

THE
Derm
VET's

GUIDE TO *collecting cytology*

WRITTEN BY:

Dr. Ashley Bourgeois,
DVM, Diplomate ACVD

snout school x the dermatologist

The page is framed by a teal border with a pattern of irregular, organic shapes. The central area is white.

table of contents

03 FAQs

07 COLLECTION METHODS

- 10 DIRECT IMPRESSION
- 12 SWAB
- 14 EAR CANAL
- 16 TAPE PREP
- 18 TOOTHPICK METHOD
- 20 SCRAPING

21 STAINING SLIDES

HELLO!
from
DOCTOR
ASHLEY

Every time I lecture about dermatology, I stress the importance of cytology. Allergies, otitis, autoimmune... doesn't matter! Cytology everything! But then, I noticed the same question getting asked over and over again.

"But, HOW do you collect a cytology?"

I often struggled to answer such an easy question. Something I do all day. Second nature to me. Yet, I was constantly getting asked how to do it. I would try to verbally explain or use hand gestures. Yet, it didn't seem to click and I was confusing veterinarians more than anything.

Then, I started using pictures and videos of me actually collecting cytology in presentations and social media posts and it finally made sense. I started getting messages from veterinarians excited that they finally figured it out. They were finding all sorts of organisms in dog claw folds and on cat skin! See, once you get the hang of cytology it's simple. And, it's exciting because the results are instant!

But, depending on your veterinary school courses or clinic culture, basic cytology techniques may not be taught or implemented in your daily practice. My goal was to make an easy and visual guide to the different cytology collection techniques. Something veterinarians, technicians and assistants could reference quickly. The ability to start using cytology today!

I get asked about resources for cytology collection that can be used within practices trying to up their derm game. Well, here it is!

I hope you find it fun and practical. Mostly, I hope you learn to love cytology as much as I do!

XO
Dr. Ashley Bourgeois

PART ONE

cytology

FAQs



WHY DO CYTOLOGY?



QUICK COLLECTION



NONINVASIVE



INEXPENSIVE



INSTANT RESULTS



MINIMUM DATABASE
FOR DERMATOLOGY CASES

- Diagnosis
- Treatment monitoring



WHAT ARE YOU LOOKING FOR?



INFECTION

Bacteria
Yeast
Fungal spores



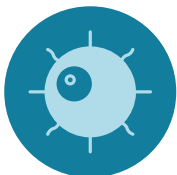
INFLAMMATION

Neutrophils: infection, inflammation
Eosinophils: hypersensitivity, parasites
Macrophages: infection, inflammation



ACANTHOLYTIC KERATINOCYTES

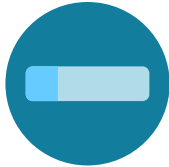
Suggestive of pemphigus



NEOPLASTIC CELLS

Q

WHAT DO YOU NEED?



SLIDES



DIFF-QUIK STAIN™



MICROSCOPE

+/- coverslip (if preserving slide long term)

+/- scalpel blade

+/- toothpick

+/- tape

+/- cotton tipped applicator



IMMERSION OIL



CONFIDENCE!

remember practice makes perfect like anything else!

PART TWO

collection method

HOW TOs

PG 10 DIRECT
IMPRESSION

PG 12 SWAB

PG 14 EAR CANAL

PG 16 TAPE PREP

PG 18 TOOTHPICK METHOD
FOR CLAW FOLDS

PG 20 SCRAPING



DIRECT IMPRESSION

*The method I use the most!
Obtain samples by directly using the slide to
collect exudate and debris.*

DIRECT IMPRESSION

HOW TO:

1. Use the edge of the slide at a 30-45 degree angle to disrupt the top layer of skin, get under a crust, open a pustule, dislodge scale, etc.
2. Firmly press/smear material onto the slide

WHEN:

Moist, greasy or exudative lesions

Most common technique for removing crusts or sampling papules and pustules

PRO TIPS:

You get more intact cells the gentler you are. However, you want to be firm enough to obtain a significant sample.

