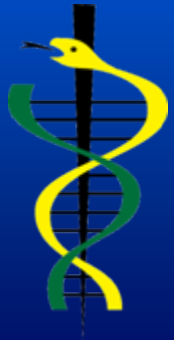


How To and How Not To Submit your Biopsy Specimens

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LL Debusse, BE Powers, DVM, PhD, DACVP

**Colorado State University
Veterinary Diagnostic Laboratory**



Overview

- Submission Form
- Tissue Fixation
- Packaging
- Submitting Multiple Sites
- Endoscopic Biopsies
- Denoting Margins
- Things to Avoid
- Other Things to Know
- Contacting Us

Submission Form

Help Us Help You

**** Please provide anatomical site, lesion description, signalment, and pertinent clinical information on the submission form****





Certain lesions occur more commonly in different species and certain breeds



Anatomical location of a lesion, as well as clinical appearance and progression, may also be critical information to allow your pathologist to provide you with the best possible diagnosis and/or differentials

Submission Form

-  If you have a specific question, are concerned about a possible disease process, or have a list of differentials you'd like to rule out, please indicate such.
-  Again, please make every effort to provide this necessary information in the designated areas on the CSU-VDL biopsy submission form. It will help us help you help your patients.

Submission Form

Colorado State University
Knowledge to Go Places
 Diagnostic Laboratory, Fort Collins, Colorado 80523-1644
 Telephone: (970)297-1281 Fax: (970)297-0320

Person to be billed: () Veterinarian () Owner
 Send results by () Mail () Phone () Fax () E-Mail

Veterinarian: _____
 Clinic: _____
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone () _____ Fax () _____
 E-Mail Address: _____

All results will be faxed unless otherwise requested. Phone, fax and email must be complete and legible.

Owner: _____
 Business: _____
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone () _____ Fax () _____
 E-Mail Address: _____

Animal Name/No.	Species	Breed	Age	Sex	List samples, dates collected and how preserved.
"Jordan"	Canine	Mixed	11yr	SF	① R Caudolateral antebrachium mass, formalin, 9/24/07 ② R Shoulder mass, formalin, 8/14/07

HISTORY: (Clinical Signs, lesions, duration, number of animals affected, clinical diagnosis)
 all mass
 Caudolateral antebrachium MASS was previously surgically removed; underwent full course diazepam therapy. Mass reoccurred. @ shoulder mass is suspected metastatic lymph node. Patient has history of Cushings.

Please provide requested patient information, including signalment & pertinent clinical history on the CSU-VDL submission form

YES

Anatomical location and a thorough description of the submitted specimen should also be included.

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Person to be billed: () Veterinarian () Owner
 Send results by () Mail () Phone () Fax () E-Mail

Veterinarian: _____
 Clinic: _____
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone () _____ Fax () _____
 E-Mail Address: _____

All results will be faxed unless otherwise requested. Phone, fax and email must be complete and legible.

Owner: _____
 Business: _____
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone () _____ Fax () _____
 E-Mail Address: _____

Animal Name/No.	Species	Breed	Age	Sex	List samples, dates collected and how preserved.
Belle	Equine	QH	19	F	8/30/07

