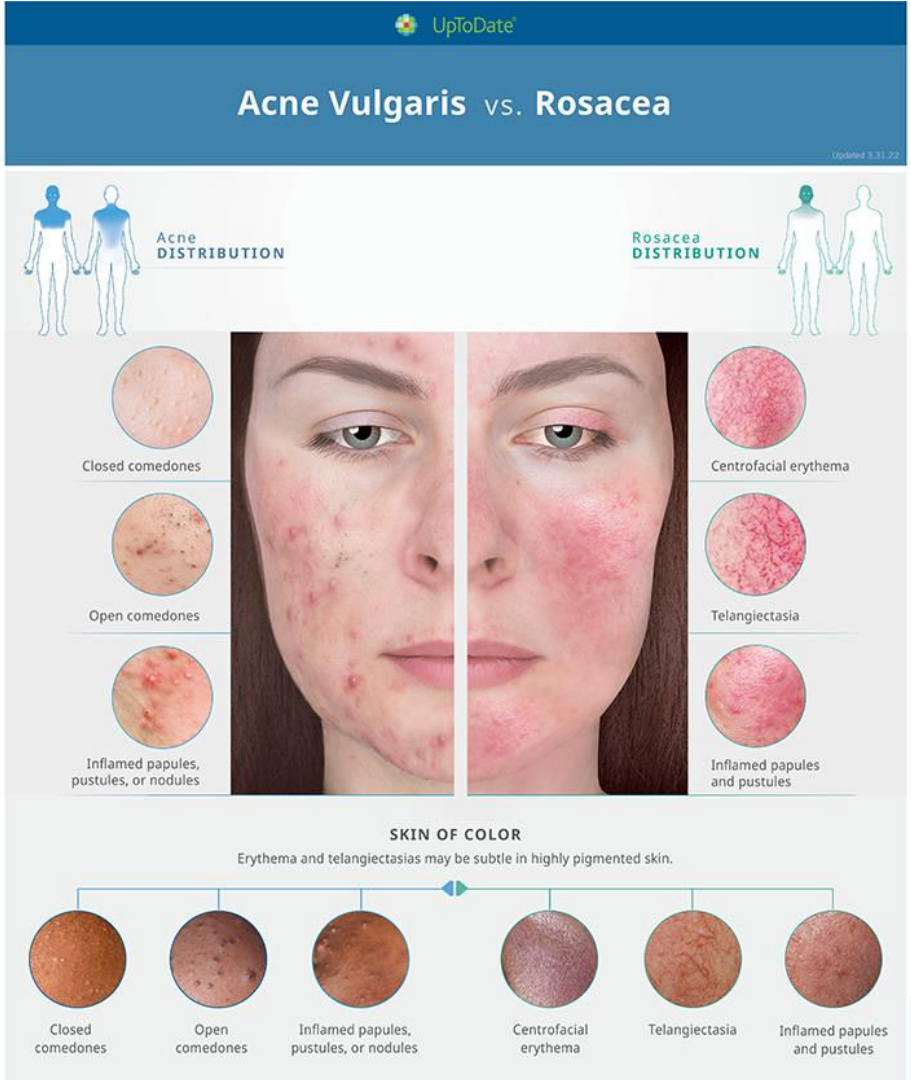
- Acne vulgaris
- Epidermoid cyst
- “Benign” neoplasms of the skin
- Actinic keratosis
- Contact dermatitis

Other top issues

- Cutaneous malignancy
  - Basal cell carcinoma
  - Squamous cell carcinoma
  - Melanoma
- Refractory inflammatory dermatoses
  - Eczematous
  - Psoriasiform
  - Lichenoid
- Autoimmune connective tissue diseases
  - Ex. cutaneous lupus
- Autoimmune bullous diseases
  - Ex. bullous pemphigoid

The top most common

Acne vulgaris vs rosacea – diagnosis



Acne vs Rosacea

OTHER FEATURES: Acne Vulgaris

- Most prevalent in adolescents and young adults
- Variable distribution on face
- Frequent shoulder, chest, and/or back involvement
- Sequelae of postinflammatory hyperpigmentation, postinflammatory erythema, and scarring
- Association with hyperandrogenic disorders (eg, polycystic ovarian syndrome)

OTHER FEATURES: Rosacea

- Most prevalent in adults >30 years old
- Centrofacial distribution (cheeks, nose, chin)
- Ocular involvement (eg, symptoms of eye irritation, eyelid erythema, conjunctival injection, crusting, recurrent hordeolum or chalazion)
- Sensitive skin
- Flushing

KEY CONCEPTS

Acne vulgaris and rosacea are common causes of inflamed papules or pustules on the face. Recognition of other characteristic features is helpful for distinguishing these conditions. Patients may exhibit some or all of the displayed features.

Distinguishing between acne vulgaris and rosacea is important because of differences in the approach to patient evaluation and treatment. For example, an assessment for signs of associated hyperandrogenism (eg, menstrual irregularity, hirsutism, virilization) is an important component of the initial evaluation of female patients with acne vulgaris, particularly in the presence of severe, sudden-onset, or recalcitrant acne. In patients with rosacea, an assessment for signs or symptoms of ocular involvement is important for identifying patients who may benefit from ophthalmologic examination.

Acne vulgaris vs rosacea – treatment

Acne

- Daily wash with benzoyl peroxide-containing wash (Ex. CeraVe with benzoyl peroxide) or salicylic acid wash
- Topical clindamycin solution, gel, or lotion
- Daily retinoid (ex. OTC adapalene gel, or tretinoin creams) – a pea-sized amount only across entire face at night
- Oral medications: doxycycline 100 mg BID (or minocycline) for up to 1 month, can consider refills for flares
- Hormonal driven: start with spironolactone 50 mg daily, increase to 100 mg daily as tolerated (consider checking potassium; warn of side effects; not for use in woman trying to get pregnant)
  - Also consider topical Winlevi (clascoterone) – androgen receptor inhibitor

Rosacea

- Start topical metronidazole gel
  - If fails, consider topical ivermectin (Soolantra)
- Dermatologist: can perform lasers (example PDL to target hemoglobin in telangiectasias)
- Wash with sensitive skin cleaners (Cetaphil, CeraVe, Vanicream, etc).
- Can consider long-term, low dose doxycycline 50 mg daily, or 40 mg Oracea (slow-release)
- Can consider vasoconstrictors (topical brimonidine – a2 adrenergic receptor agonist)
- Identify and reduce triggers as much as possible (alcohol, spicy foods, heat, stress, etc)
- Refer to ophthalmology if ocular involvement

Isotretinoin for severe cases

Epidermoid inclusion cysts - diagnosis

Beware of the ”cyst” – if deeper with no punctum, it may not be a “cyst”

Epidermoid inclusion cysts - differential

Pilar cyst

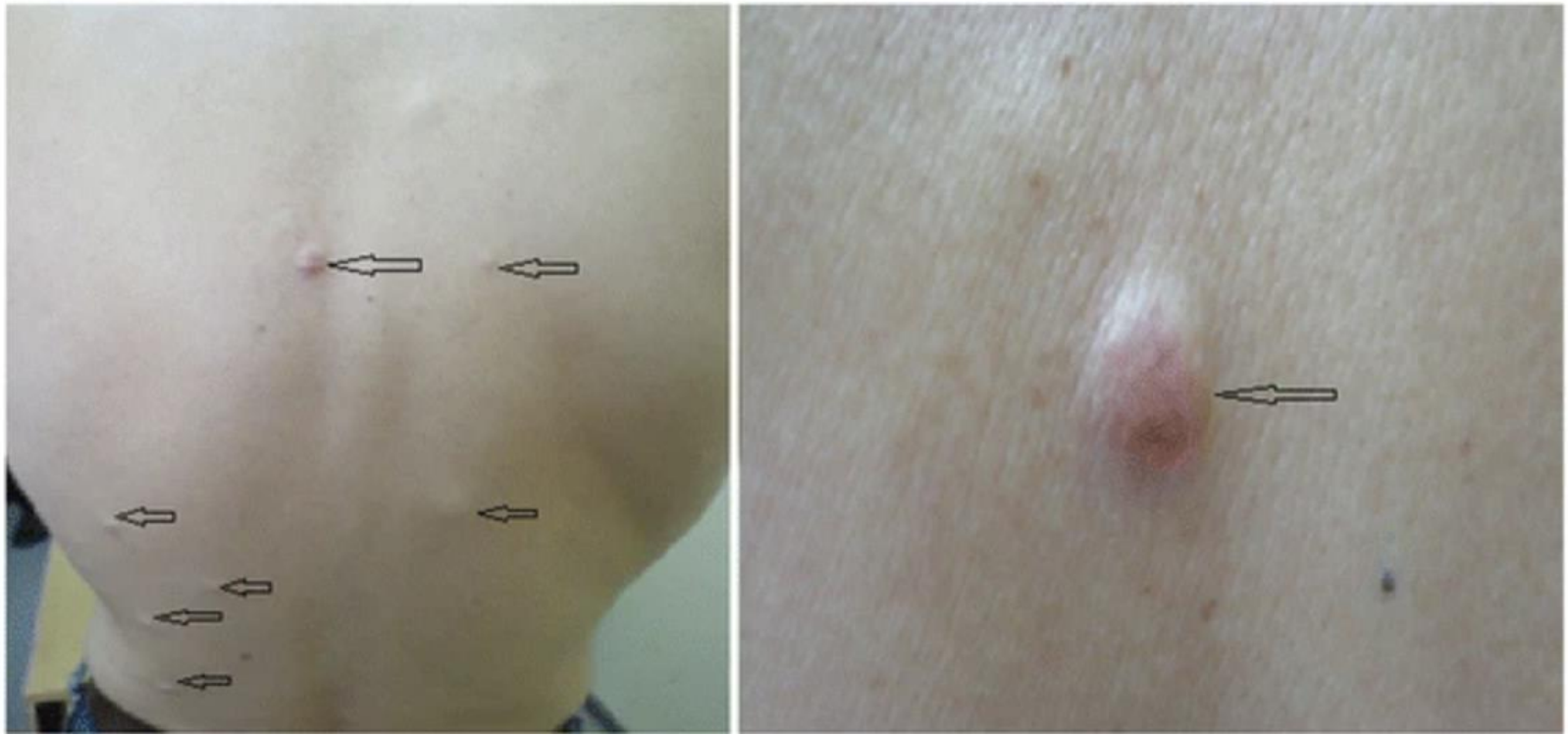
Dermoid cyst

Lipoma

Pilomatricoma

Ganglion cyst

Cysts? Unfortunately not.



Pajaziti, L., Hapçiu, S.R., Dobruna, S. et al. Skin metastases from lung cancer: a case report. BMC Res Notes 8, 139 (2015). https://doi.org/10.1186/s13104-015-1105-0

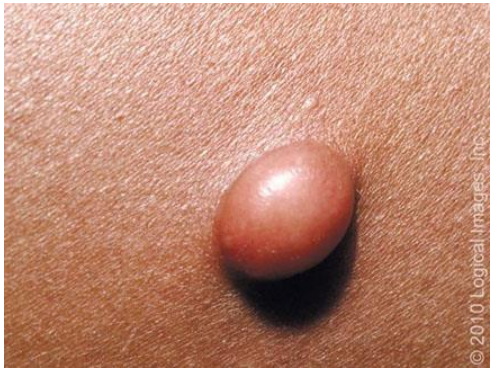
Benign neoplasms of the skin (examples)

Acrochordon/skin tag

Intradermal nevus

Dermatofibroma

Neurofibroma



Seborrheic keratosis

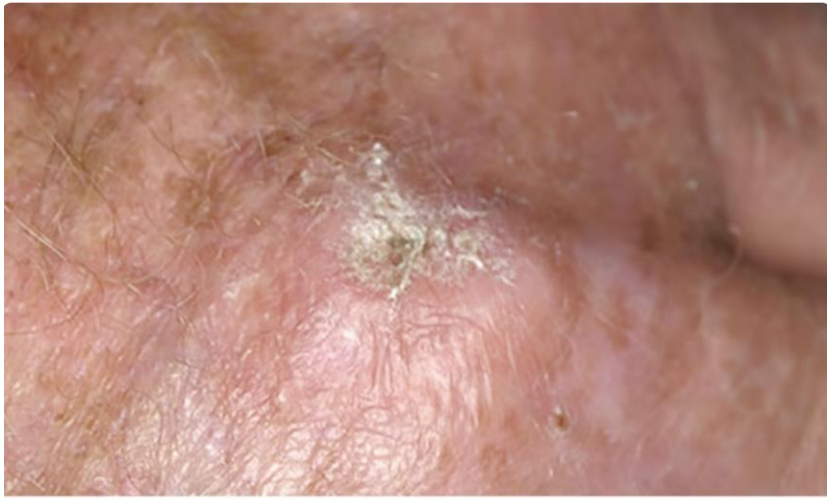
Seborrheic keratosis

“Pyogenic granuloma” (lobular capillary hemangioma) vs other?

