
Choosing the Right Biopsy
10 Tips to Prevent Errors in Skin Biopsy
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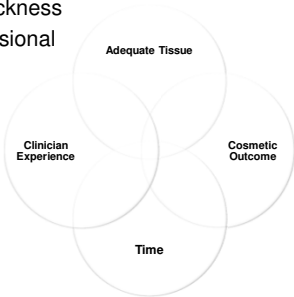
Objectives

- At the end of lecture, learner will be able to:
 - » Enumerate types of skin biopsy, their advantages & disadvantages
 - » Select appropriate biopsy site in reference to actual lesion and in relation to body location
 - » Select appropriate type of biopsy based on clinical context

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Tip #1: Know your biopsy well

- Partial vs. Full-thickness
- Incisional vs. Excisional
- Shave
- Punch
- Excisional
 - » Saucerization
- Curettage



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Tip #2: Avoid very superficial shaves

- Shave biopsy
 - » Advantages: quick, good cosmetic outcome
 - » Disadvantage: **prone to inadequate sampling**
- Cause of errors:
 - » Thickening of superficial skin due to anatomy (e.g., acral skin), or
 - » Due to disease process (hyperkeratinization, hyperkeratosis, etc.)

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Tip #2: Avoid very superficial shaves

FIGURE 1
Sufficient tissue sampling makes all the difference



A superficial biopsy (A) reveals little diagnostic material. A deeper biopsy of the same lesion (B) reveals findings that are characteristic of a wart.

1. J Fam Pract. 2014 Oct;63(10):559-64.

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Shave Biopsy Videos

- Flexible blade (i.e., *Dermablade*)
- #15 surgical blade
- #10 surgical blade

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Tip #3: Use punch biopsy for rashes

- Punch biopsy
 - » Advantages: quick, full-thickness, good cosmetic outcome
 - » Disadvantage: **can only sample a small area (1-4mm)**
- Inflammatory skin conditions:¹
 - » Sampling of deep dermis is important (e.g., lichen planus vs cutaneous lupus)
 - » Use **4mm punch** for rashes
 - » For 1-4mm punch, scar is same w/ or w/o suturing²

1. J Fam Pract. 2014 Oct;63(10):559-64.
2. Arch Dermatol. 2005 Sep;141(9):1093-9.

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Tip #3: Use punch biopsy for rashes

FIGURE 2
Choose punch biopsy for rashes

For inflammatory skin conditions, a punch biopsy (A) can demonstrate superficial (arrow) and deep dermis (arrowhead) features of the skin, which can help establish a diagnosis, compared to a more superficial biopsy of the same lesion (B), which is more difficult to interpret. In this case, the presence of deep inflammation as seen in A is helpful in making the diagnosis of lupus.

1. J Fam Pract. 2014 Oct;63(10):559-64.

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Punch Biopsy Steps

3. Am Fam Physician. 2011 Nov 1;84(9):995-1002.

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Tip #4: Use excisional biopsy for melanocytic lesions

- Excision = actual lesion + margins
 - » Advantage: adequate tissue
 - » Disadvantages: **time, expertise, bigger scar**
- Excise melanocytic lesions using 1-3mm margins.^{4,5}
- Elliptical excision vs. Saucerization (deep scoop)
 - » Partial biopsies lead to more residual disease at WLE and errors in staging.^{6,7}
 - » However, partial biopsies do NOT affect melanoma-specific morbidity or mortality.^{3,8,9}

3. Am Fam Physician. 2011 Nov 1;84(9):995-1002.
4. J Natl Compr Canc Netw. 2006;4(7):666-684.
5. J Am Acad Dermatol. 2001; 45(4): 579-586.
6. Am Surg Oncol. 2007; 14:893-898.
7. Am J Surg. 2011;202:771-778.
8. Dermatol Surg. 2014 Oct;40(10):1077-83.
9. Am J Surg. 2013 May;205(5):585-90.

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Excisional Biopsy Videos

- Elliptical excision
- Saucerization (deep scoop shave) biopsy

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Tip #5: Avoid curettage for melanocytic lesions

- Curettage
 - » Advantages: quick, good cosmetic outcome
 - » Disadvantage: **distorts tissue architecture**
- Recommendations:
 - » **Only use as primary biopsy/procedure if diagnosis is certain!**
 - » For the most part, curettage is an adjunctive procedure.
 - Curettage and electrodesiccation for BCC or Bowen's disease
 - Curettage after shave excision of seborrheic keratosis

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Curettage Video

- Curettage after shave biopsy

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Tip #6: Know where to biopsy