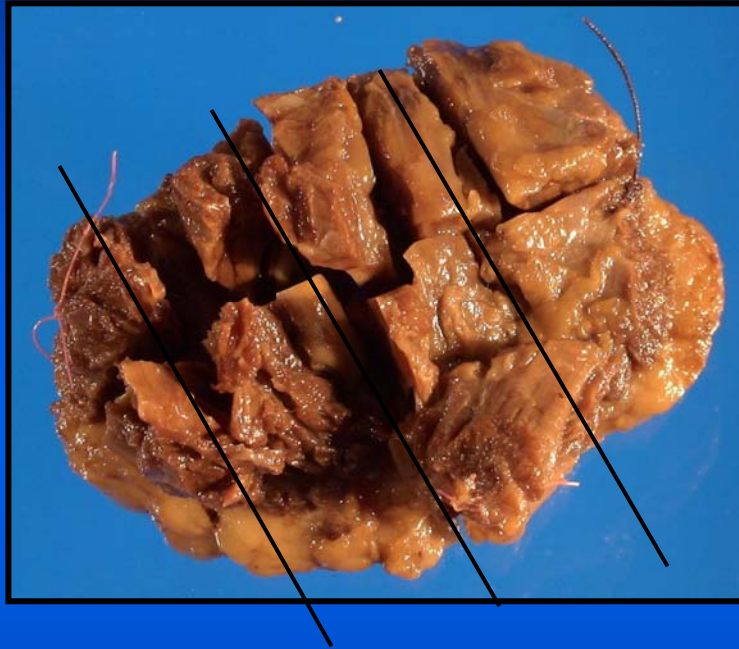
HISTORY: (Clinical Signs, lesions, duration, number of animals affected, clinical diagnosis)

NO

Tissue Fixation

- ❖ Routine tissue fixation = 1:10 tissue to neutral buffered formalin
- ❖ For appropriate fixation, 0.5 – 1.0 cm tissue thickness is recommended
- ❖ Bread loafing (incomplete parallel cuts at a minimum of 2cm apart) can be performed on large specimens (be sure to avoid complete transection or too many cuts which can both result in loss of tissue orientation!)

Tissue Fixation



Incomplete parallel cuts at a minimum of 2cm apart (bread loafing) can be utilized to assist with appropriate tissue fixation for large specimens

Be sure to avoid complete transection or too many cuts which can both result in loss of tissue orientation!

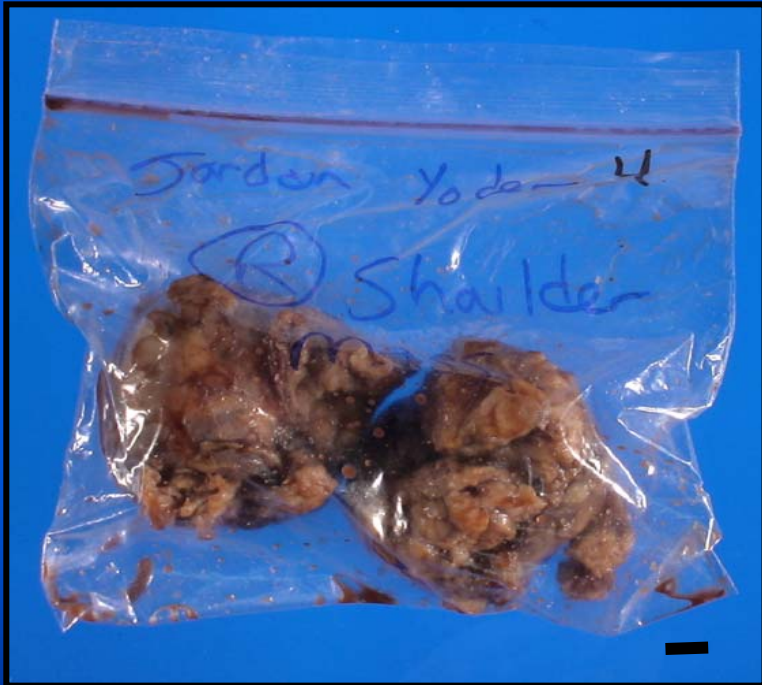
Tissue Fixation

- ❖ Specimens can be held to fix (at least 24 hours) at your clinic prior to sending to the lab to avoid shipping large volumes of formalin which can be expensive and increase the risk of leaking



Large samples can be held and fixed at your clinic prior to submitting to the lab to help avoid shipping large volumes of formalin which may be costly and hazardous