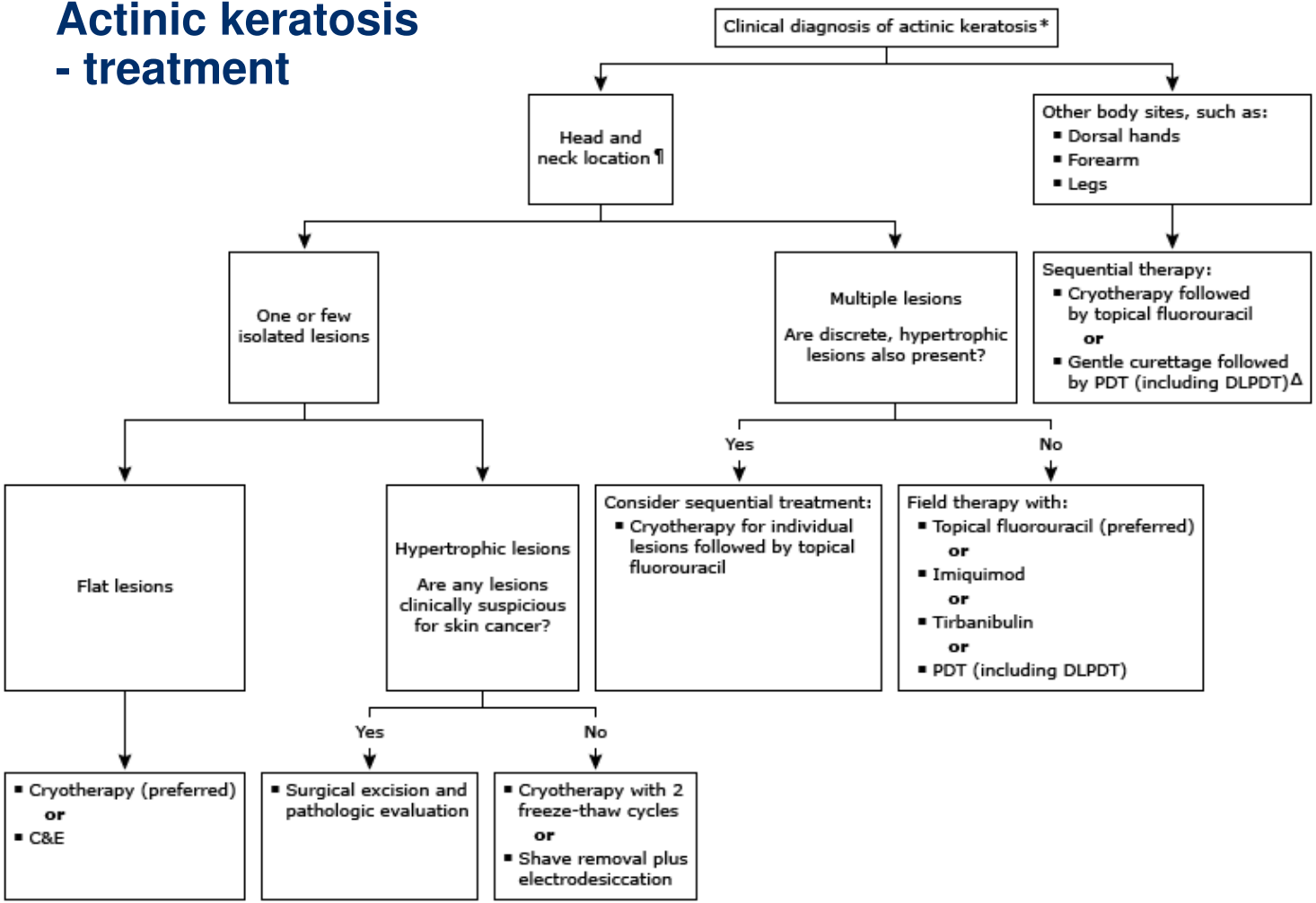
Lobular capillary hemangioma

Spitzoid melanoma

Actinic keratoses



Actinic keratosis - treatment

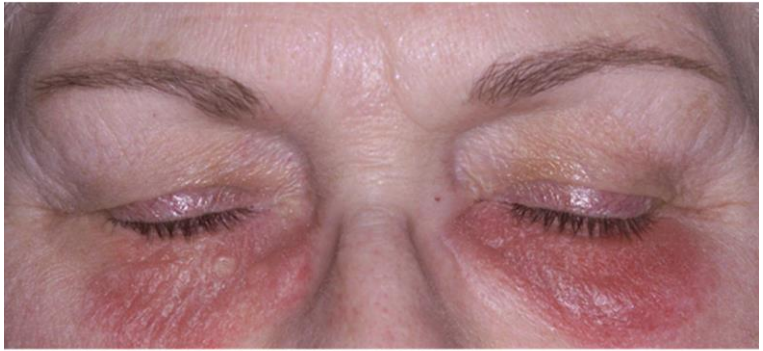


In office treatment with liquid nitrogen

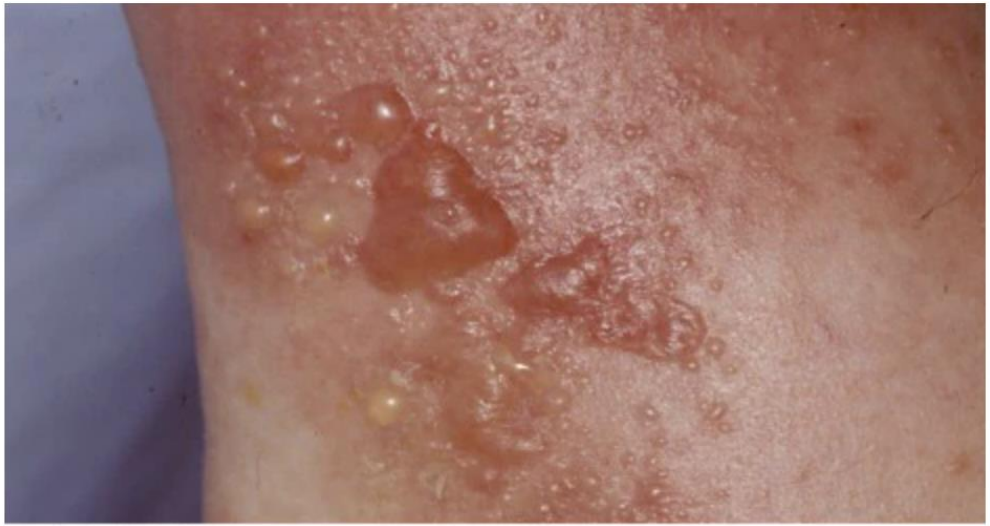
freezing time 5 to 10 seconds or more, depending upon lesion size and thickness, with the "ice ball" extending at least 1 mm beyond the clinical margin of the lesion

single freeze-thaw cycle is adequate for thin lesions, while a double freeze-thaw cycle is required for thicker lesions

Contact dermatitis - diagnosis



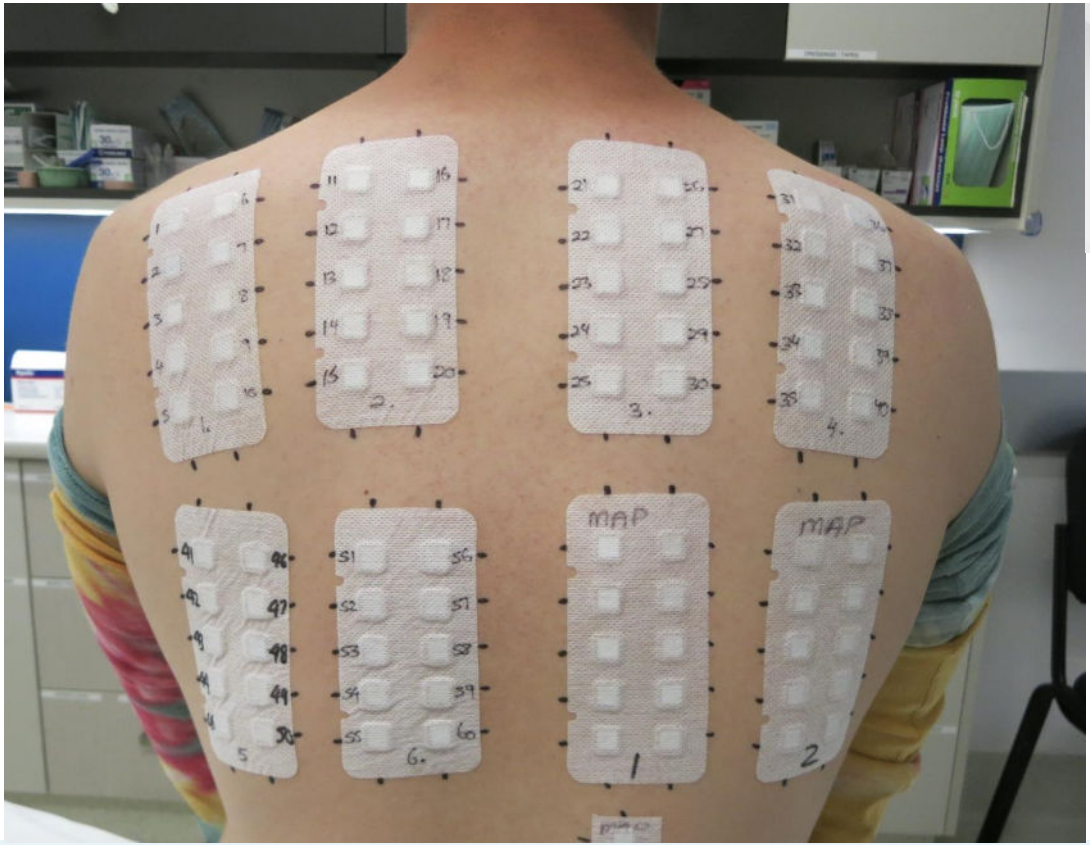
- Common contact allergens include plant allergens, metals, fragrances, acrylates, medicaments, and preservatives.



History and geometric distribution are important

Useful resource: Contact Dermatitis Institute (www.contactdermatitisinstitute.com)

Contact dermatitis – treatment/ avoidance



www.contactdermatitisinstitute.com

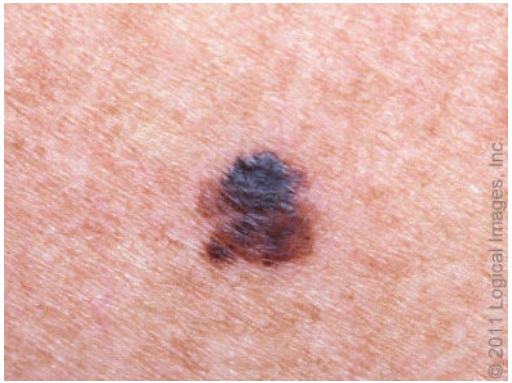
The other “Top” issues

Skin cancer – The “big 3” – diagnosis - clinical

Basal cell carcinoma

Squamous cell carcinoma

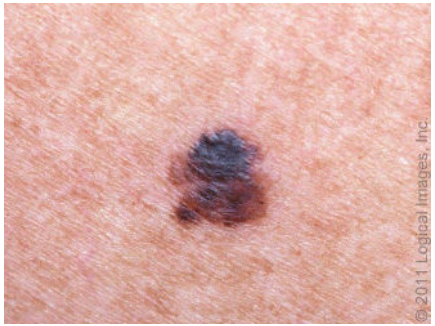
Melanoma



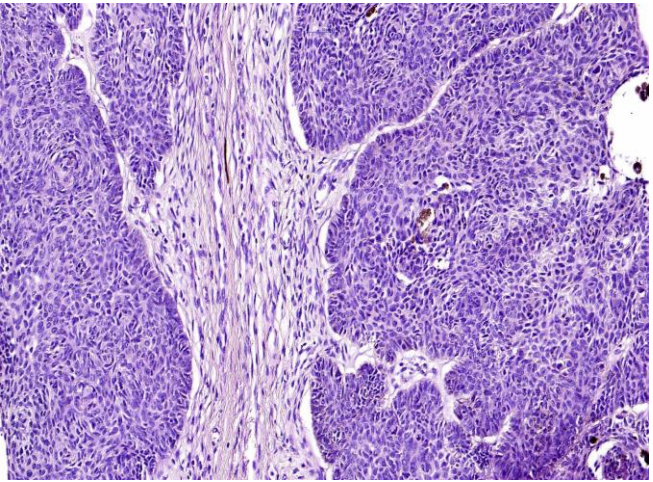
Skin cancer – The “big 3” – diagnosis - dermatopathology

