Getting the Most Out of Skin Biopsies
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I have no relevant relationships with industry.

Maximizing Your Inflammatory Biopsy
- Where to biopsy
- Type of biopsy
- Specific scenarios
- Communication

Choosing Biopsy Location
- In addition to considering....
  - site of scar
  - ease of post-op care
  - Most developed lesion
  - Early lesion if vesiculobullous, pustular, or vasculitis

Pathologists are from Mars
Clinicians are from Venus
Choosing Biopsy Location
- Untreated lesion
- More than one morphology, more than one biopsy

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Choosing Biopsy Type
- In general, punch biopsy rashes
- Incisional biopsy for panniculitis
- Shave if epidermal or superficial dermal process

Choosing Biopsy Type
- Consider the depth of skin involvement

Incidental Lesion

How would you biopsy this rash?
A) Punch
B) Shave
Choosing Biopsy Type

- Consider thickness of the anatomic site

ACRAL  EYELID  BACK

Specimen

- Label the specimen bottle before leaving the room
- Maintain order of multiple specimens
- See the specimen in the formalin
- Handle the specimen gently

Forcep Trauma

Maximizing Your Inflammatory Biopsy

- Where to biopsy
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Suspected MF

- Shave
- Untreated for 2-3 weeks
- Multiple sites
- Multiple times
“Invisible Dermatoses”
- Pigment disorders, collagen and elastin disorders, etc...
- Include labeled sample of normal skin for comparison

Panniculitis
- Incisional
- “Punch in a punch”

Alopecia
- 4 mm punch
  - Twice the surface area of a 3mm punch

Alopecia
- Scarring
  - Early thinning with visible scale or erythema, if present
  - Not advanced end stage
- Non-scarring
  - Advanced thinning

Alopecia

- Submit 2 punches
  - H&E and DIF if considering LE
  - Vertex and occiput if pattern vs TE
  - Allows horizontal and vertical sections.

Tyler Technique


Nail

<table>
<thead>
<tr>
<th>Method</th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>KOH</td>
<td>61%</td>
<td>95%</td>
</tr>
<tr>
<td>Culture</td>
<td>56%</td>
<td>99%</td>
</tr>
<tr>
<td>PAS</td>
<td>84%</td>
<td>89%</td>
</tr>
</tbody>
</table>

Nail Clippings

- Keratin debris is key
- Proximal as possible
- More is better
**Bullous Disorders**

- Shave or punch
- H&E of blister and intact bordering skin
- DIF of non-bullous lesional skin or perilesional skin
- Beware false negatives from the lower extremity

**Vasculitis**

- Less than 24 hours old
- Primary use is for +/- IgA

**Lupus**

- DLE: lesional exposed skin
  - At least 3 months of age
- SLE: normal exposed skin

**LP and Porphyria**

- Periphery, including lesional skin

**DIF Site**

**DIF from Formalin?**
- Not for pemphigus
- Maybe for BP and DH

**FP DIF**
- Scabies
- Orf
- Herpes simplex
- Varicella
- Grover disease
- Drug eruption

**Maximizing Your Inflammatory Biopsy**
- Where to biopsy
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**Specimen Requisition**
**5 D's**
- Demographics
  - Age, sex, race
- Description
  - Appearance, extent, distribution, prior treatment
- Duration/Change
- Diseases/Drugs
- Differential diagnosis

**Barriers to Photos**
- Time
  - Consent, taking image, downloading, labeling, sending, saving
- Computer storage
- HIPAA compliance

**Influence of evaluation of clinical pictures on the histopathologic diagnosis of inflammatory skin disorders**
- 100 cases
  - Correct diagnosis increased in 70
  - No change in diagnosis in 25

*JAAD 2010;63:647-52.*
**Survey of Dermpaths**
- ASDP members
- Clinical photo is beneficial in
  - Inflammatory skin disease 92%
  - Pigmented lesions 73%
  - Non-melanocytic tumors and growths 56%
- 91% able to provide more specific diagnosis


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**Importance of History**

**“Rash”**
- Rash causes
  - Contact dermatitis
  - Nummular eczema
  - Id reaction
  - Pityriasis rosea
  - Dyshidrotic eczema

**“Normal Skin”**
- Rash causes
  - Ichthyosis vulgaris
  - Vitiligo
  - Candida/Tinea
  - Urticaria
  - Macular amyloid
  - Mastocytosis
  - Gélatine poïon
  - Scléride
  - Café au lait macule
  - Connective tissue nevus

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**Importance of History**

**Spongiotic**
- Contact dermatitis
- Nummular eczema
- Id reaction
- Pityriasis rosea
- Dyshidrotic eczema

**Lichenoid**
- Lichen planus
- Lichenoid drug eruption
- Acral lupus
- Benign lichenoid keratosis
- Regressed melanocytic lesion