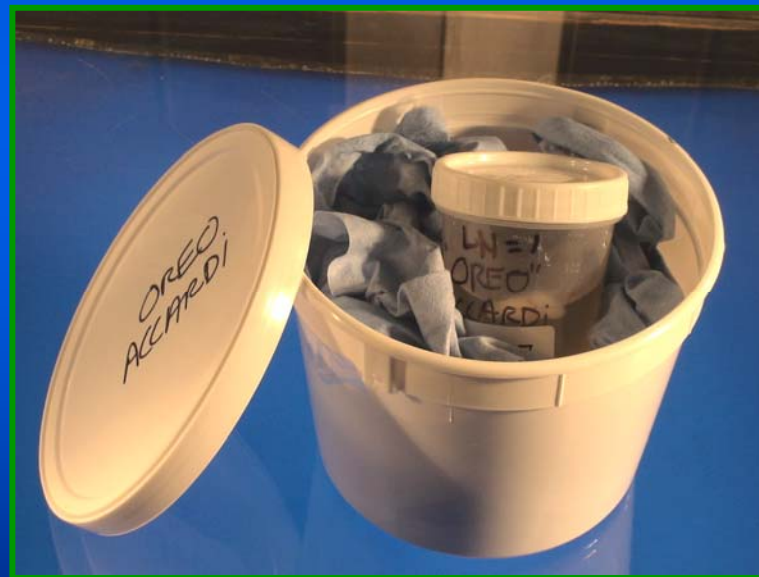
Tissue Fixation



This is an example of an ~20cm diameter mass lesion which was fixed at the clinic and subsequently sent to the lab in a plastic, labeled, zip lock bag devoid of any formalin. (bar = ~2.5 cm)

Packaging

Formalin filled jars containing specimens should be placed in a plastic bag, box, or other container with absorbent material to absorb any leakage



YES

Packaging

Paperwork should be placed in a separate plastic bag to avoid contact with formalin if leaking does occur. Such contact can result in altered and illegible paperwork.

Colorado State University
Diagnostic Laboratory, Fort Collins, Colorado 80523-1644
Tele: (970) 297-1281, Fax: (970) 297-0320
www.dlab.colostate.edu

Diagnosis: _____
Date Rec: 08/20/07
Case Ct: _____
Clinic U: _____

Person to be billed: Veterinarian Owner
Send results by: Mail Phone Fax E-mail
Preliminary fax: _____

Veterinarian: _____
Clinic: _____
Address: _____
City: _____ State: _____ ZIP: _____
Phone: _____ Fax: _____
E-Mail Address: _____

Owner: _____
Business: _____
Address: _____
City: _____ State: _____ ZIP: _____
Phone: _____ Fax: _____
E-Mail Address: _____

Animal ID/Name: Ruby Species: Canine Breed: Lab Ret Age: 9yr Sex: SF
4-1-10

List samples, dates collected, and how preserved:
(> 3 samples, continue on separate form)

HISTORY: (Clinical signs, lesions, duration, number of animals affected, clinical diagnosis)
Large SF UNNATTACHED mass - Peroneal FFA checked & determined to be
+ cells. Rec'd very acute growth & front collection. FFA had a
FNA with inflammation. Multiple res temporary antibiotic
spice.

BACTERIOLOGY/BACT SEROLOGY
____ Aerobic Culture of _____
____ Anaerobic Culture* of _____
____ Antibody Sensitivity _____
____ Campylobacter* _____
____ Clostridial Enterotoxin _____
____ Fungal Culture _____
____ Mycobacterium _____
____ Mycoplasma* _____

SEROLOGY/OTHER
____ Abortion Serology Panel _____ Diarrhea Screen _____
____ Respiratory Serology Panel _____ Abortion Screen _____
Bovine _____ Equine _____ Canine _____
IBR _____ EHV _____