Basal cell carcinoma

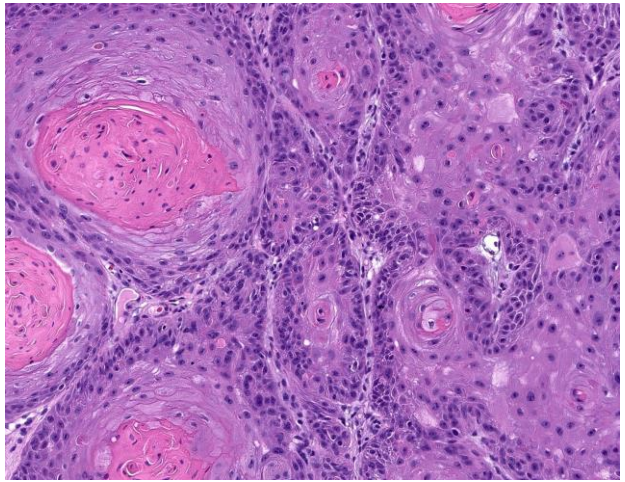
Squamous cell carcinoma



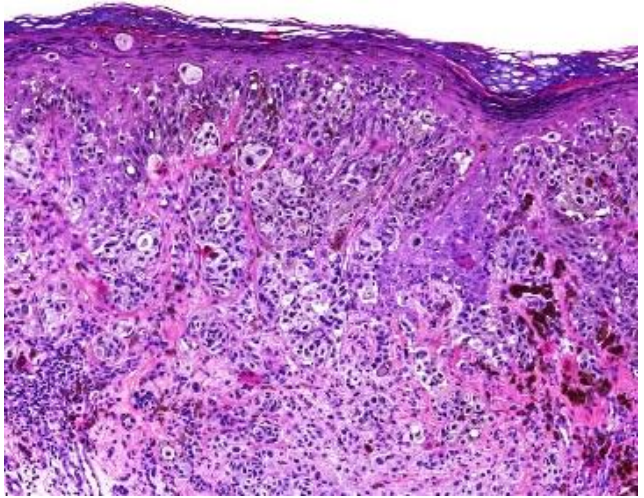
Melanoma



Ber-EP4+

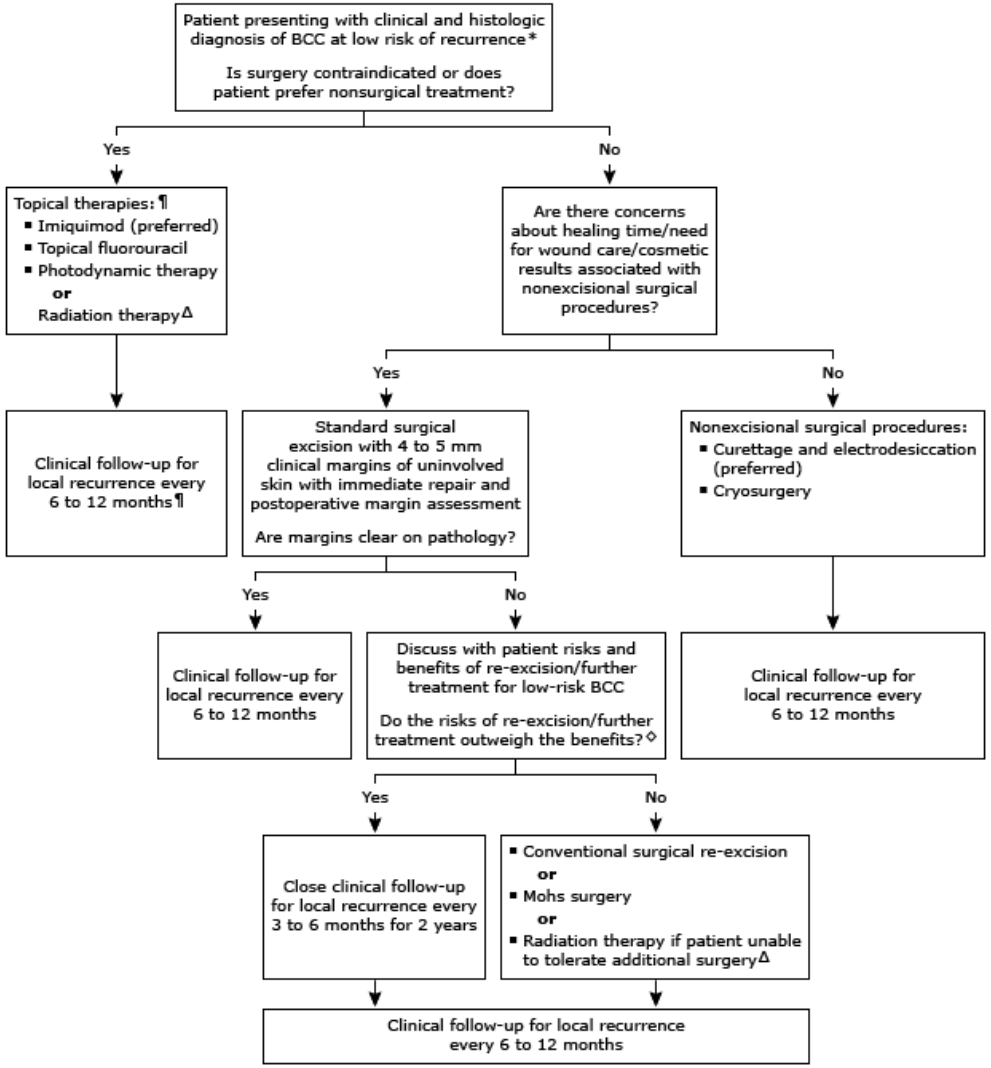


P40 +, Ber-EP4 -

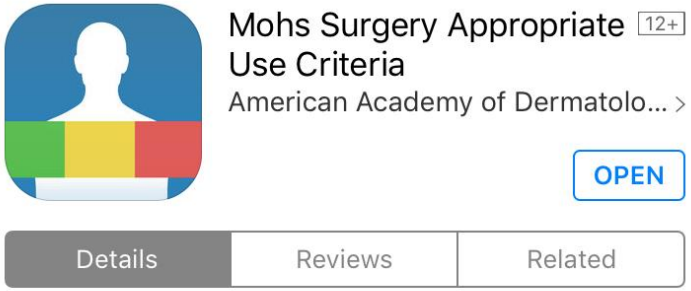


Sox-10+, PRAME+

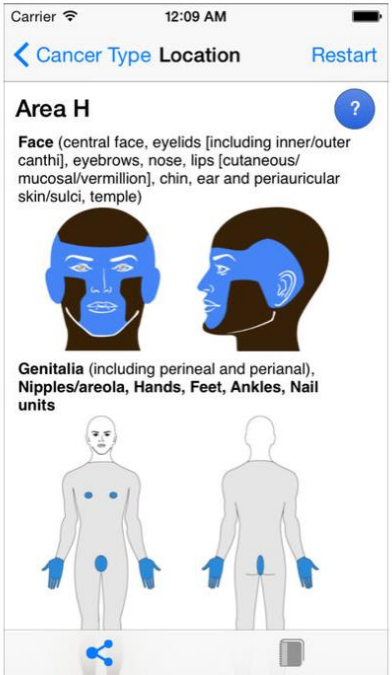
Skin cancer/BCC - treatment

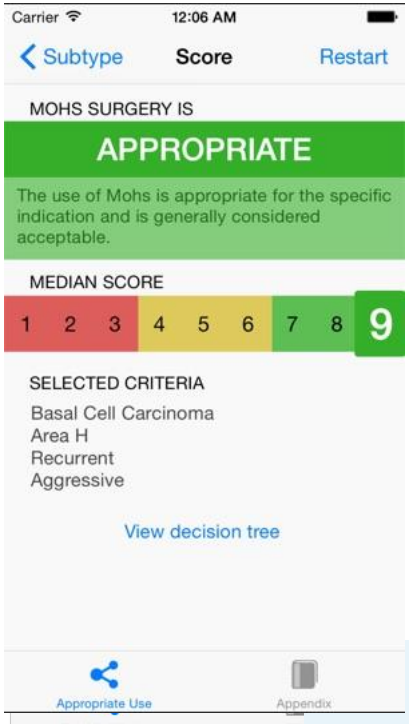


Appropriate Use Criteria for Mohs

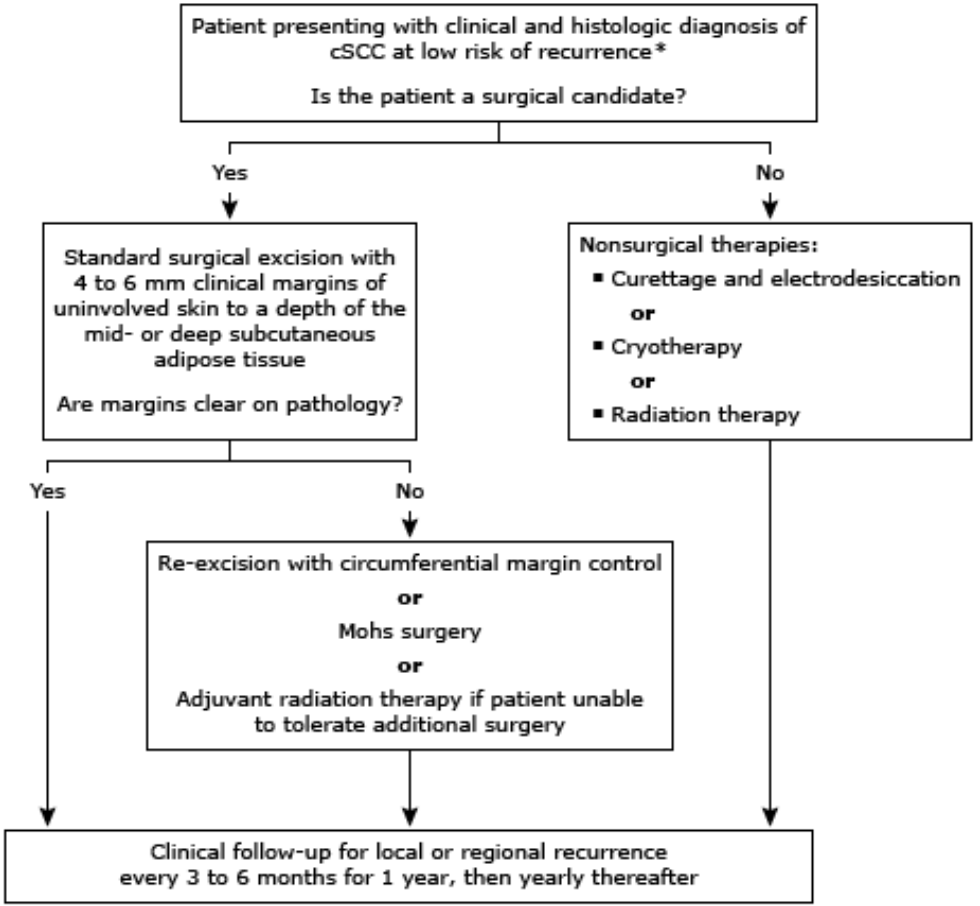


iPhone

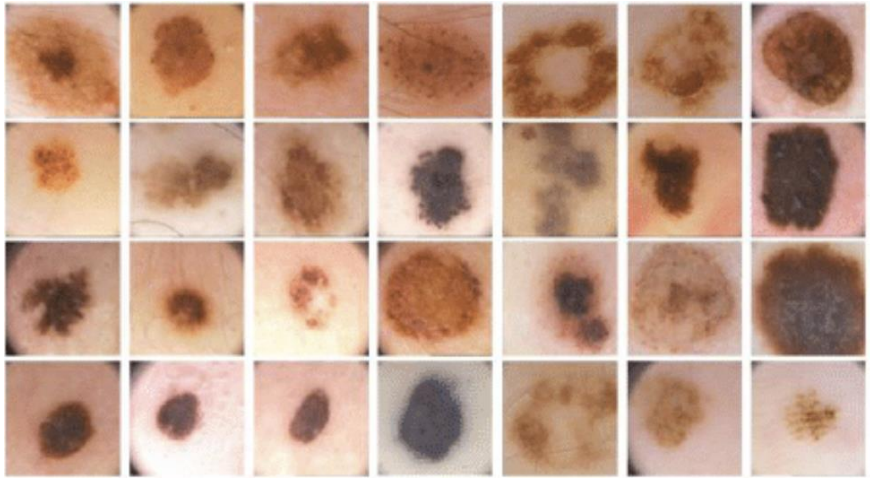


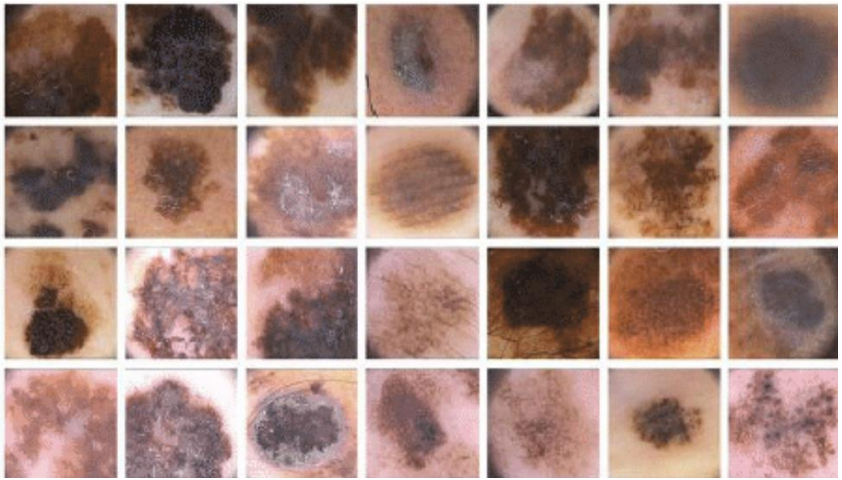


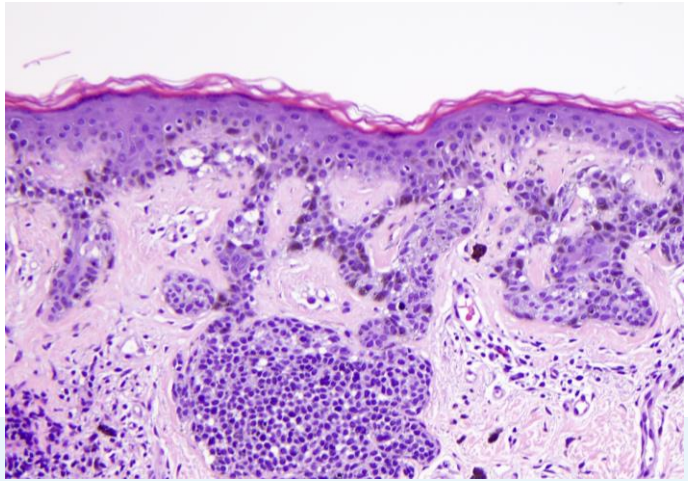
Skin cancer/SCC - treatment

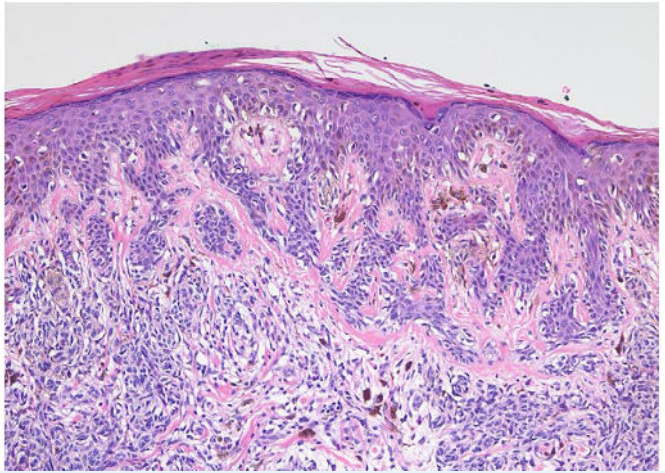


The melanocytic diagnostic dilemma

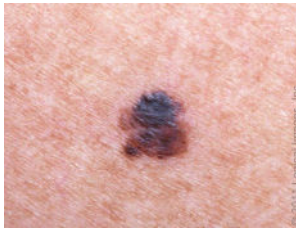








Melanoma- staging

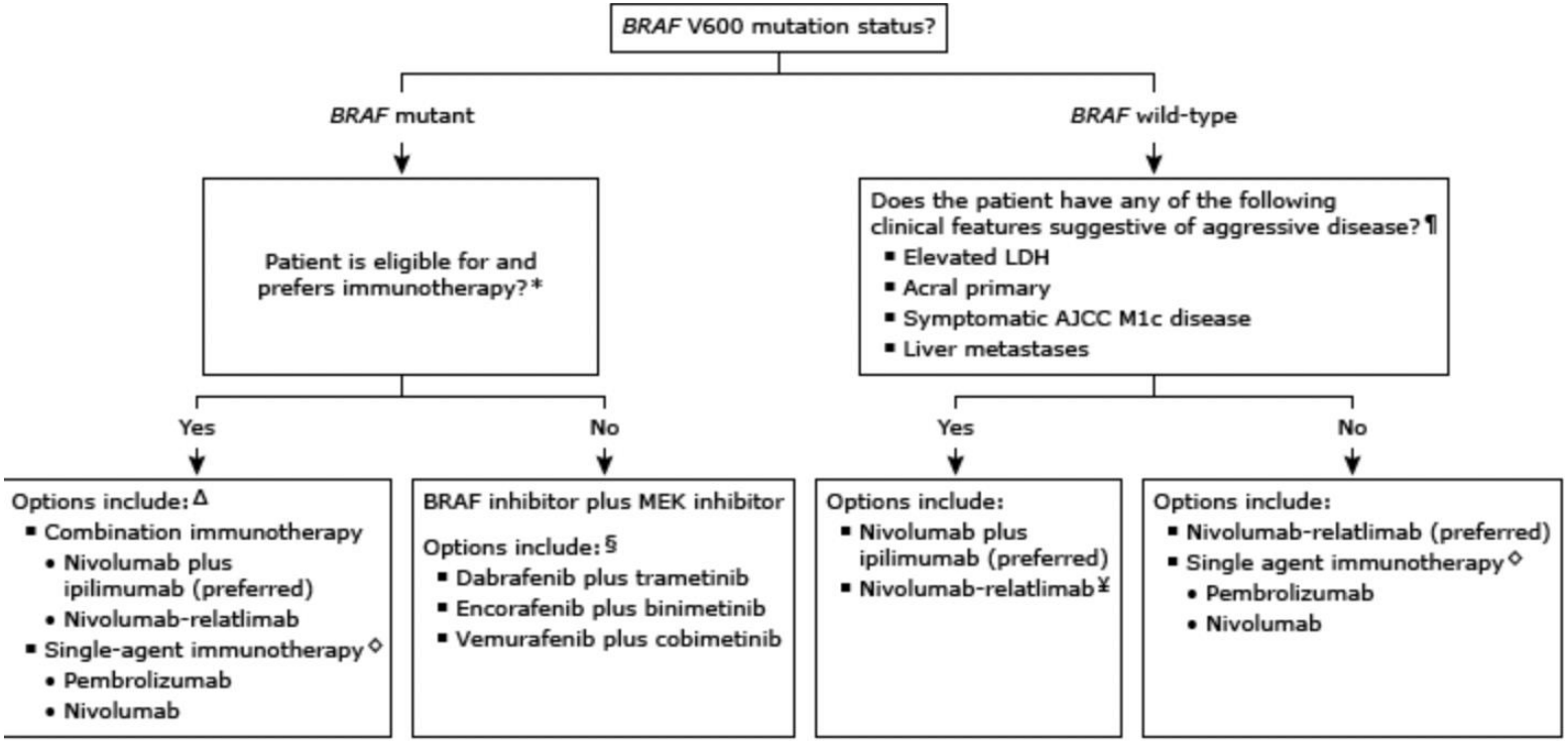


Definition of Primary Tumor (T) - AJCC 8th Edition

