

Vesalius SCALpel™ : Skin

Benign

Exfoliative dermatoses

inflammation induced dermal-epidermal separation

toxic epidermal necrolysis (TEN)

most severe of the exfoliative dermatoses

> 30% epidermal necrosis

drugs: sulfonamides, aminoglycosides, penicillin, anticonvulsants, NSAIDs,

allopurinol

prodrome: fever, sore throat, malaise

aerodigestive mucous membranes: eyes, urethra, GI

oral inflammation most characteristic

high fever, WBC, 35% mortality

restore hemodynamics, pulmonary toilette/intubate

TF to burn center (equivalent of 2nd degree burn), burn protocol Rx for local

treatment, not for volume resuscitation

no systemic antibiotics, enteral feeding

erythema multiforme (EM)

self-limited

target lesions extremities

sore throat, malaise

most often associated with herpes simplex

drug associations: sulfonamides, penicillin, phenytoin

Stevens-Johnson syndrome (SJS)

blistering, erosion multiple mucous membranes

widespread small blisters on purpuric macules

< 10% body surface

fever, malaise

Pyogenic granuloma

capillary proliferation with or without trauma Hx

enlarge over several weeks

young, ~7yo

excise for cosmesis, bleeding

Infection

impetigo

superficial ulceration with overlying bulla

bullous: staph, non-bullous: staph or strep

topical mupirocin, local wound care

erysipelas

alpha and beta hemolytic strep.

rapid spread, warmth, erythema, pain, fever, WBC
superficial skin and lymphatics (not as deep as cellulitis)
raised geographic areas (decreased lymphatic drainage)
responsive to penicillin G
strep skin infection may lead to glomerulonephritis

Pyoderma gangrenosum

rapid, painful, blue, undermined ulcerations lower extremities and trunk
associated with inflammatory bowel disease

Keloid

outside boundary of incision, remains elevated, continues to grow
increased hyaluronidase
early steroid injection may help
mature keloid: excise plus lo dose adjuvant RT, silicone sheet, TAM (decreases collagen production by keloid fibroblasts)
hi recurrence, may come back worse

Hypertrophic scar

regresses with time v. keloid

Cancer

UV is tumor initiator and promoter

Basal cell

30-50% of caucasians in lifetime, locally destructive
30% will develop a 2nd within a year
excise with 4-7mm margin
lymph node concern only for basosquamous and clinically palpable
MOHs (successive margin frozen sections to clear) only for hi risk

Squamous

risk: sun, radiation, chronic skin condition, smoking, immunocompromise (transplant pts. skin lesion = squamous), arsenic, coal tar, paraffin oil, creosote, fuel oil
poor prognosis: > 2cm, deep, poor differentiation, rapid growth, in scar (burn, Marjolin's), perineum, positive nodes (50% 5y)
Rx: excise with 4-7mm margin, down to deep subQ
radiation for poor surgical candidate
cryo, curette and electrodesiccation, laser ablation, topical 5FU
MOHs micrographic excision 99% cure
radiation for perineural involvement
recurrence: > 2cm, aggressive histology, poor margins, incomplete excision, perineural, critical location

Melanoma

2/3 from pre-existing mole, 1/3 de novo

5% of all skin cancers, increasing at 5%/y, 80% between 25-65, average 53yo

spreads radially first, then deep

risk: Celtic, white (20:1), M>F, 10% familial disposition, dysplastic nevus syndrome, xeroderma pigmentosa, non-melanotic skin cancer, higher socioeconomic class, urban

characteristics (ABCDE)

Asymmetry

Borders: irregular

Color: variegated

Diameter: > 5mm

Elevation/evolution: height, growth

symptoms: itching, bleeding, ulceration

types

lentigo: 10%, older women (70s), superficial, exposed skin

superficial spreading: 70%, preexisting nevus, radial growth

nodular: 20%, little radial growth phase, don't follow ABCs, smooth border

acral lentiginous: 2%, fingers, palms, soles, toes, 50s, 50% in darker skinned, rare in caucasians