NO

Packaging

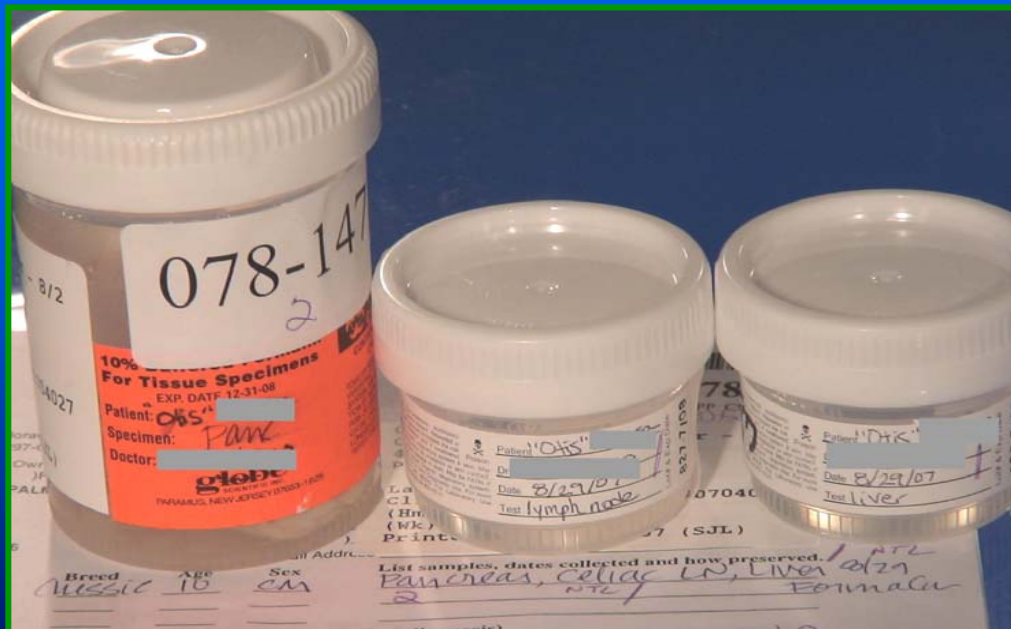
Your fresh sample size should never be larger than the most narrow portion of the jar in which you are submitting it (arrows). If it is, this will require cutting plastic jars or breaking glass jars (undesirable) in order to retrieve the tissue which may ultimately become altered in the process.



While *fresh* tissue is malleable and can be manipulated to fit into a container, upon fixation the tissue becomes “fixed” (rigid) and may be irretrievable from the same container without cutting into or breaking the container.

Submitting Multiple Sites

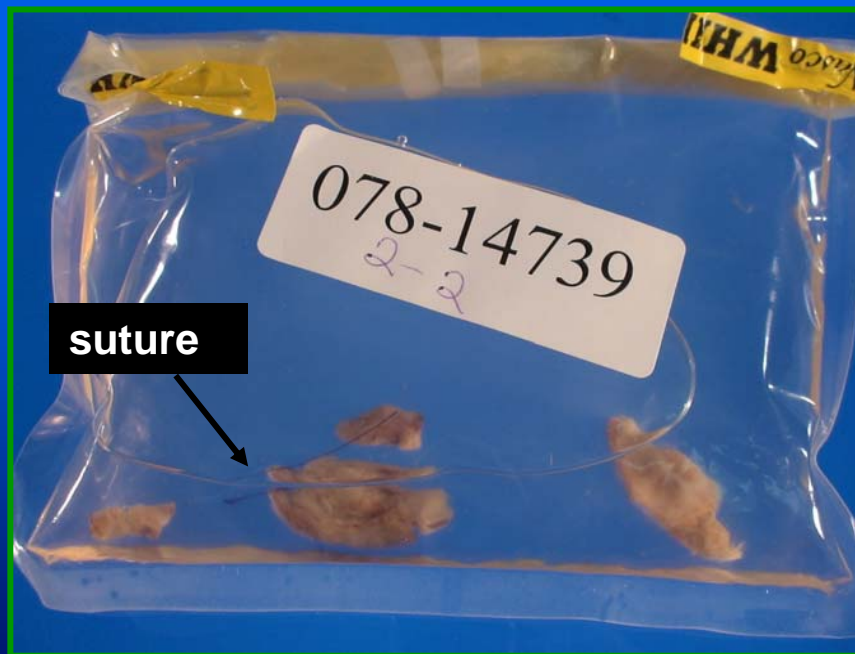
The optimal method by which to submit multiple lesions from a single animal is to submit each specimen individually in its own respective and appropriately labeled jar. This should be reflected on the submitted paperwork.