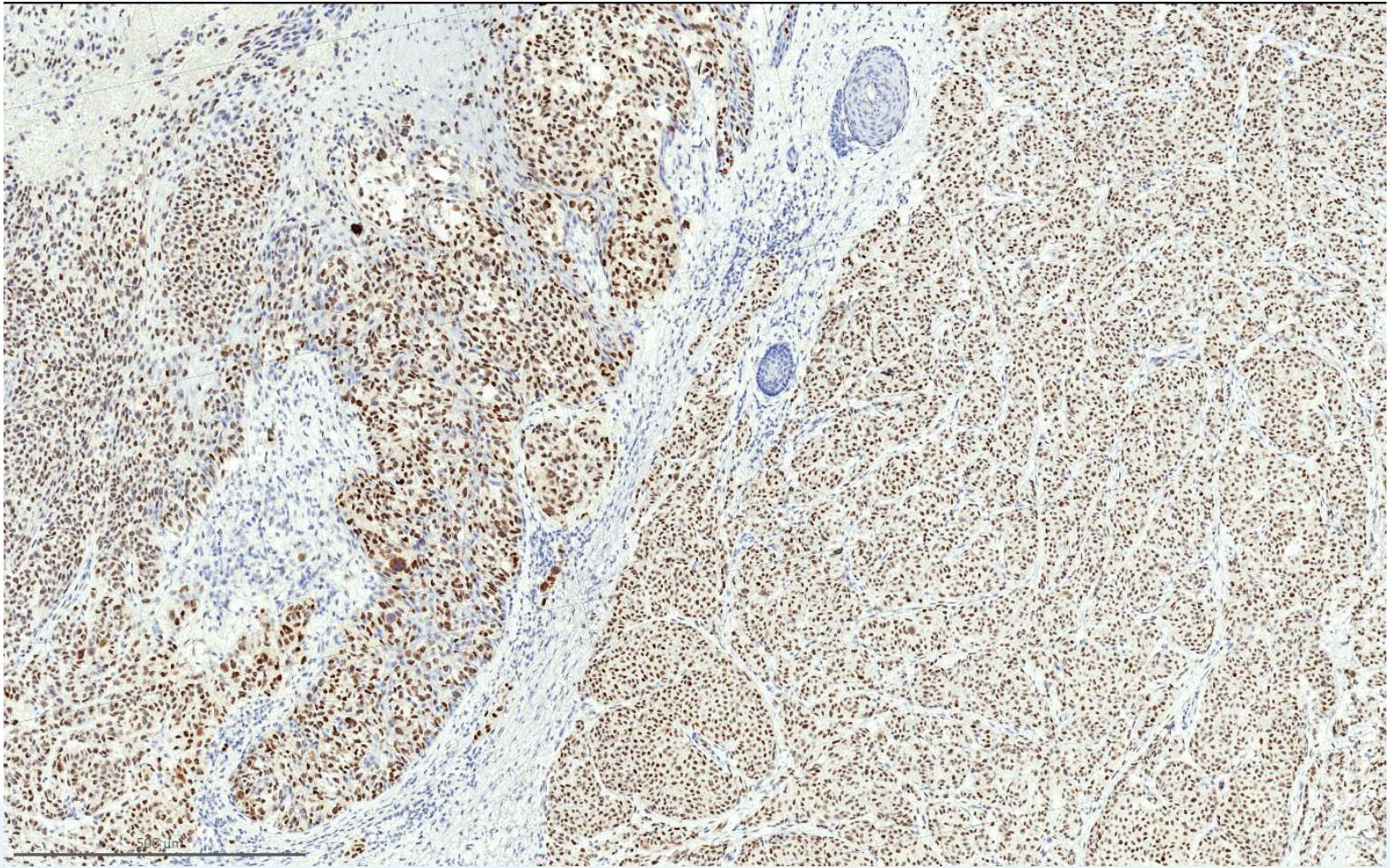
T Category	Thickness	Ulceration status
Tis (melanoma *in situ*)	Not applicable	Not applicable
T1	≤1.0 mm	Unknown or unspecified
T1a	<0.8 mm	Without ulceration
T1b	<0.8 mm 0.8–1.0 mm	With ulceration With or without ulceration
T2	>1.0–2.0 mm	Unknown or unspecified
T2a	>1.0–2.0 mm	Without ulceration
T2b	>1.0–2.0 mm	With ulceration
T3	>2.0-4.0 mm	Unknown or unspecified
T3a	>2.0–4.0 mm	Without ulceration
T3b	>2.0–4.0 mm	With ulceration
T4	>4.0 mm	Unknown or unspecified
T4a	>4.0 mm	Without ulceration
T4b	>4.0 mm	With ulceration

Gershenwald, Scolyer, et al. Melanoma. In Amin, M.B., Edge, S.B., Greene, F.L., et al. (Eds.) AJCC Cancer Staging Manual. 8th Ed. New York: Springer; 2017

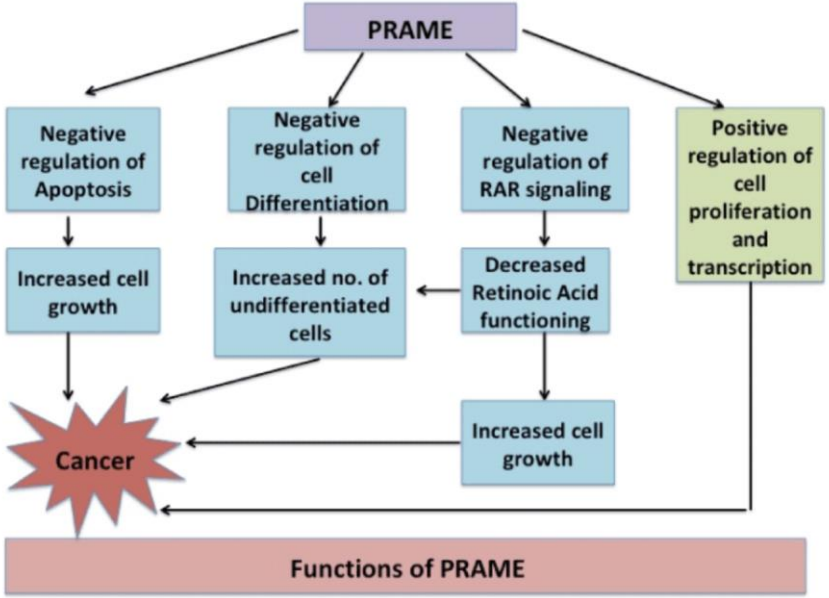
Melanoma- treatment

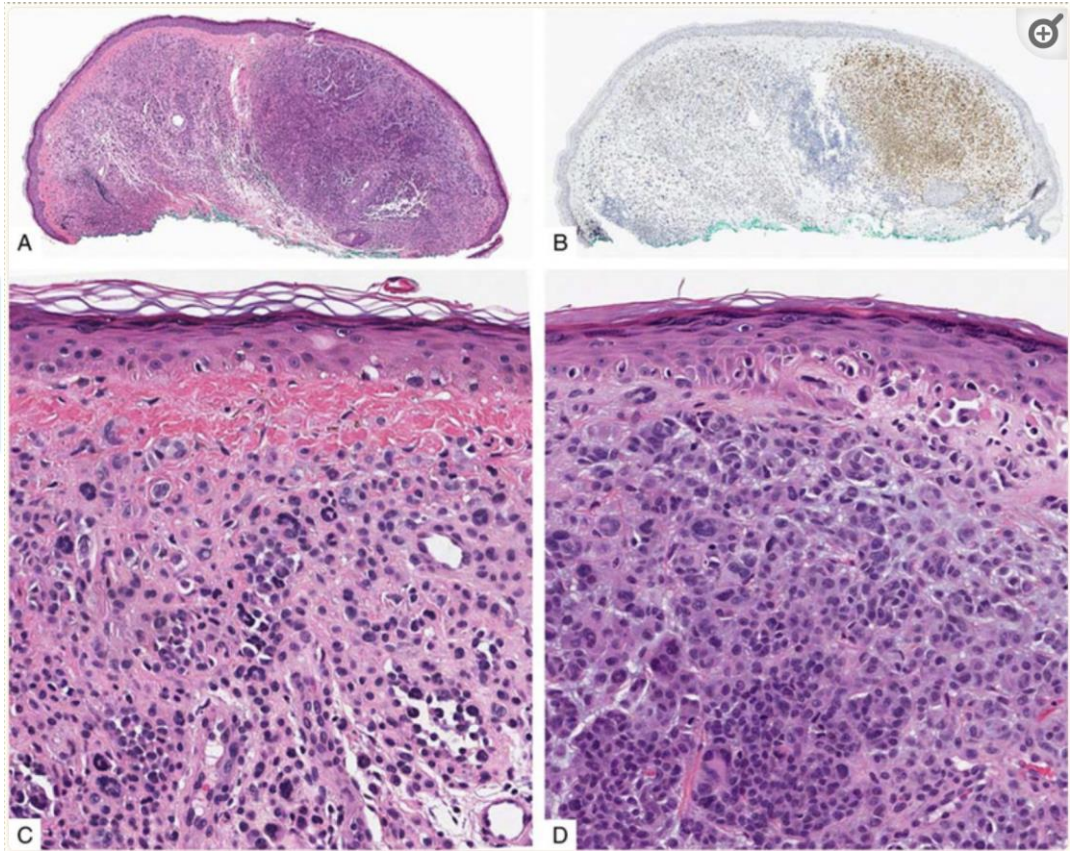


PRAME (PReferentially-expressed Antigen in MElanoma)