Can be done at interdigital spaces by using your finger on the opposite side of the interdigital webbing and pushing up to make skin more accessible.

Can open pustules with a needle as alternative and then press slide on exudate.



SWAB

Use a cotton-tipped applicator to collect samples from moist skin or tight spaces. This can allow you deeper access into tracts or a safer option for delicate anatomic regions.

SWAB

HOW TO:

1. *Rub or roll cotton-tipped applicator onto affected skin surface*
 - a. *May also be placed and rotated in draining tract*
2. *Roll sample onto slide*

WHEN:

Obtain specimens from moist lesions or draining tracts

Use for areas with limited accessibility or near organs you don't want to risk trauma (ie- periocular to avoid eye trauma)

PRO TIPS:

You can perform with a dry cotton-tipped applicator, or you can moisten with sterile saline.

Avoid rubbing samples on slide, as this can rupture cells!



EAR CANAL

The most common way to use the swab technique. Even if you can't fit an otoscopic cone down a swollen ear, a sample can usually be collected with this technique!

EAR CANAL

HOW TO:

1. *Insert a cotton-tipped applicator into the ear canal to the junction of the vertical and horizontal canal*
2. *Gently rotate within the canal to collect exudate and debris*
3. *Roll sample onto slide*
4. *Sample can be heat-fixed if exudative, although most don't have to be!*

WHEN:

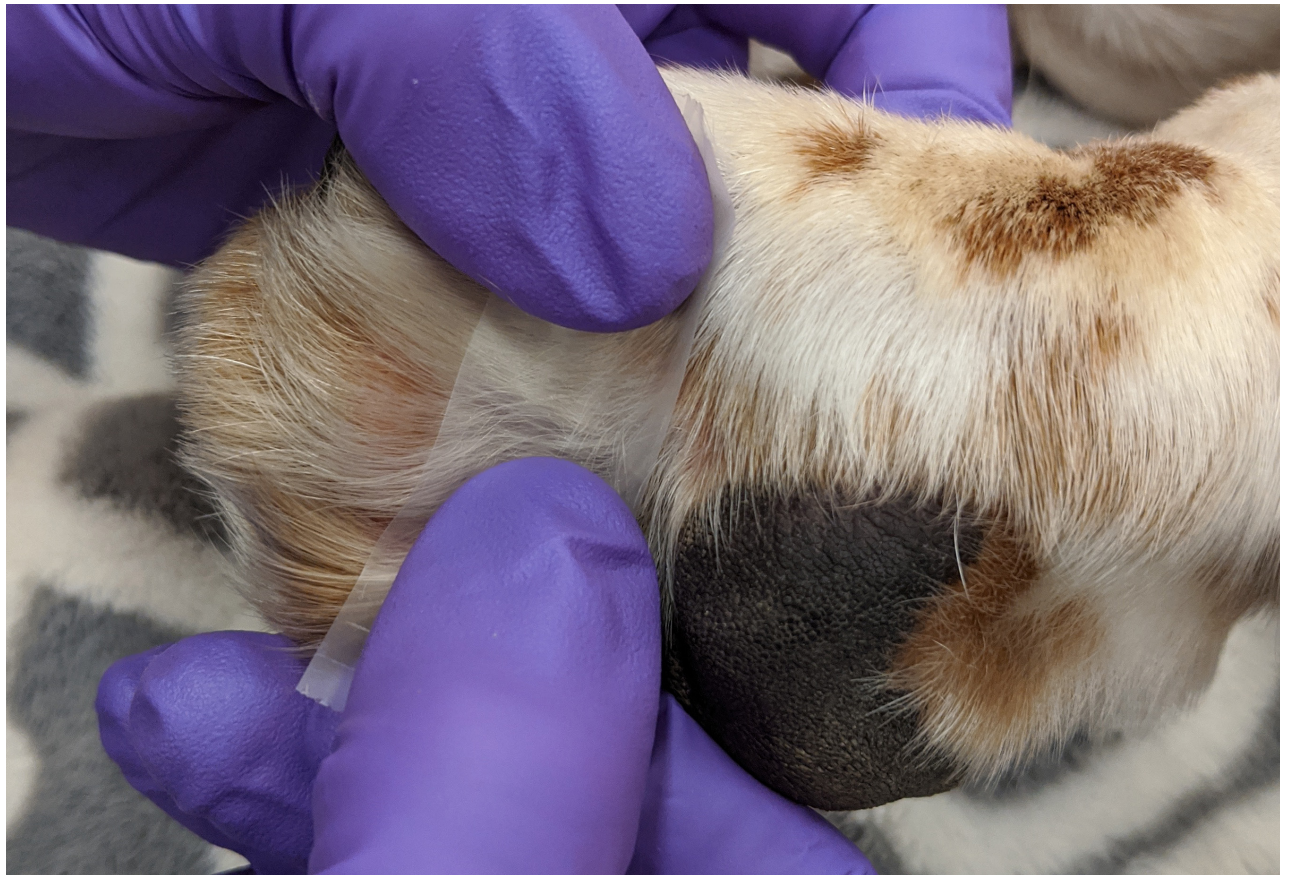
The ear ;)