YES

Submitting Multiple Sites

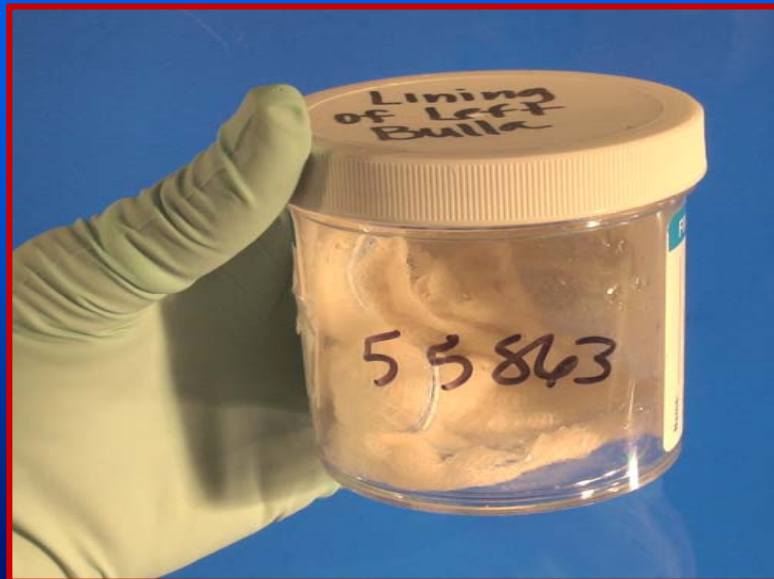
If multiple specimens are submitted in a single container (which is less ideal) there needs to be some method of tissue identification (i.e. suture) to denote specimens relative to their respective anatomical sites.



YES

Endoscopic Biopsies

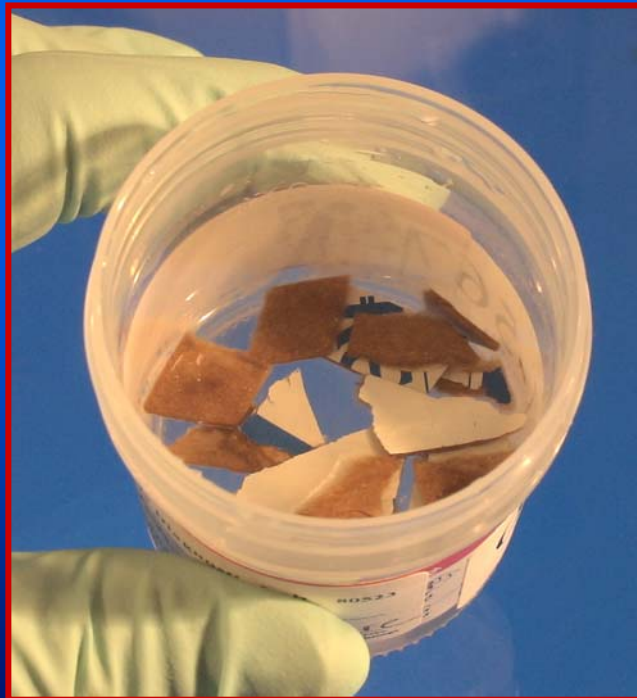
Do not submit endoscopic biopsies wrapped in gauze sponges. Specimens may become lost or may be crushed during the attempted retrieval process. It is better to submit the specimen free floating in the jar than with gauze or any other material.



NO

Endoscopic Biopsies

Do not place endoscopic biopsies on fragments of cardboard. Specimens will either float off or, if adhered, tissue will slough off during retrieval and/or may be associated with cardboard fibers.