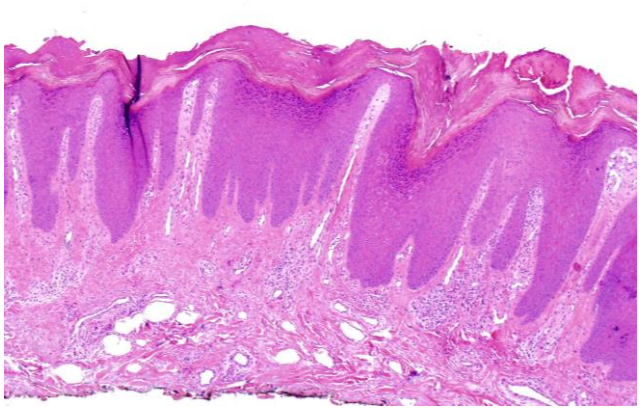


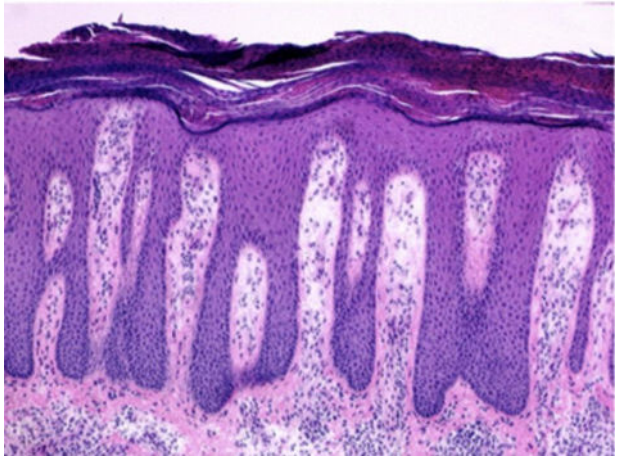
PRAME in melanoma

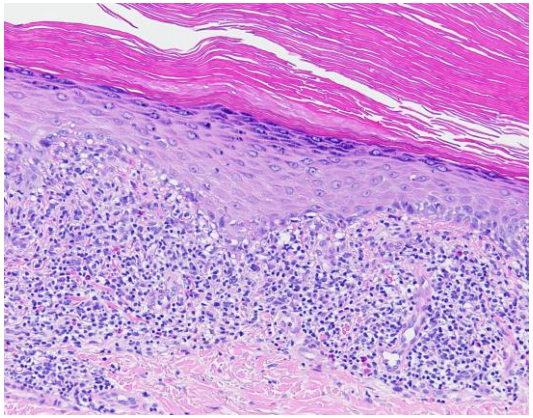




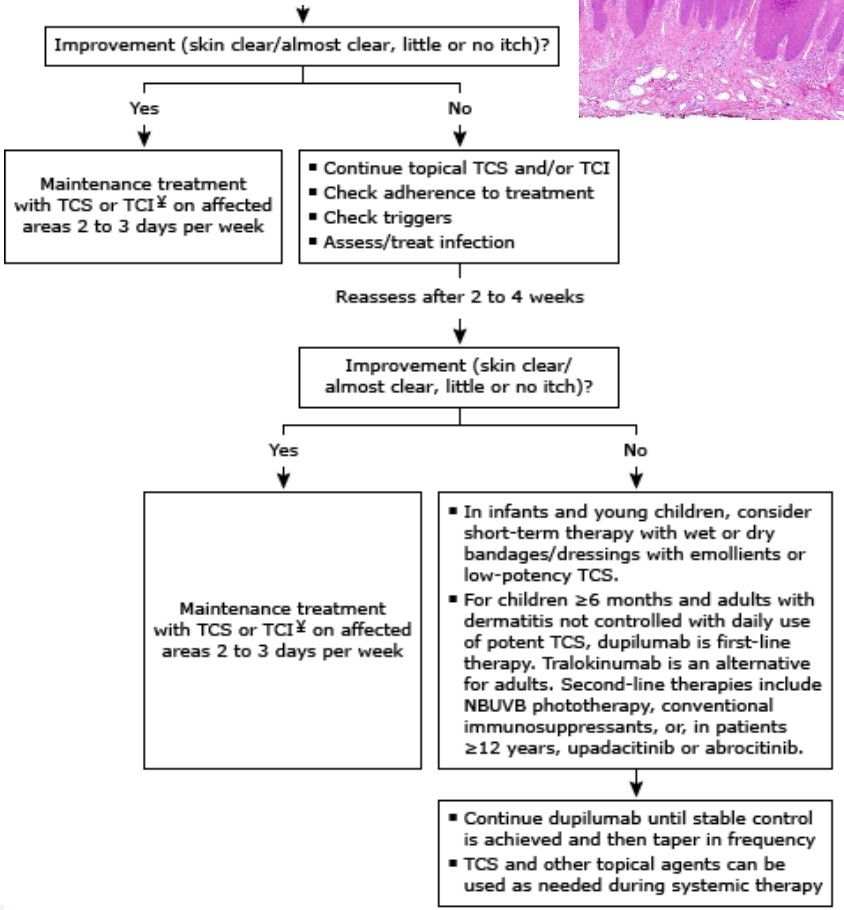
Eczematous vs psoriasiform vs lichenoid - diagnosis



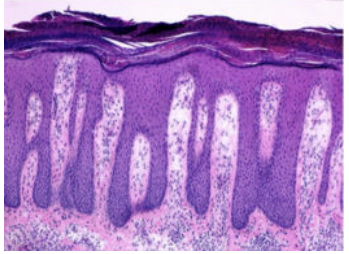




Eczema / atopic dermatitis - treatment



Psoriasis – treatment - biologics



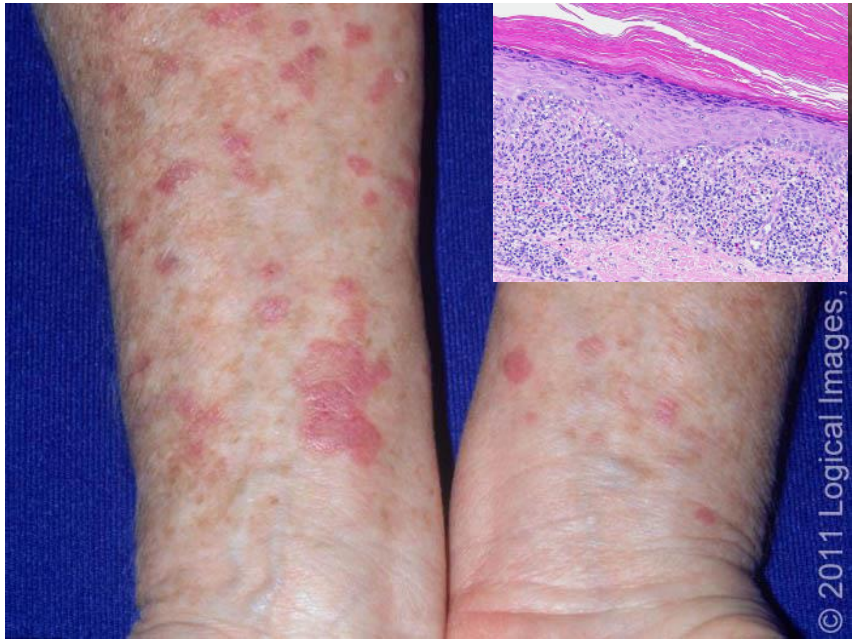
Biologic	Other Compatible Conditions	Contraindications	Dosing	Approx. Cost (First Year)	Common Adverse Reactions (>10%)	Efficacy – Primary Outcome and Long term Outcome[a]
Adalimumab (Humira) TNFi	Pregnancy Breastfeeding PsA Crohn's/UC[8-14]	Active TB or other severe infections Malignancies Hepatitis B Demyelinating disease Heart Failure[b,8]	Every 2 wks (SC)[8]	$21,559[15]	Injection site rxn Headache Skin rash Antibody Development URTI/Other infections[8]	**PASI 75 @ Week 16:** 71-79% **Loss of adequate response[d] @ Week 52:** 5%[8]
Certolizumab pegol (Cimzia) TNFi	Crohn's Disease PsA Pregnancy Breastfeeding[18]	Active TB or other severe infections Heart failure[18]	Every 2 wks (SC)[18]	$19,271[19]	Headache Nausea Antibody development URTI/Other infections[18]	**PASI 75 @ Week 16:** 75-80% **% of PASI 75 responders maintained until Week 48:** 89-98%[21]
Etanercept (Enbrel) TNFi	PsA Pregnancy Breastfeeding[12-14,22]	Hypersensitivity to etanercept Patients at risk of sepsis syndrome[22]	Twice weekly for 3 mos, then once weekly (SC)[22]	$25,983[15]	Injection site rxn Headache Skin rash URTI/Other infections[22]	**PASI 75 @ Week 12:** 47-49% **PASI 75 @ Week 96:** 51%[22]
Infliximab (Remicade) TNFi	Crohn's/UC PsA Pregnancy Breastfeeding[12-14,24]	Severe infections[c] Heart failure[24]	IV Infusion at 0, 2, and 6 wks, then every 8 wks after[24]	$30,080[49]	Infusion rxn Headache Antibody development Gastrointestinal symptoms URTI/Other infections[24]	**PASI 75 @ Week 10:** 75-80% **PASI 75 @ Week 50:** 55-61%[24]
Biosimilar Infliximab (Inflectra) TNFi	Crohn's/UC PsA/AS/RA[29]	Severe infections Heart failure Pregnancy Breastfeeding[29]	IV Infusion at 0, 2, and 6 wks, then every 8 wks after[29]	$21,000[15]	Infusion rxn Headache Antibody development Gastrointestinal symptoms URTI/Other infections[29]	Not reported (refer to infliximab)[29]

Psoriasis – treatment - biologics

Biologic	Other Compatible Conditions	Contraindications	Dosing	Approx. Cost (First Year)	Common Adverse Reactions (>10%)	Efficacy – Primary Outcome and Long term Outcome[a]
Brodalumab (Siliq) IL-17i	PsA Hepatitis B/C Pregnancy Breastfeeding[30]	Crohn Disease Hypersensitivity to brodalumab[30]	Weekly for 3 wks, then every 2 wks (SC)[30]	$18,060[15]	URTI/Other infections[30]	**sPGA 0/1 @ Week 12:** 76-80% **% of sPGA responders maintained until Week 52:** 79-83%[30]
Ixekizumab (Taltz) IL-17i	PsA Hepatitis B/C[33]	Hypersensitivity to ixekizumab Pregnancy[13]	Every two wks until week 12, then every 4 wks (SC)[33]	$25,823[15]	URTI Injection site rxn[33]	**sPGA 0/1 @ Week 12:** 73-83% **% of sPGA responders maintained until Week 60:** 75%[16]
Secukinumab (Cosentyx) IL-17i	PsA Hepatitis B/C Pregnancy Breastfeeding[35]	Hypersensitivity to secukinumab IBD TB Chronic Infection[35]	Loading dose weekly for 4 wks, then every 4 wks after (SC)[35]	$26,320[15]	URTI/Other infections[35]	**PASI 75 @ Week 12:** 75-87% **% of PASI 75 responders maintained until Week 52:** 81-84%[37]
Guselkumab (Tremfya) IL-23i	PsA (phase II RCT) Breastfeeding[40]	Hypersensitivity to guselkumab Active infection Untreated hepatitis B Hx of lymphoreticular malignancy HIV Pregnancy[39]	Once at wks 0 and 4, then every 8 wks after (SC)[39]	$21,418[15]	URTI/Other infections[39]	**PASI 90 @ Week 16:** 70-73% **% of PASI 90 responders maintained until Week 48:** 89%[39]
Ustekinumab (Stelara) IL-12/23i	PsA Crohn's Disease Pregnancy Breastfeeding[42]	Active infection Untreated hep B Hx of lymphoreticular malignancy Hypersensitivity HIV[42]	Once at 0 and 4 wks, then every 12 wks after (SC/IV)[42]	$22,966[15]	Antibody development URTI/Other infections[42]	**PASI 75 @ Week 12:** 67% **% of PASI 75 responders maintained until Week 52:** 89%[42]
Risankizumab (Skyrizi) IL-23i	Crohn's Disease (Phase II RCT)[44]	Hypersensitivity Pregnancy[44]	Once at wks 0 and 4, then every 12 wks after (SC)[44]	$24,675[15]	Antibody development URTI/Other infections[44]	**sPGA 0/1 @ Week 16:** 84-88% **sPGA 0/1 @ Week 52:** 87%[44]

Drug-induced lichenoid dermatitis – treatment

1. Eliminate potential drug causes



2. Topical steroids
3. Wide range of immunosuppresives

Group of drug	
Antimicrobial substances	Aminosalicylate sodium, ethambutol, griseofulvin, ketoconazole, streptomycin, tetracycline, trovafloxacin, isoniazid
Antihistamines (H_2-blocker)	Ranitidine*, roxatidine
Antihypertensives/antiarrhythmics	**ACE inhibitors** (captopril, enalapril), doxazosin, **beta blockers** (propranolol, labetalol, sotalol), **methyldopa**, prazosin, nifedipine, **quinidine**
Antimalarial drugs	**Chloroquine**, **hydroxychloroquine**, quinine
Antidepressives/antianxiety drugs/antipsychotics/antiseizure medications	Amitriptyline, carbamazepine, chlorpromazine, levomepromazine, methopromazine, imipramine, lorazepam, phenytoin
Diuretics	**Thiazide diuretics** (chlorothiazide and hydrochlorothiazide), furosemide, spironolactone
Antidiabetics	Sulfonylureas (chlorpropamide, glimepiride, tolazamide, tolbutamide, glyburide)
Metals	**Gold salts**, arsenic, bismuth, mercury, palladium, lithium
Nonsteroidal anti-inflammatory drugs	Acetylsalicylic acid, benoxaprofen, diflunisal, fenclofenac, flurbiprofen, ibuprofen, indomethacin, naproxen, sulindac
Proton pump inhibitors	Omeprazole, lansoprazole, pantoprazole
Lipid lowering drugs	Pravastatin, simvastatin, gemfibrozil
Tumor necrosis factor-alpha antagonists	Infliximab, adalimumab, etanercept, lenercept
Checkpoint inhibitors	Nivolumab, pembrolizumab, atezolizumab, ipilimumab
Miscellanea	Allopurinol, bleomycin, cinnarizine, cyanamide, dapsone, hydroxyurea, hepatitis B vaccine, imatinib, immunoglobulins, interferon alfa, l-thyroxin, levamisole, mesalamine, methycran, **penicillamine**, procainamide, pyrimethamine, pyrithioxine, **quinacrine**, sildenafil, sulfasalazine, terbinafine, trihexyphenidyl, ursodeoxycholic acid

The **bolded** drugs are the ones most frequently implicated.

