

Avoiding the Dreaded “Non-conclusive” Biopsy Results

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It has been reported that when proper biopsy procedure is followed, a diagnosis can be obtained in more than 90% of cases. The key features of proper biopsy procedure include (1) what to do BEFORE you biopsy (2) how to choose your biopsy location (3) biopsy procedure and (4) sending your sample to your pathologist. By following these guidelines, you can greatly minimize the dreaded “non-conclusive” result.

Considerations BEFORE biopsy

On presentation to a veterinarian, many dermatology patients are pruritic, have substantial skin inflammation and have signs of a secondary infection. While treatment of these signs is warranted, if you are considering a biopsy, it is necessary to take into consideration how both treatment and presence of these signs might affect the biopsy sample interpretation.

Because we want our patients to be comfortable, it may be tempting to prescribe steroids prior to biopsy to decrease inflammation and decrease pruritus. However, keep in mind that if you decrease inflammation on the skin, you will also decrease the number of inflammatory cells that your pathologist will see - which is one of the critical features that will be used to obtain your diagnosis. Because of this, it is recommended that oral steroids are stopped for at least 3 weeks prior to biopsy and injectable steroids are withdrawn at least 8 weeks prior to biopsy.

While a biopsy after giving steroids can create a non-conclusive result due to a lack of inflammatory cells, a biopsy with secondary infection can create a non-conclusive result for the opposite reason - too much inflammation! Your pathologist is a little like Goldilocks in this respect - the amount of inflammation should be “just right.” In other words, the amount of inflammation in your biopsy should adequately reflect the underlying disease process and not inflammation due to secondary infection. Therefore, before proceeding with a biopsy, any secondary infection should be addressed for a minimum of two weeks. If it is not, the changes seen with infection may create a lot of “noise” and obscure the diagnosis.

How to choose your biopsy location

Choosing your biopsy location is one of the most crucial components of getting a diagnostic sample. Having a list of differentials in mind will help you to determine which sites to select. For example, if you are suspecting that your patient has a form of cutaneous lupus, you will likely biopsy a site that is hypopigmented due to the likelihood of seeing pigmentary incontinence. Before proceeding, take some time to look at your patient and circle your future biopsy locations. In general, primary lesions, such as macules, papules, intact pustules, nodules, wheals, or vesicles, are good locations to biopsy. If crusts are present, you will want to make sure that you include this in your sample, as this can provide vital information for diagnosis of certain disease processes, such as superficial pemphigus. If ulcers are present, avoid biopsy of the middle of the ulcer. Instead, take your sample from the edge, representing the early changes that led to the ulcer. If pigment loss is noted, sample from the grey area which represents active depigmentation, rather than the white areas which represents the area where the pigment change has ceased. If you have alopecia, your sample should only include skin with alopecia. Obtaining one biopsy with both haired and non-haired skin may be cut for processing by the lab in a way that only the haired portion of the skin is evaluated, leading to a non-conclusive result. It is wise to choose at least 3-4 biopsy locations in various stages of the disease process if possible.

Biopsy procedure

Most of us have been taught to create a sterile field anytime we make an incision. While this is true in most cases, this is not true of skin biopsies. Because skin biopsies are looking at the changes in and on the skin, it is not advised to surgically prepare the skin prior to biopsy. This will often wipe the surface clean of any diagnostic changes and lead to a non-conclusive result. It is also wise to select samples that have not been treated topically, as this could also affect your results. To prepare your biopsy location for sampling, clip or remove the hair at your biopsy location but take care not to let the clippers or scissors touch the skin surface. For most skin lesions, a 6 mm punch is adequate. After you have punched your lesion, it is also imperative that the tissue is grasped from the base of the sample, taking care not to create crush artifact leading to a non-conclusive result (see Figure 1, tangerine biopsy).

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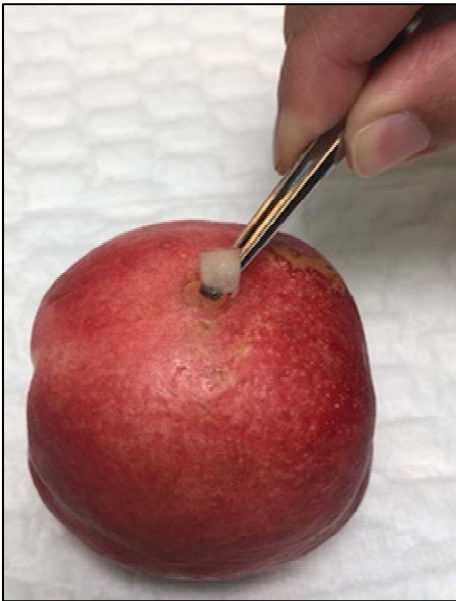
Sending your sample to a pathologist

While a single histopathologic evaluation is a valuable tool, it is important that you and your pathologist interpret the results in light of the clinical history. It is therefore imperative to provide a complete history of your patient, including pictures whenever possible. Sending your sample to a board certified dermatopathologist may also provide additional diagnostic and therapeutic information based on history and biopsy findings.

If you are ever in doubt about any of the above procedures, give your local board-certified dermatologist a call!

Figure 1. Nectarine biopsy.

DO this:



Do NOT do this:



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