NO

Endoscopic Biopsies

The optimal method by which to submit an endoscopic biopsy is to place it in a screen cassette after which the cassette should be placed in an appropriately labeled formalin filled jar. If individual cassettes are labeled properly (sharpie or no. 2 pencil), multiple cassettes can be place in one jar.

screen
cassette



YES

Denoting Margins

Surgical Ink

1. Ink the area of interest
2. Be sure to ink prior to bread loafing (if needed)
3. Allow ink to begin drying before placing the specimen in formalin



Inked biopsy specimen to denote the surgical margin

Denoting Margins

Tagging

1. Used to indicate margins or for orientation
2. Use variable numbers and/or colors of suture
3. Provide a clear description on the submission form denoting what the sutures indicate (i.e. one suture = cranial margin)



Tagged biopsy specimen to denote margins

**single suture = lateral margins
two sutures = caudal margin**

Denoting Margins

Tumor Bed Samples

1. Submission of samples from the post-surgical bed
2. Any tumor / neoplastic cells in these specimens is evidence of remaining microscopic disease
3. Similar to “submitting multiple sites” clearly label and submit each region individually



Things to Avoid

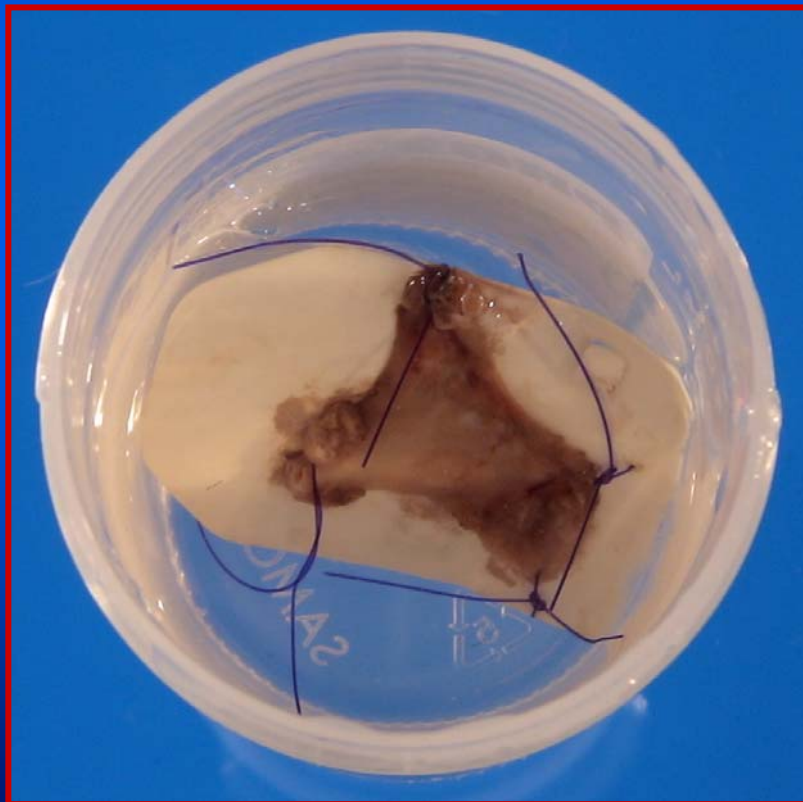
Please help keep our technicians' fingers safe and DO NOT submit specimens with needles for any reason!



NO

Things to Avoid

Please do not staple, suture, or pin tissue to cardboard. It can damage tissue and prevent appropriate margin assessment



NO

Other Things to Know

It is important for you to realize that after all is said and done the pathologist typically evaluates 1 to 4, 5um thick sections from the entire specimen which is submitted.



Images depicting a mass from which a section is taken, embedded in paraffin, and subsequently sectioned to a thickness of 5um for microscopic evaluation.

Other Things to Know

Our staff and pathologists are here to assist you

**Our Staff
is here
working
hard for
you!**



Lee Debuse: Histology Technician

Contacting Us

If you have any questions about how to best submit your sample or have questions regarding any other issues, please contact the lab at (970)-297-1281.

Additional information on the CSU-VDL can be found on the web at www.dlab.colostate.edu

Visit Us!