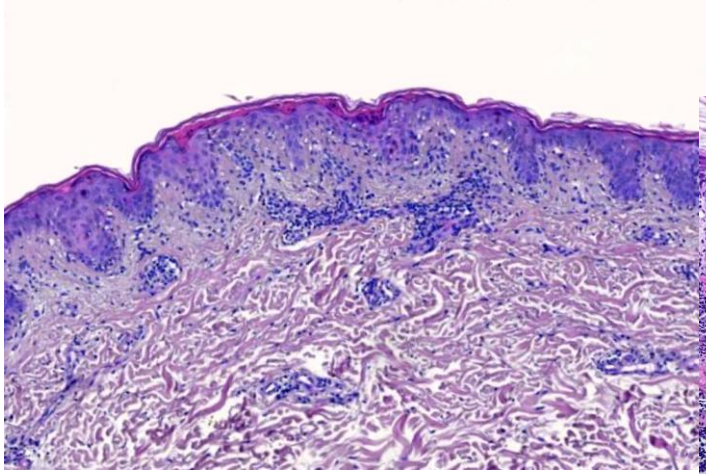
Autoimmune connective tissue disease - diagnosis

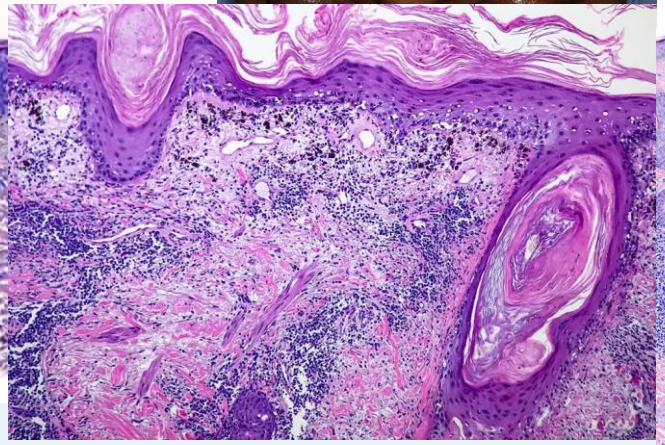
Acute cutaneous lupus

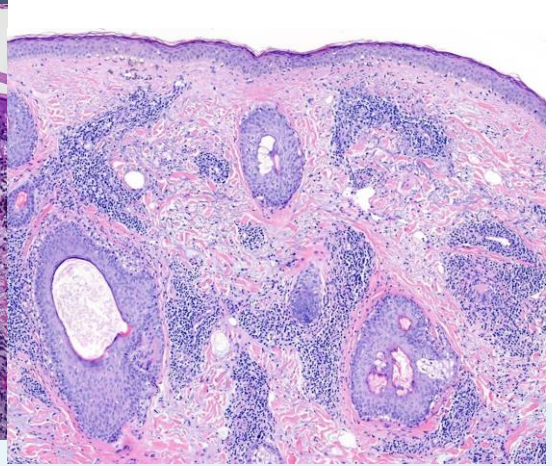
Subacute cutaneous lupus

Discoid lupus

Tumid lupus

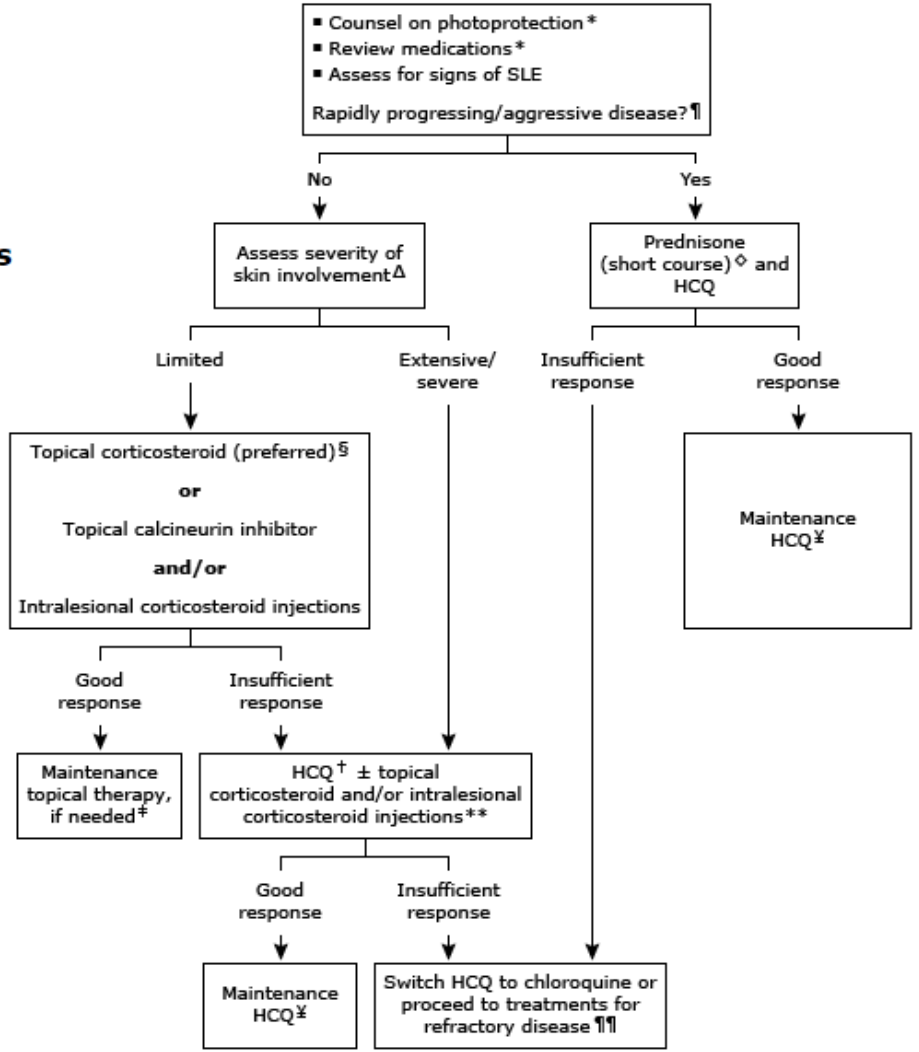






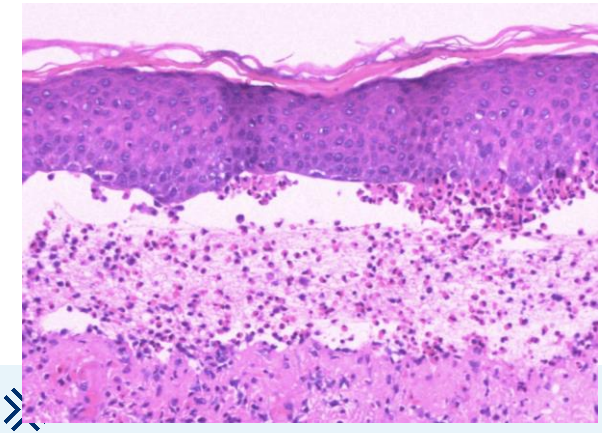
Autoimmune connective tissue disease - treatment

Management of discoid lupus erythematosus and subacute cutaneous lupus erythematosus in adults

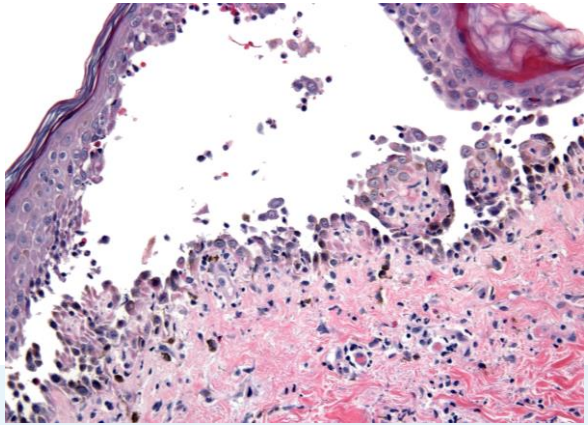


Autoimmune bullous dermatoses, examples - diagnosis

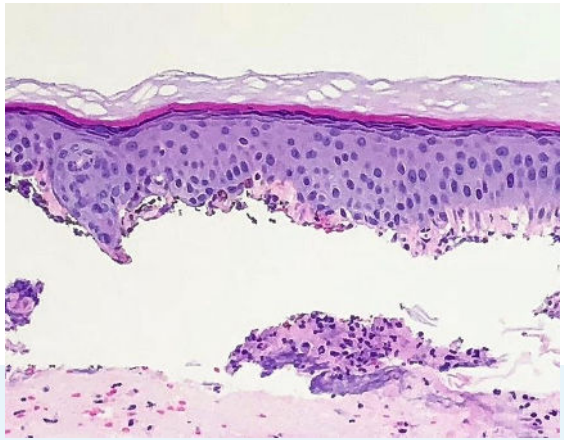
Bullous pemphigoid



Pemphigus vulgaris

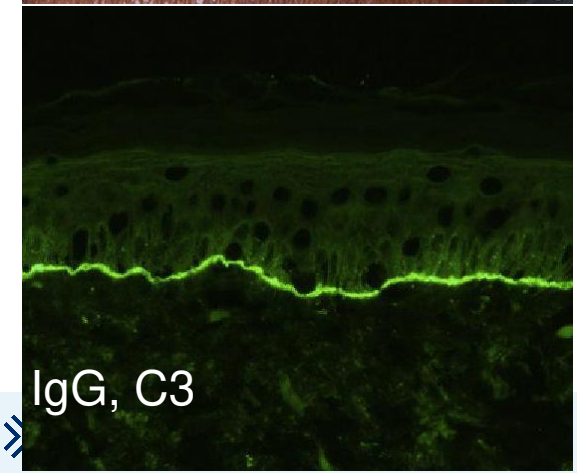


Bullous lupus

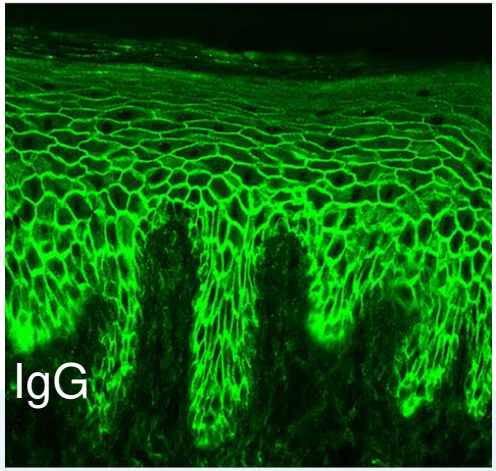


Autoimmune bullous dermatoses, examples - diagnosis

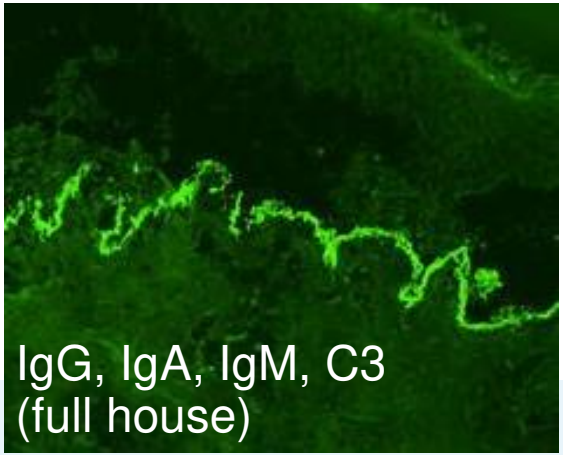
Bullous pemphigoid



Pemphigus vulgaris



Bullous lupus



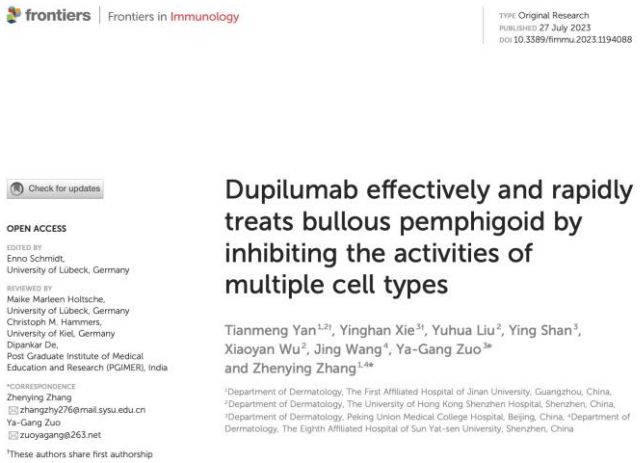
Medications implicated in drug-associated bullous pemphigoid

