Pathology Services

NECROPSY SUBMISSIONS

Animals should be euthanized before submission to the laboratory.

Dead animals should be cooled as soon as possible after death.

1. Large animals should be thoroughly hosed down with cold water.
2. Birds, rabbits, and other fur bearing animals should be soaked in cold, soapy water, placed in a plastic bag, and refrigerated.

NOTE: Do not place animals in a plastic bag without prior cooling.

HISTOPATHOLOGY

COLLECTION AND CARE OF SPECIMENS

1. Accuracy of the diagnosis is directly proportional to the collector's ability to select the specimen that represents the lesion or disease process. Poor selection can result in inaccurate interpretation.
2. Specimens should include grossly observable lesions with a small amount of adjacent normal tissue.
3. Organ containing the lesion.
4. Tissue specimens should include the surface and all anatomical features; for example, specimens of the kidney must include cortex, medulla, and pelvis.
5. The entire brain should be removed and cut longitudinally on the midline into two equal portions; 1/2 should be submitted in 10% BNF for histopathology and 1/2 submitted fresh for other test procedures, as indicated. (Gross examination by an experienced pathologist is often necessary to locate focal lesions for further sectioning - random samples often miss important lesions.)
6. Specimens (except the brain) should be 1/2 cm to 1 cm thick. Specimens that are too thin cannot be properly trimmed for sectioning and those that are too thick decompose before they are fixed. (Formalin will penetrate approximately 3 mm on each side per day.)
7. Fixation must begin as soon as possible after a carcass is opened or a surgical specimen is procured.
8. Ten (10) parts of fixative should be used to fix one (1) part of tissue.
9. Formalin-fixed tissues are required for histopathology examination. Neutral buffered formalin formula is 900 cc of water, 100 cc 40% formaldehyde, and 5 gm calcium carbonate.
10. Intestinal specimens requiring critical examination of villi (i.e. rotavirus and coronavirus infection) require special handling. The preferred method is to tie off approximately 3 cm long segments of bowel and gently fill the segments with 10% neutral buffered formalin, using a needle and hypodermic syringe.

11. Skin and uterine biopsy specimens should be placed on a piece of tongue depressor or smooth cardboard; (Avoid paper; the subcutis or cut surface should be in contact with the wood or cardboard.)
12. The mouth of specimen containers should be wide enough to allow the tissue to drop into the bottle without touching the sides of the opening. Unfixed tissue can be easily forced into a jar that has an opening too narrow to allow removal following fixation without breaking the container.

SHIPMENT

1. Use wide mouth plastic or non-breakable bottles or vials with **leak-proof lids**.
2. Help improve our efficiency and turn-around-time. Avoid taping containers shut; it does not prevent leakage. (Refer to attached postal guidelines).
3. Pack the specimens with adequate padding to prevent breakage.
4. Avoid cramming large quantities of tissue into a small container.
5. Submit tissue in 10:1 ratio of fixative to tissue or fix the tissue and then transfer it to a smaller container with less formalin for shipment.

SUBMISSION FORM

1. Provide the requested information on the form.
2. Brief, concise, complete histories are required and aid in providing diagnoses and pertinent advice.
3. Please use black ink and **write or print legibly**.
4. List the tissues submitted, also the number of tumors. This will help insure that all submitted specimens are identified and examined.

CLINICAL PATHOLOGY

The laboratory offers cytologic and peripheral blood smear examinations. However, we **do not do clinical chemistries, CBC's or Differential blood counts**. These can best be accomplished by commercial or hospital laboratories.

I. Cytology

Cytologic aspirates are safe, easy, and often valuable. However, cytology does have its limitations. Material collected may not always represent the ongoing process. For example, large quantities of blood in an aspirate may represent part of the pathologic process or be due to the aspiration procedure. Insufficient cellular material in an aspirate may result when working with fibrous tissue such as fibrosarcomas. The quality of the sample strongly influences the diagnostic potential of cytology.

Therefore, close attention must be made to slide preparation and handling. Ideally, preparations should be thin enough to visualize individual cells but cellularity must be sufficient for diagnosis. Cells should be handled gently to prevent destruction. Because fresh cells make the best preparation, slides should be prepared promptly.

A. Fine Needle Aspiration

1. Use a 25 gauge needle with 10-12 cc syringe and pre-cleaned slides.
2. Make several vigorous aspirates from mass.
3. In order to avoid rupturing of cells, release suction pressure before removing the needle from mass. Often the specimen will be contained only in the hub of the needle.
4. After withdrawing the needle from the mass, remove the needle from the syringe. Then, fill the syringe with air, replace needle and use aspirated air to force cellular material onto slide.
5. Make a "squash" or "pull-apart" smear by covering the material on the slide with another slide, squashing the material on the slide with digital pressure and then pulling the slides apart. This must be done quickly as cytologic material often clots rapidly.
6. Please sent 3-4 unstained, air dried smears.

Note:

Lymph node aspirates must be handled gently. Lymphocytes are frequently damaged if shear force is applied to them. This is especially true in the case of malignant lymphoblasts. Slides should be squashed together by digital pressure and pulled apart vertically rather than horizontally to avoid shear force.

B. Imprints

Imprints can be made from solid tissue. A fresh surface should be blotted to remove the majority of surface blood. Several imprints per slide should be made. Material should not be smeared.

C. Scrapings

Tissues of a fibrous nature are best sampled by scraping. A fresh surface is cut and then scraped using a clean scalpel or razor blade. The material is then gently spread across the slide.

D. Body fluids and washes

Slides from turbid fluid samples can be made in the same manner as peripheral blood slides. Clear or slightly turbid fluids should be centrifuged and the sediment spread on slides.

Smears must be made promptly after each collection. Cellular degeneration will be evident within 2 - 3 hours after collection.

E. Evaluation for blood parasites - Submit 2 unstained, air dried blood smears.

F. Only slides prepared at the time of collection will be examined. Do not submit only fluids or blood for microscopic evaluation.

Collection procedures can be reviewed in:

1. Rebar, A.H. (1978). Collection Techniques in Veterinary Cytology. In: *Handbook of Veterinary Cytology*. Pub. Ralston Purina Company, St. Louis, Missouri.

2. Crowell, R.L. and Tyler, R.D. Cutaneous and Subcutaneous Lesions: Masses, Cysts, Ulcers and Fistulous Tracts. In: *Diagnostic Cytology of the Dog and Cat*. Pub. American Veterinary Publication, Inc., Goleta, California.

PARASITOLOGY

A. Limited parasitology is offered by the laboratory for diagnostic purposes on individual animals. For herd or group evaluations, samples should and will be combined.

B. Evaluation for fecal parasites and protozoa such as cryptosporidia. Make sure enough intestinal content or feces is present in wet form (i.e. 3-4 grams, pecan-size)).