PRO TIPS:

Always sample BOTH ears, even if only one is clinical.

Develop a consistent system for knowing left from right

- Write R and L with the sample itself*
- Always place the same ear near the frosted part of the slide*
“Right by white” or “left by label”



TAPE PREP

*Obtain samples by using sticky tape to collect dry debris.
The tape is then placed on a slide for interpretation just
like the other collection methods.*

TAPE PREP

HOW TO:

1. Tear strip of tape slightly shorter than length of slide
2. Firmly press sticky side of tape to skin surface repeatedly
3. Two different ways to stain:
 - Place tape adhesive side down onto slide.
Lift edge of tape and apply a drop of final Diff-Quik™ stain (purple) to the slide.
 - Stain the tape in the red and purple stain. Place on a microscope slide for evaluation.

**Note: You do not need to use fixative. This will remove the sticky portion of tape and your sample.*

WHEN:

Collecting skin surface debris at tricky spaces like lip margins, nail beds and interdigital spaces

Dry, scaly lesions

PRO TIPS:

Use clear acetate tape or packing tape.

-You will get more background debris so get comfortable with normal amounts!



TOOTHPICK METHOD FOR CLAW FOLD

One of my absolute favorites! You will be amazed by what you find! Use a toothpick to get access to debris trapped deep in the claw fold.

TOOTHPICK METHOD FOR CLAW FOLD

HOW TO:

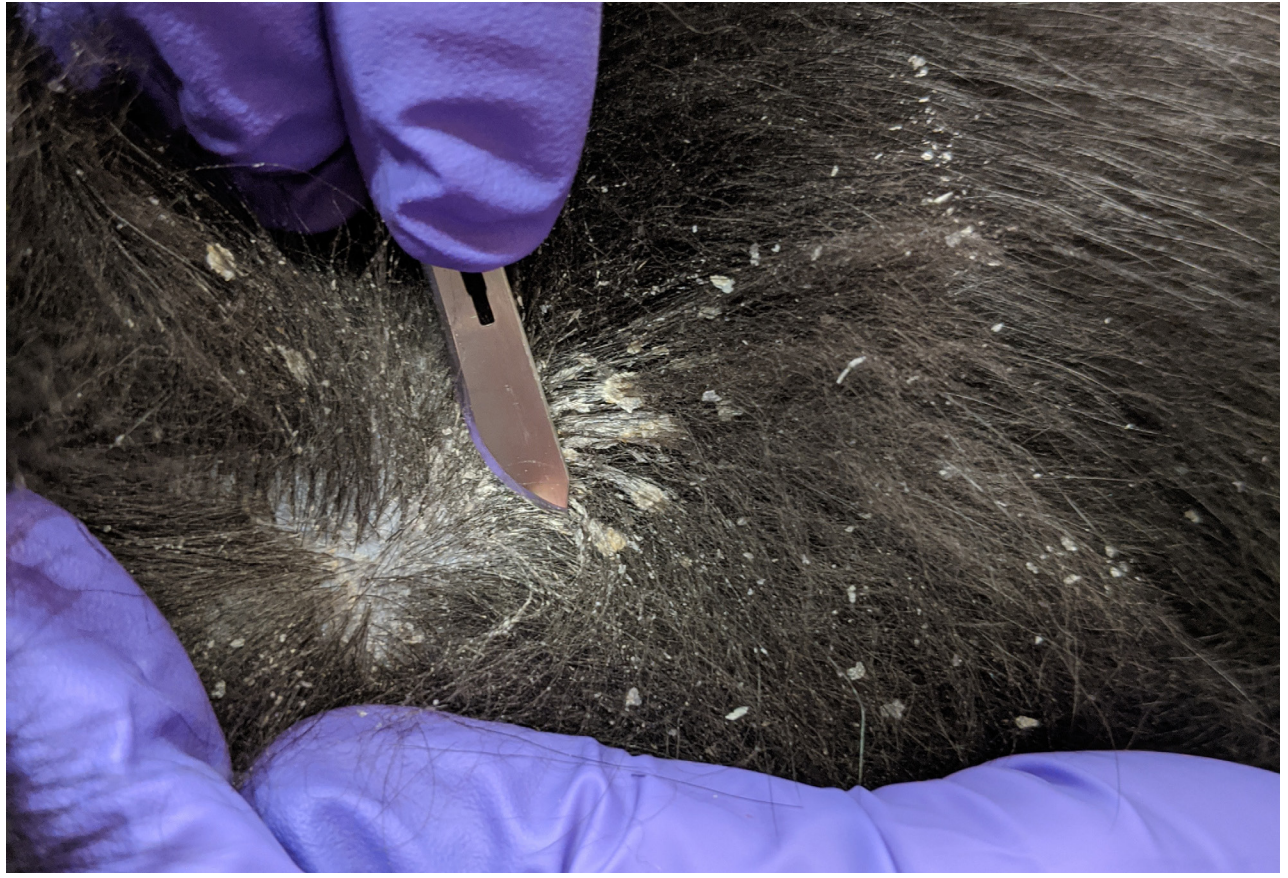
1. *Gently insert toothpick into the claw fold*
2. *Scrape material from the proximal claw/claw fold with the toothpick*
3. *Roll toothpick onto slide*

WHEN:

Brown staining to the claw, inflammation to the claw fold or excessive chewing or licking to the paws

PRO TIPS:

A small sample can tell you a lot!



SCRAPING

*Use a scalpel blade to sample dry, superficial debris.
Provides less background debris compared to a tape prep
but can be harder to collect depending on location and
patient cooperation.*

SCRAPING

HOW TO:

1. Scrape with scalpel blade at 30-45 degree angle to the lesion surface numerous times in one direction
2. Gently smear collected material to the slide

WHEN:

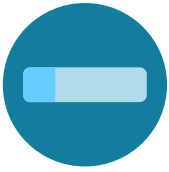
Scaly, seborrheic samples

PRO TIPS:

No mineral oil! This is not the same thing as a skin scraping to look for mites.

PART THREE

stain your slide
like a pro



Allow collected material to dry on the slide



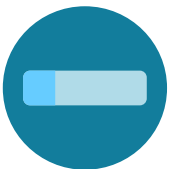
*Exudative samples can be heat fixed by using a hair dryer on low-heat or lighter on the side of the slide lacking sample
-Wipe off soot if a lighter is used*



Modified Wright stain (Diff-Quik™) is most often used since it is quick and easy

Three stains

- 1. Fixative: methanol*
- 2. Solution I: cytoplasmic, eosinophilic, red/pink*
- 3. Solution II: nuclear, basophilic, blue/purple*



How to stain slide

- 1. Dip slide in each solution 5-8 times*
- 2. Allow excess solution to drain into jar and touch end of slide on paper towel to take away excess
-Prevents dilution of next solution*
- 3. After solution II, dip in distilled water or rinse under tap water (side with no sample exposed to stream)
Air dry, use hair dryer (low heat) or blot in bibulous paper*



snout school x the derm vet