Likely association*	Probable association¶	Uncertain association$^{\Delta}$
▪ Alogliptin ▪ Anagliptin ▪ *Aspirin* ▪ Biostim ▪ **D-penicillamine** ▪ Enalapril ▪ Erlotinib ▪ Etanercept ▪ Everolimus ▪ **Furosemide** ▪ *Ibuprofen* ▪ Levofloxacin ▪ Linagliptin ▪ Nivolumab ▪ Pembrolizumab ▪ *Phenacetin* ▪ Psoralens with ultraviolet A ▪ Rifampicin ▪ Serratiopeptidase ▪ Sirolimus ▪ Sitagliptin ▪ Teneligliptin ▪ Tetanus toxoid ▪ **Tiobutarit** ▪ Vildagliptin	▪ Actinomycin D ▪ Adalimumab ▪ **Amoxicillin** ▪ **Ampicillin** ▪ Arsenic ▪ Atezolizumab ▪ **Bumetanide** ▪ **Celecoxib** ▪ Cephalexin ▪ Chloroquine ▪ Ciprofloxacin ▪ *Diclofenac* ▪ **Dorzolamide** ▪ Durvalumab ▪ Efalizumab ▪ *Fluoxetine* ▪ Gabapentin ▪ Griseofulvin ▪ Hepatitis B vaccine ▪ Hexavalent combined vaccine ▪ **Hydrochlorothiazide** ▪ Infliximab ▪ Ipilimumab ▪ Lisinopril ▪ *Losartan* ▪ Mefenamic acid ▪ Metamizole ▪ Metronidazole ▪ **Penicillin** ▪ **Rosuvastatin** ▪ **Spironolactone** ▪ **Sulfasalazine** ▪ Terbinafine ▪ Ustekinumab	▪ Aldesleukin (IL-2) ▪ Amantadine ▪ Amlodipine ▪ Anthralin (dithranol) ▪ Azapropazone ▪ Captopril ▪ Coal tar ▪ Complementary medicines ▪ COVID-19 mRNA vaccines ▪ Dabrafenib ▪ Doxepin ▪ Enoxaparin ▪ *Escitalopram* ▪ Fluorouracil ▪ Flupenthixol ▪ Galantamine hydrobromide ▪ Herpes zoster vaccine ▪ Influenza vaccine ▪ Iodide ▪ Levetiracetam ▪ Mesalazine ▪ Nadolol ▪ Nifedipine ▪ Novoscabin (benzyl benzoate) ▪ Omeprazole ▪ Placental extracts ▪ Photodynamic therapy ▪ Risperidone ▪ Rotavirus vaccine ▪ Sulfonamide ▪ Swine flu vaccine ▪ Timolol ▪ *Valsartan*

Treatment – autoimmune bullous disease – BP as an example

- First-line drugs
  - Systemic corticosteroids
- Adjunctive therapy
  - Mycophenolate mofetil
  - Tetracyclines + nicotinamide
  - Methotrexate
  - Dapsone
  - Rituximab
- Localized/ Nonsevere forms
  - Topical corticosteroids
  - Doxycycline

Dupilumab



frontiers | Frontiers in Immunology

TYPE Original Research
PUBLISHED 27 July 2023
DOI 10.3389/fimmu.2023.1194088

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OPEN ACCESS

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Dupilumab effectively and rapidly treats bullous pemphigoid by inhibiting the activities of multiple cell types

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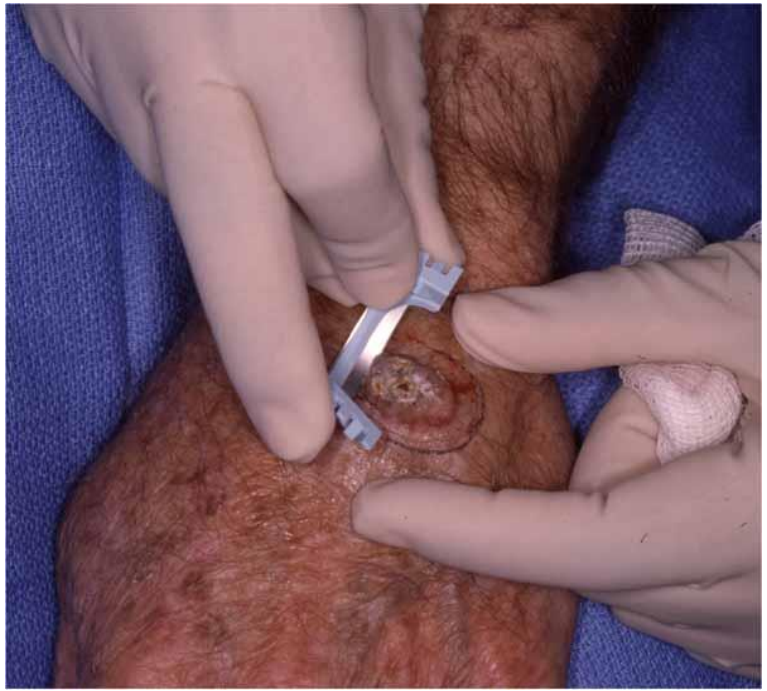
Basic dermatologic procedures

Shave biopsy



Punch biopsy

Types of Biopsies and Indications

-Pedunculated lesions (skin tags)

-Dome-shaped nevi

-NMSC (BCC/SCC)

- Pigmented lesions (ruling out melanoma)

- Connective tissue diseases (Lupus/ Dermatomyositis)

- Papulosquamous disorders (psoriasis)

-Blistering disorders (pemphigus)

-Granulomatous diseases (sarcoid)

-Vasculitis (HSP)

-NMSC (infiltrating tumors)

-Subcutaneous or deep dermal tumors (can do a “punch-within-a-punch”)

-Panniculitis (also “punch-within-a-punch”)

-Melanoma

-Atypical pigmented lesions

Biopsy Site Selection

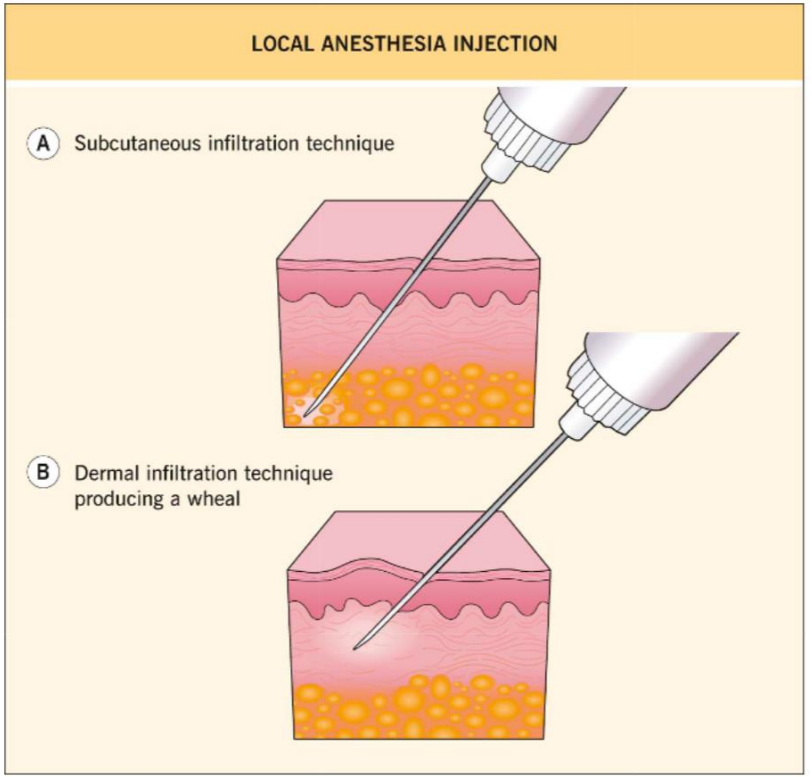
BIOPSY SITE SELECTION	
Lesion/disorder	**Appropriate site**
Tumor	Thickest portion; avoid necrotic tissue
Blister	Edge of lesion, including perilesional skin (see Fig. 0.11)
Ulcerated/necrotic lesion	Edge of ulcer or necrosis plus adjacent skin
Generalized polymorphous eruption	Characteristic lesion of recent onset (± more developed lesion)
Small vessel vasculitis	Characteristic lesion of recent onset

Patient Preparation

- Determine the type of biopsy
- Informed consent: bleeding, discomfort, infection, and scarring
- Site preparation:
  - Identification and marking
  - Time Out
  - Photograph
    - Close up for lesional details
    - Distant for identification of landmarks

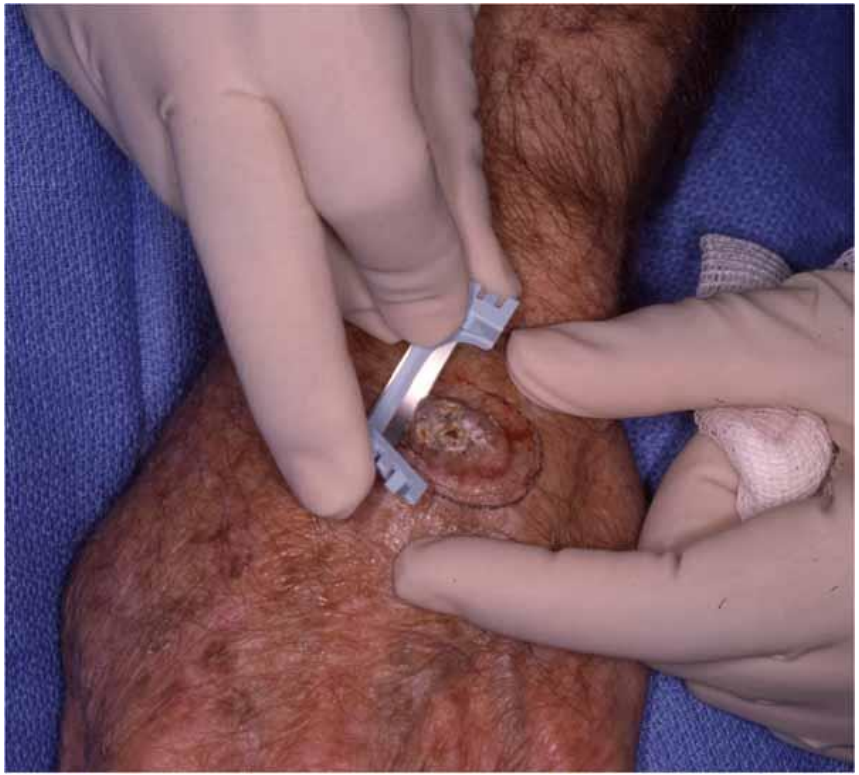
Anesthesia Techniques

- Lidocaine 1% with or with out epinephrine
- Small lesions: direct infiltration of anesthetic into lesion
- Larger lesions: a field block by placing a ring of anesthesia around surgical site
- Bevel up
- Use small gauge needle (30), insert quickly at a 45° angle
- Slow injection to create an intradermal wheal, then may proceed to subcutaneous injection depending on shave vs. punch
- Additional sticks should be done through areas that are already numb
- Use smaller syringes – require lower pressure for injection
- Warm anesthetic to body temperature
- Slow injection
- Verbal and tactile distraction