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**Importance of History**

**Acantholytic Dyskeratosis**
- RASH
  - Darier’s disease
  - Grover’s disease
- LESION
  - Acantholytic dyskeratoma
  - Warty dyskeratoma

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**Importance of History**

**“Normal Skin”**
- Rash causes
  - Ichthyosis vulgaris
  - Vitiligo
  - Candida/Tinea
  - Urticaria
  - Macular amyloid
  - Mastocytosis
  - Gélatine poïon
  - Scléride
  - Café au lait macule
  - Connective tissue nevus
13 yo with Blaschkoid distribution of warty plaques Pre-op Dx: Epidermal nevus, Epidermolytic hyperkeratosis?

What is the best diagnosis?
A. SCC
B. Irritated SK
C. Inflamed verruca
D. Prurigo
E. Hypertrophic lichen planus

Multiple lesions on the leg and also wrist with a second biopsy

What is the best diagnosis?
A. Seborrheic keratosis
B. Verruca
C. Epidermal nevus
D. Acanthosis nigricans
E. Normal skin

Seborrheic Keratosis

Epidermal Nevus
21 yo male with pink patches on the right forearm for 15 years, reportedly not present at birth, continues to get new asymptomatic pink patches on arm, feels his right arm is larger than the left.

R/o morphea vs vascular malformation vs other.
38 yo female with a several year history of a pruritic rash involving the arms, legs, chest, back and neck Flared several times a year Clinical suspicion of lichenoid dermatitis

BX# 6 in 2008

- Clinical: Lichenoid-like eruption, not improving, not confirmed by biopsy
- DDX: Lichenoid process.
Skin, left arm: Impetiginized crust with areas of superficial epidermal acantholysis and sparse dyskeratosis. (See comment)

Comment: The histologic differential diagnosis includes bullous impetigo or impetiginized Grover’s disease. The presence of sparse dyskeratotic cells militates against an acantholytic process such as pemphigus. There is no evidence of a lichenoid infiltrate.

Skin, left arm: Impetiginized crust with areas of superficial epidermal acantholysis and sparse dyskeratosis.

No family history and normal nails but... Darier’s????
2015

BX# 11

2007 Melanoma Series
Galli-Galli Disease

When Not to Biopsy

What happens to a specimen in the lab?
- Accessioned with case number
- Grossed
- Specimen is described as to type of biopsy, size, physical characteristics
- Sectioned and inked when appropriate
- Placed in a cassette(s) labeled with the case number

What happens to a specimen?
- Automatic tissue processor
- Dehydration and clearing
- Infiltrated with paraffin
- Embedding
- Orientation is essential
**Grossing**

- Specimens are sectioned every 3mm
- Larger shaves are bi-, tri- or quadra-sectioned like excisions
- Small shaves or punches 3mm or less are submitted whole

**Sectioning**
- Serial ribbons removed from block on microtome
- Picked up from water bath on glass slides

**Staining**

**End Result**

**What happens to a specimen?**

- Accessioning error
- Grossing error
  - Did not see the second portion of tissue in the bottle
- Embedding or sectioning error
- Tiny tissue didn't survive processing

**What Can Go Wrong in the Lab?**

- Delay in diagnosis
- Deeper sections/Stains
- Consultations
- Long comments
- Mistaken diagnosis
- Recommend 2nd biopsy
- Phone call
- Hedging and waffling

**What does the pathologist say when tissue or history is insufficient?**

**UNLIKELY**
- “Inadequate for diagnosis”

**MORE LIKELY**
- Delay in diagnosis
- Deeper sections/Stains
- Consultations
- Long comments
- Mistaken diagnosis
- Recommend 2nd biopsy
- Phone call
- Hedging and waffling

**Post-Lab Problems**

- Failure of report to reach appropriate clinician
- Misunderstanding of the report
  - If it doesn’t make sense call
    - Ask for deeper sections
    - Ask for second opinion
    - Ask for re-review in light of additional information

- If it doesn’t make sense:
  - Ask for deeper sections
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- If it doesn’t make sense:
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Hedges and Waffles

- Consistent with or compatible with....
- Clinical correlation required

Know your pathologist

- Multiple personalities
  - Cowboy: Black or white
  - Agnostic: No unusual case is diagnosable with absolute certainty and the biologic behavior cannot be determined
  - Meek: Consistent with or compatible with
  - Upgrader: Unusual or atypical, may be malignant
  - BEST: COMBINATION OF ALL

Know your pathologist

- Know his/her style
  - Read the microscopic and the comments
- Open lines of communication
  - If it doesn’t make sense call
  - Ask for deeper sections
  - Be accessible to discuss unusual cases

Thank You