

CUT-OUT AND KEEP...

Tips for successful skin scrapes and biopsies

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Skin scrapes

1/ Choose the depth of scrape...

- Superficial for surface parasites (e.g. *Cheyletiella*).
- Deep for deeper parasites (e.g. *Demodex*, *Sarcoptes*).

... and best sites

- Scrape non-traumatized primary lesions, where possible.
- *Sarcoptes*: look for lesions on margin of pinna, elbows, hocks and ventrum.
- *Demodex*: include areas of alopecia, comedones, hyperpigmentation (NB: also examine trichograms in mineral oil).

2/ Take a good quality sample and view carefully

- Clip hair from sampling area (do not disturb scale or skin surface if superficial scrape).
- Place mineral oil onto scalpel blade and a few drops directly on skin.
- Squeeze skin prior to scraping if suspect *Demodex*.
- Scrape with blade at 90° to the skin surface, in the direction of hair growth (**Figure 1**).
- How deep to scrape?
 - Deep scrape: until just drawn blood.
 - Superficial scrape: no need to draw blood.
- Put material on one or more slides in mineral oil and cover with coverslip (**Figure 2**).

- Lower the condenser on the microscope to improve contrast.
- Scan whole slide systematically under x40 or x100 magnification.

3/ Pitfalls

- Too few samples – take at least six if possible.
- Inadequate mineral oil
- No coverslip
- Sample too thick or obscured by blood
- Light intensity too great
- Not examined thoroughly!



Figure 1.



Figure 2.

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Skin biopsy

1/ Choose the best biopsy sites

- Sample a representative range of lesions.
- Take multiple samples (unless a solitary lesion) – minimum of 3.
- Try to sample fully developed primary lesions where possible, avoiding traumatized skin.
- For alopecia: biopsy the area of maximum hair loss, the margin of the alopecic area, and normal haired skin.
- For ulcerated skin: biopsy the ulcerated area and

the area just adjacent to the ulcer, where the epidermis is still intact.

- For pustules, vesicles or bullae: remove the whole lesion without disruption.

2/ Prepare the site carefully

- Clip hair, but not too short – scissors often preferable to clippers.



TIPS FOR SUCCESSFUL SKIN SCRAPES AND BIOPSIES

- Do not disturb crusts or skin surface.
- Do not prep or scrub the skin (unless excisional biopsy of nodules).
- Draw an orientation line along the line of hair growth in indelible marker (especially for cases of alopecia) (**Figure 3**).

3/ Punch or wedge/ellipse biopsy?

Wedge or ellipse used for:

- Excision of solitary nodules.
- Transition from normal to lesional skin (e.g. edge of area of alopecia or ulceration).
- Vesicles
- Suspected deep lesions, e.g. panniculitis.

Punch biopsy:

- Use 4mm biopsy punches only for delicate structures e.g. nasal planum of small dogs; use 6mm or 8mm punches routinely.
- Hold perpendicular to skin surface.
- Rotate in one direction only, not back and forth.
- Do not re-use blunt biopsy punches!

4/ Handle the sample appropriately

- Handle biopsy gently by subcutaneous tissue only, never the dermis or epidermis (**Figure 4**).
- Blot blood gently from the underside of sample.
- If thin sample, place on piece of stiff card or end of wooden tongue depressor (subcutaneous tissue down) to prevent curling (**Figure 5**).
- Immediately place whole 'unit' in formalin, tissue-side down.
- Use 10% formalin and a volume at least 10x that of the tissue sample.



Figure 3.

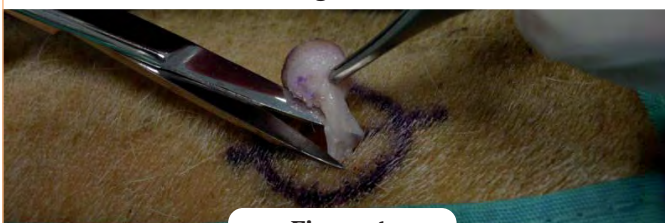


Figure 4.



Figure 5.

5/ Help the pathologist

- Give the pathologist a full history.
- Send to a pathologist with particular interest in dermatohistopathology if possible.

6/ Special considerations for cutaneous masses...

- May not be homogeneous, especially if large, so incisional wedge biopsy (**Figure 6**) or excisional biopsy (**Figure 7**) likely to be more representative than punch biopsy.
- If an invasive neoplasm is suspected, take incisional biopsy first to identify mass before attempting removal – helps to ensure adequate margins taken.
- Ensure biopsy tracts are excised, with adequate margins, when tumor subsequently removed.
- Remove deeper tissue 'en bloc' and submit untrimmed to look for spread.
- Maximum 1 cm tissue thickness for adequate fixation.

7/ ... and for bacterial and fungal tissue culture

- Withdraw antibiotics for 5-7 days prior to sampling.
- Submit punch biopsy sample in sterile saline or sterile saline-soaked swab.
- If mycobacterial disease is suspected, make impression smear of biopsied tissue for cytology and submit tissue for histopathology (request Ziehl-Neelsen stains on both). Also freeze unfixed tissue for subsequent mycobacterial culture if required. (*NB*: take precautions in sampling and submission as potentially zoonotic).

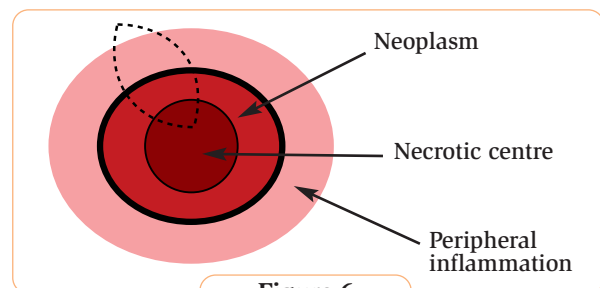


Figure 6.

Incisional wedge biopsy

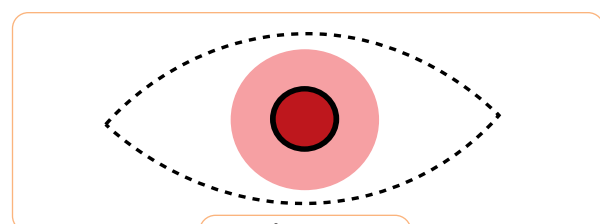


Figure 7.

Excisional biopsy