AJCC staging

T1 < 1mm depth; T2 1-2mm; T3 2-4mm; T4 > 4

A no ulceration, B ulceration

1-4 = intermediate depth

N1: 1 node positive, N2: 2-3 nodes, N3: 4 or >

M1a: distant skin, subQ, nodes

b: lung

c: other viscera (to bone, lung, liver, brain)

stage I: 91% 5y survival

II: 40-80%

III: 49% 5y survival (= node involvement)

IV: 10%

depth

Breslow: depth in mm, 1-5

Clark's anatomic depth:

1 epidermis

2 into papillary dermis

3 up to reticular dermis

4 into reticular dermis

5 into subcutaneous fat

prognosis

worse: male, trunk, hand, foot, LN invasion, higher number of lymph nodes, satellitosis, ulceration, high mitotic index, nodular, acral lentiginous, ulcerated, male

better prognosis: female, extremities, presence of tumor-infiltrating lymphocytes

workup

- physical exam 65-85% accurate
- dermoscopy 70-95% accurate
- CXR, liver function tests (LDH)
 - if metastatic, no aggressive local therapy
- if suspicious, Bx w/ 2mm margins
 - longitudinal excision on extremities
 - margins
 - in situ: 0.5cm
 - < 1mm: 1cm
 - > 1mm: 2cm (all depths > 1mm) + SLN
 - face 1cm, MOHs surgery for clear margin, cosmetic concerns
- subungual: amputate

lymph nodes

- depth > 1mm, Clark's level IV or V, or ulcerated do sentinel lymph node (SLN)(gamma count 10X background)
 - chance of LN met 5% if lesion is < 1mm
 - SLN should be done before wide excision for accuracy
 - (no more discussion of elective node dissection, before SLN were 80% negative)
 - node +: interferon increases disease-free interval and survival

unknown primary (5%)

- clear nodal basin; similar outcome
- search for primary: ocular, mucosal, anus, pelvis

spread

- anterior scalp, forehead and face can go to parotid as well as levels I, II and III
- ocular melanoma has a propensity to go to liver

f/u

- most recurrences before 3y
- Q4mo X2, Q6mo X3, then annual
- CXR, LDH, CBC annually
- recurrence
 - nodes 60%
 - skin & subQ 16%
 - liver, lung, bone, brain, GI
 - 75% of recurrences can see and feel
 - I & II, > 4mm, ulcerated, desmoplastic flat: 25% recurrence
- treatment of recurrence
 - pre-op CT chest/abd/pelvis
 - excise (small margin) local or nodal, if no distant disease, 25% long term survival
 - excise solitary organ met
 - radiation: 50% response rate
 - palliation

where can't get adequate margins
multiple nodes
extracapsular extension
chemo poor response
dacarbazine 20% response
interferon alpha 20%
IL2 (immuno)15%
isolation/perfusion: melphalan & TNF 80% response
recurrence too big to resect, distal extremity

Merkel cell carcinoma:

mechanoreceptor cells at base of epidermis
neuroendocrine, aggressive, 20% lymph node involvement (v 10% melanoma), 11%
satellitosis @ Dx, hi local recurrence, 55% 3y survival (v 80% 5y melanoma)
wide and deep (cells extend to subQ fat) excision, adjuvant XRT to tumor site and nodal
basin recommended
painless, solitary violaceous dermal nodule or plaque sun-exposed areas
50% head and neck, 40% extremities, 10% trunk
similar risk factors to squamous
histo: cytokeratin IHC (CK20), conspicuous paranuclear dots
neuroendocrine markers: neuron specific enolase, chromogranin, synaptophysin
differentiate from small cell lung (CK7), melanoma, keratoacanthoma
70% recurrence after wide local excision

Other skin cancers

angiosarcoma: rare, malignant, combo Rx, 33% overall survival

atypical fibroxanthoma: spindle cell, elderly male, locally aggressive, wide excision

dermatofibrosarcoma: from fibroblasts, locally aggressive

extramammary Pagets: adenocarcinoma, apocrine origin, F>M, 24% associated adenocarcinoma

Kaposi's sarcome: indolent vascular, no Rx if asymptomatic, cryo or RT if symptomatic

microcystic adnexal carcinoma: sweat ducts, MOHs

sebaceous gland carcinoma: eyelids, frequent local recurrence, 25% mets, XRT > 6mm