Lesion suspected	Where to biopsy
Basal cell carcinoma	raised, non-ulcerated area
Squamous cell carcinoma	central, thickened area
Melanoma	<i>if excision not possible, biopsy darkest, raised portion</i>
Vesicular-bullous	fresh lesion at margin; include normal tissue
Rashes	primary lesion

10. Procedures Consult. 2012. 14

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Tip #6: Know where to biopsy

- **Avoid** these areas if multiple lesions can be biopsied:
 - » Face
 - » Upper chest, deltoids – hypertrophic scars
 - » Fingers, toes, areas overlying joints
 - » Areas prone to infection – groin, feet, axilla
 - » Areas that heal poorly – pretibial region, edematous legs, ischemic limbs
 - » Neurovascular structures – neck, groin
 - » Lesions with secondary changes – excoriation, lichenification, etc.
 - » Ulcerated areas – instead, biopsy edges/perilesional area

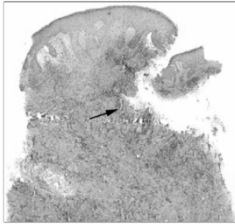
10. Procedures Consult. 2012. 15

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Tip #7: Be gentle w/ specimen; fix right away

- Aggressive handling can cause “**crush artifact**”
- Prolonged “**cold time**” (i.e., time out of formalin) may destroy specimen

FIGURE 5
Handle samples with care...



Aggressive manipulation of a biopsy sample while collecting it or transferring it to formalin can cause “crush” artifact (arrow), which can lead to overpenetration.

1. J Fam Pract. 2014 Oct;63(10):559-64. 16

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Tip #8: Photograph and document biopsy site

- Some biopsies heal so well they may difficult to find.
 - » Problematic if patient is returning for re-excision
- Document lesion
 - » By photography: in reference to anatomic landmarks
 - » In medical record: using bi- or triangulation

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Tip #9: Give pathologist pertinent info

<ul style="list-style-type: none"> • Demographics <ul style="list-style-type: none"> » Age of patient, location, distribution • Diameter <ul style="list-style-type: none"> » mm or cm • Description of primary & secondary lesions <ul style="list-style-type: none"> » 1^o: papule, vesicle, etc. » 2^o: crust, excoriation, hyperkeratosis, telangiectasia, etc. 	<ul style="list-style-type: none"> • Duration <ul style="list-style-type: none"> » days, weeks, months • Diseases <ul style="list-style-type: none"> » Prior skin cancer, diabetes, rheumatologic d/o, etc. • Drugs <ul style="list-style-type: none"> » Topical, systemic • DDx <ul style="list-style-type: none"> » Broad vs specific
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10. Procedures Consult. 2012. 18

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Tip #10: Know when to refer

- Refer:
 - » Melanocytic lesions that are difficult to biopsy
 - » When biopsy may compromise adjacent critical structures
 - » When wound closure may be an issue post-biopsy
 - » If uncontrolled bleeding is likely
 - » Lesions with non-specific histopathology that are not responding to therapy

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Summary

- Biopsy types:
 - » Incisional vs excisional; Partial vs full-thickness
 - » Choice of biopsy type balances need for tissue, cosmesis, time, and skill.
- Choice of biopsy site is determined by:
 - » Working diagnosis – SCC (center), BCC (avoid ulcerated area), bulla (edge), rashes (primary lesion) - **[SOR C]**
 - » Likelihood of healing, infection, damage to adjacent structures, and yield of sampling. **[SOR C]**

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Summary

- Choice of biopsy type:
 - » Avoid very superficial shave biopsies. **[SOR C]**
 - » Use punch biopsy for rashes. **[SOR C]**
 - » Excise melanocytic lesions using 1-3mm margins. **[SOR C]**
 - » Avoid curettage for melanocytic lesions and for lesions with uncertain diagnosis. **[SOR C]**
- Other pearls:
 - » Handle specimen gently to avoid crush artifacts. Minimize "cold time" by promptly fixing tissue in appropriate media. **[SOR C]**
 - » Photograph and carefully document biopsy site. **[SOR C]**
 - » Provide your pathologist a pertinent history. **[SOR C]**
 - » Refer when appropriate. **[SOR C]**

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References

1. J Fam Pract. 2014 Oct;63(10):559-64.
2. Arch Dermatol. 2005 Sep;141(9):1093-9.
3. Am Fam Physician. 2011 Nov 1;84(9):995-1002.
4. J Natl Compr Canc Netw. 2006;4(7):666-684.
5. J Am Acad Dermatol. 2001; 45(4): 579-586.
6. Ann Surg Oncol. 2007;14:893-898.
7. Am J Surg. 2011;202:771-778.
8. Dermatol Surg. 2014 Oct;40(10):1077-83.
9. Am J Surg. 2013 May;205(5):585-90.
10. Procedures Consult. 2012, accessed 1/13/15.

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