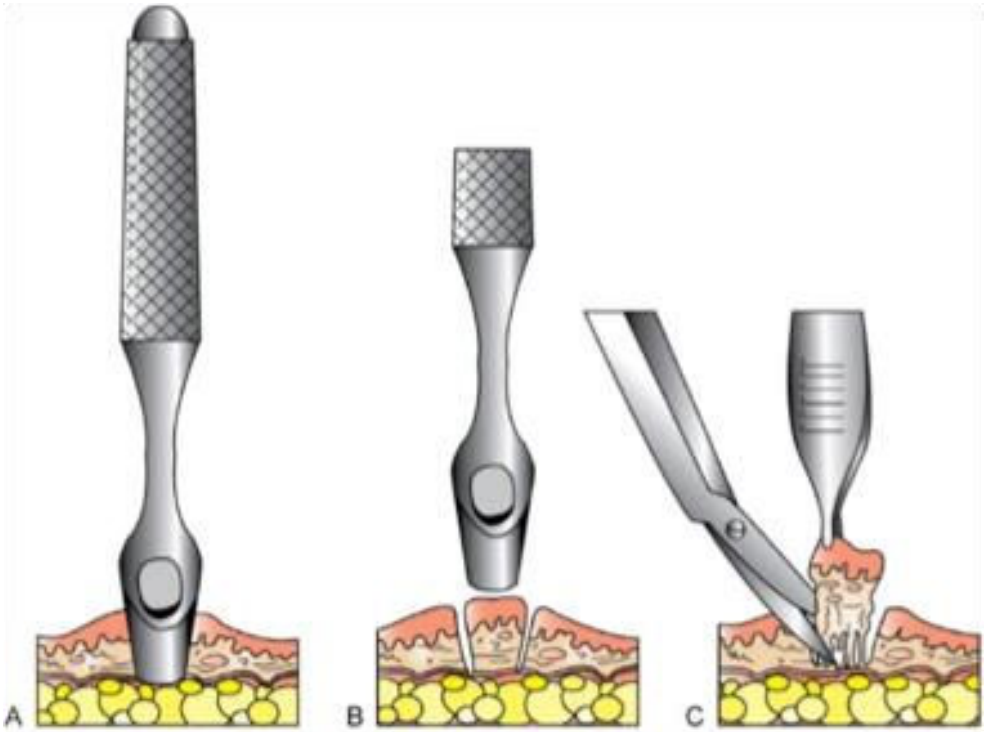


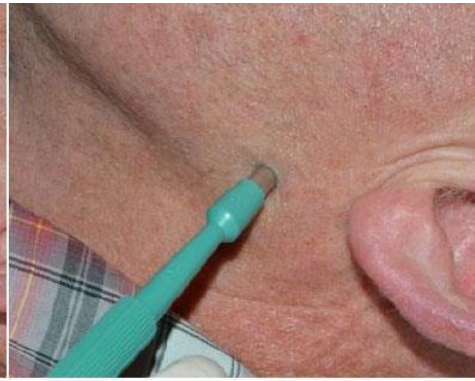
Patient Preparation Continued

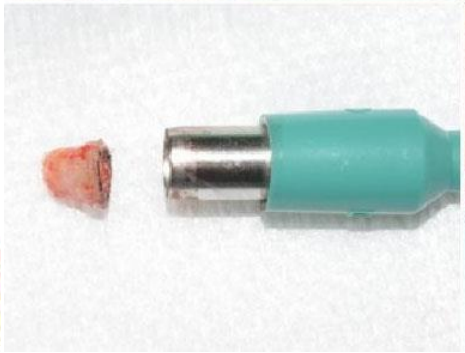
- Prep
  - ETOH swab
  - Iodine
  - Chlorhexidine
- Anesthesia
  - Plane of injection
- Procedure
  - Hemostasis: Aluminum chloride, hemostatic sponge, compression, cautery, suture, ferric subsulfate
  - Label specimen bottle with formalin



Punch Biopsy

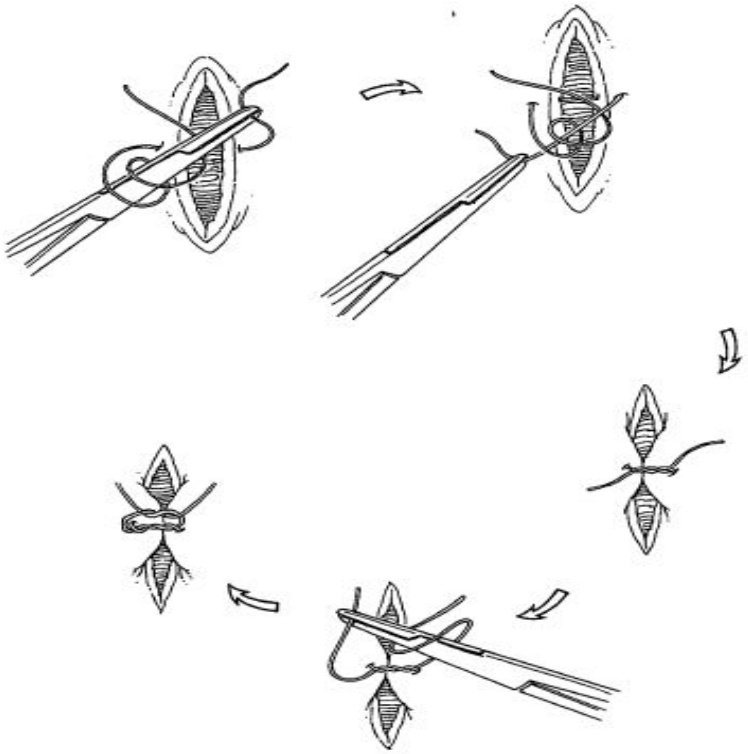




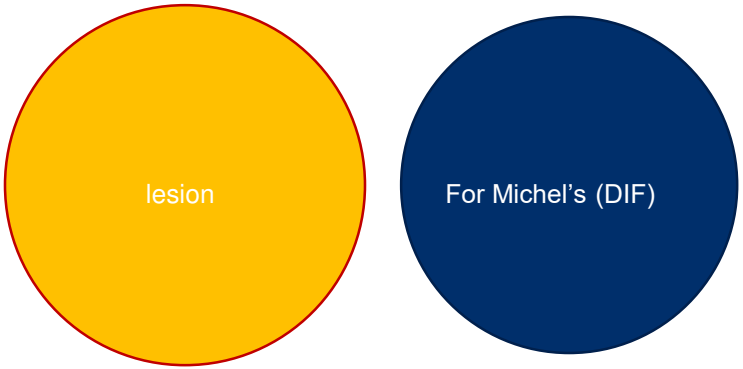


Instrument tie

- Needle holder is held parallel to the wound incision
- Needle end of suture is looped twice around the holder before grasping the free end of suture
- The free and needle end of the suture exchange sides across the wound
- Additional throws are done in a similar manner, except with one loop

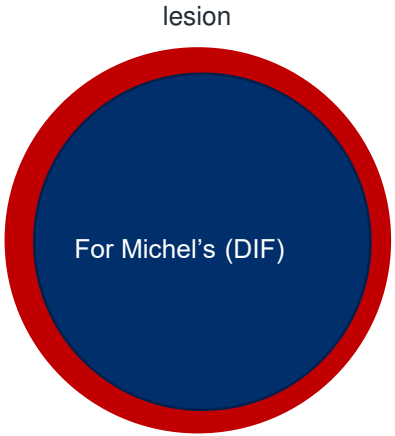


Biopsy for direct immunofluorescence



Bullous disorder

lesional perilesional



Vasculitis

lesional

CONTINUING MEDICAL EDUCATION

Skin biopsy

Biopsy issues in specific diseases

Dirk M. Elston, MD,[a] Erik J. Stratman, MD,[b] and Stanley J. Miller, MD[c]
Charleston, South Carolina; Marshfield, Wisconsin; and Baltimore, Maryland

Elston DM, Stratman EJ, Miller SJ. Skin biopsy: Biopsy issues in specific diseases.

J Am Acad Dermatol. 2016 Jan;74(1):1-16; quiz 17-8. doi: 10.1016/j.jaad.2015.06.033. Erratum in: J Am Acad Dermatol. 2016 Oct;75(4):854. PMID: 26702794.

Table I. Suspected disease entities with recommended biopsy type, size, and requested laboratory tests

Disease	Recommended biopsy technique	Comments
Autoimmune bullous diseases	H&E—Saucerized removal of intact bulla if possible, or broad saucerization of periphery of bulla DIF—Perilesional skin ≤1 cm from bulla	Avoid lower extremity when possible because of delayed healing and greater risk of false-negative results
Epidermolysis bullosa	Saucerized removal of intact bulla if possible, or broad saucerization of periphery of bulla	Blisters >12 hrs old should be avoided; a fresh blister can be induced in clinically uninvolved skin, near a site where the patient usually blisters. Topical anesthetics should be avoided because they may induce artificial blistering
Vasculitis	H&E—Punch or deep shave of well-established purpuric lesion (>72 hrs old) DIF—Punch or deep shave of acute lesion (<24 hrs old)	IgA vasculitis is more likely to retain positive DIF findings in established lesions
Panniculitis	Deep incisional biopsy	Punch biopsy specimens tend to fracture, leaving inflamed or necrotic fat behind. An electric rotary power punch can overcome this limitation. A 6-mm punch is the smallest size that should be divided for culture and H&E. The edge of a necrotic focus provides a high yield for culture and special stains. The skin surface should be prepped with alcohol and allowed to evaporate. Deliver the culture specimen to the desk that handles fungal and AFB specimens
Lupus and dermatomyositis	H&E—Punch biopsy of an established lesion (>6 months old) that is still active DIF—Punch biopsy of lesional skin; choose an established lesion (>6 months old) that is still active	
SJS/TEN vs SSSS	Shave or punch biopsy including the full thickness of the epidermis	Desquamating sheets of skin may constitute an adequate specimen
Scarring alopecia	H&E—≥4-mm punch biopsy of an established lesion (>6 months old) that is still active DIF—≥4-mm punch biopsy of lesional skin; choose an established lesion (>6 months old) that is still active	For all forms of alopecia, avoid the active advancing border. Established lesions are preferred. One specimen can be bisected transversely 1 mm above the dermal/SQ junction, or it can be submitted intact for the laboratory to section transversely or with the HoVert or Tyler techniques. One specimen can be bisected vertically—half submitted in Michel medium for DIF and half added to the formalin bottle containing the transversely bisected or intact specimen
Nonscarring alopecia	For pattern alopecia or telogen effluvium—≥4-mm punch biopsy of an established area of alopecia For alopecia areata or syphilis—≥4-mm punch biopsy of an active lesion of recent onset is preferred.	If pattern alopecia or telogen effluvium is suspected, the specimen can be bisected transversely 1 mm above the dermal/SQ junction, or it can be submitted intact for the laboratory to section transversely or with the HoVert or Tyler techniques. For other forms of nonscarring alopecia, the specimen should be submitted intact
BCC/SCC	Shave or punch biopsy of adequate depth to show the invasive pattern and detect perineural invasion if present	In convex sites or thin facial skin, more superficial shave biopsy specimens may be appropriate. The skin should be pulled taught to provide greater control over depth. Avoid creating contour defects in sebaceous skin
Suspected melanoma	Complete excisional removal whenever possible	This may take the form of a saucerization
DFSP	Deep incisional biopsy	

Billing/coding

Code	Description
11102	Tangential biopsy of skin (e.g., shave, scoop, saucerize, curette) single lesion
+11103	each separate/additional lesion (List separately in addition to code for primary procedure)
11104	Punch biopsy of skin (including simple closure, when performed) single lesion
+11105	each separate/additional lesion (List separately in addition to code for primary procedure
11106	Incisional biopsy of skin (e.g., wedge) (including simple closure, when performed) single lesion
+11107	each separate/additional lesion (List separately in addition to code for primary procedure)

Dermatology in the Primary Care Setting

Primary care providers are in a prime position to take care of dermatologic issues.

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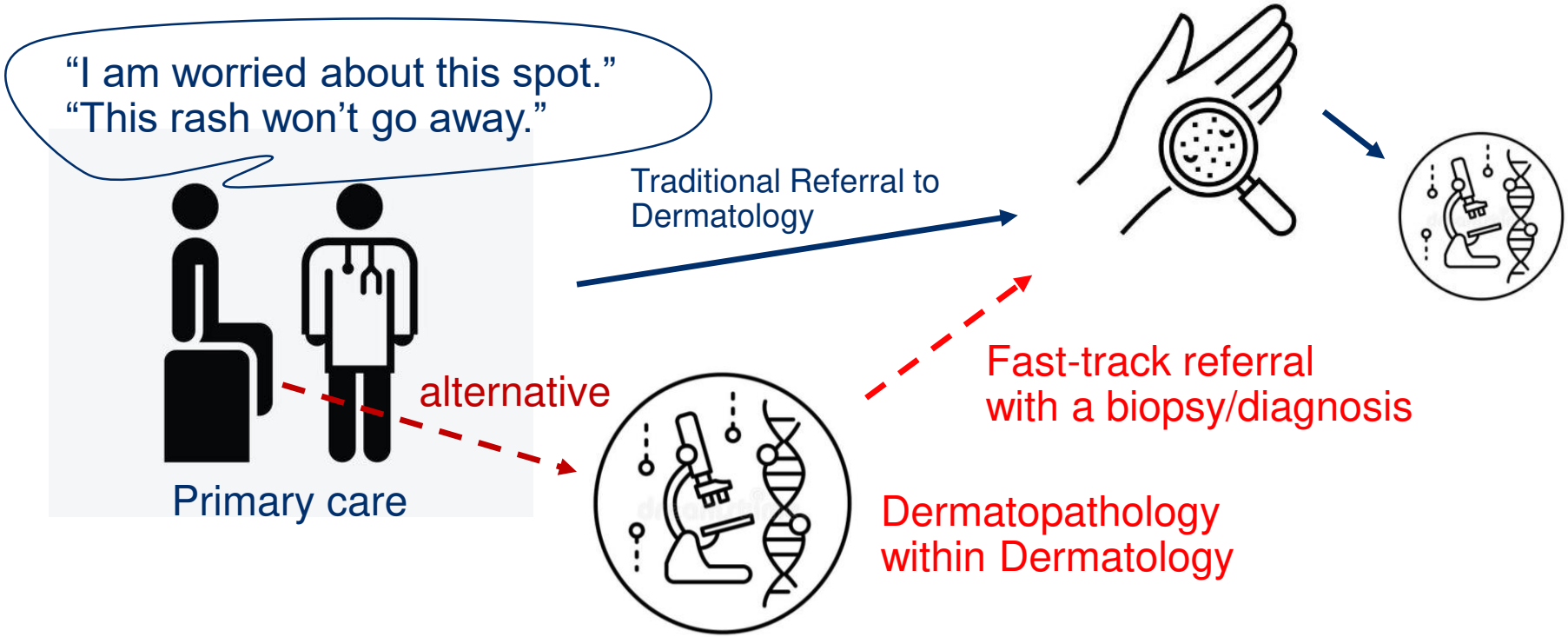

Thank you for your attention.

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