FACT SHEET 6

Finn Pathologists *The* Veterinary Pathologists

How to get the best out of your Histopathology service

This fact sheet aims to help you get the very best out of your histopathology service, by explaining how best to prepare your samples, the use of fixatives, and packaging needed to submit samples to the laboratory. There are also handy tips for avoiding some common mistakes, and a reminder that submission of a clinical history is vital – a precise and relevant patient history will ultimately help us provide you with a more accurate and diagnostically useful report.

Introduction – top tips and avoiding common mistakes!

- ***Complete the submission form***
  Unless printing electronically from your practice management system, please use the submission forms provided as they are pre-addressed with your account reference.

  Please complete all fields as fully as possible, *particularly providing a relevant but succinct clinical history.*

  - Signalment (species, breed, age, gender, colour).
  - Clinical history – a brief but accurate summation, including onset, duration, previous treatments and clinical response.
  - Number of specimens and specific sites/organs.
  - Description of clinical or gross post mortem findings.
  - Gross appearance of lesion(s) – size; colour; texture – soft, firm, cystic, etc.; rate of growth; moveable or fixed; painful or pruritic; any other pertinent information (e.g. the mass has fluctuated in size).
  - Type of biopsy – complete excision versus incisional; have surgical margins been submitted?
  - Ancillary laboratory results, diagnostic imaging or previous biopsies – please include accession numbers.
  - List of differential diagnoses or clinical impressions.
  - Any specific questions – what do you really want to know about this case?

- ***Label sample pots, especially if multiple samples from different sites submitted***
  Please label the pot(s) with the following information:

  - The client/animal name.
  - Site/location or via a key if relevant, especially if multiple pots/sites have been submitted.
  - Please write on the label provided on the actual biopsy pot.

- ***Submit any relevant digital images, radiographs, CT scans etc.***
  Digital images of lesions are increasingly being submitted along with samples and can often prove very helpful… as the saying goes: "A picture is worth a thousand words." If you have images of the lesion, please print us a copy or email them to: histo.admin@finnpathologists.com

- ***Use appropriate containers of adequate size***
  Only use biopsy pots and packaging supplied by the laboratory. These will be fit for purpose and ensures all handling the package are not put at risk of exposure to formalin.

If you are unsure, please speak to us first!

Please do not hesitate to get in contact with us for further assistance on submission of your samples, and either our diagnostic support team or a duty pathologist will be able to advise.

- **Preparation of samples**
  - Transfer the tissue specimen to a suitable fixative as soon as possible, within 1 hour of surgical excision, and ideally within less than 30 minutes.
  - Avoid crushing or cauterising tissue samples intended for histopathological assessment, scraping mucosal surfaces or freezing the sample where at all possible.
  - Large specimens should be sliced immediately after macroscopic evaluation to allow penetration of the fixative into the tissues (see separate fact sheet for handling large samples).
  - Slices should be no more than 10mm apart, in parallel (like slicing a loaf of bread).
  - Sufficient time must be allowed for the fixative to penetrate the tissues; formalin penetrates very slowly at approximately 1mm per hour, so specimens need to be sliced, opened or incised and left to fix for an adequate length of time.
  - Anatomical barriers to fixation should be removed or incised where possible (e.g. fascia, bone, faeces, thick tissues); large samples must be sectioned or opened and gently cleaned (e.g. gastrointestinal tract) to allow penetration of fixative. Do not scrape mucosal surfaces.

- **Duration of fixation**
  - Specimens should be fixed for approximately 6-72 hours, preferably for a minimum of 8 hours especially for larger specimens, at room temperature.
  - Overnight fixation of 8-12 hours for 10mm thick slices of tissues is ideal – i.e. most samples, providing they can be left to fix for most of the day, can be sent to the laboratory that night.
  - For larger samples we would advise that the sample is fixed in a larger container, with a lid to contain fumes, at the practice. Ensure this is carried out in a well-ventilated area and that facilities are available to enable safe handling of formalin. Once fixed the sample can be suitably packaged and submitted (see separate fact sheet for handling large samples).
  - The length of time the samples should be left to fix at the surgery will depend on the size/type of tissue and method of transportation to the laboratory.
  - Fixatives diluted and/or contaminated by bodily fluids (e.g. bile, blood, faeces) will be reduced in concentration and must therefore be replaced to ensure effective fixation. Please follow your designated procedures for disposal of used Formalin.
  - It may not be necessary to submit the sample whole (see separate fact sheet for handling large samples).
  - Adequate fixation should not be compromised in the interests of minimalizing turnaround times.

- **Fixative**
  - We provide biopsy pots containing 10% neutral buffered formalin in various sizes. These are supplied with an absorbent pad and biohazard bag. For tissue samples that will not fit into our standard sized biopsy pots, please refer to our guidance on submission of whole, large and challenging samples.
  - 10% neutral buffered formalin is the preferred fixative. Do not use formalin in its concentrated form as it can cause artefact in the tissue and presents a significant health and safety risk. If you do not have any suitable fixative, please call our duty pathologist for advice.
  - Surgical spirit is not an adequate fixative, but may be used as a last resort if no formalin is available.

- Insufficient fixation will result in unfixed tissues meaning:
  - Autolysis/putrefaction may occur in the centre of larger samples before the formalin can penetrate and fix the tissue.
  - Loss of cellular and nuclear detail hindering histopathological assessment.
  - Loss of immunohistochemical antigenicity.

A suitable volume of formalin: tissue in a sample pot

Identification of surgical margins

The aim of assessment of surgical margins is to determine adequate or completeness of excision which may be an important predictive of clinical outcome. The surgical margin includes any region of the biopsy specimen that abutted the tissue that remains in situ (e.g. deep and lateral surgical margin).

Surgical margins can be marked by application of surgical ink and/or placement of sutures and a written explanation should accompany the specimen/included on the submission form (e.g. 1 suture = dorsal, 2 sutures = cranial).

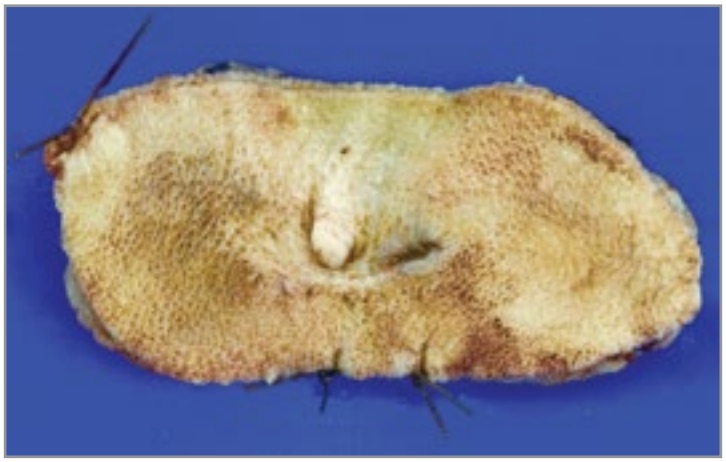

Photo of sample with margins of interest indicated by suture tags

Packaging

Ensure the lid is fixed firmly to the pot. Use pots provided by us as these are fit for purpose and contain secondary packaging that complies to P650 packaging regulations required to transport diagnostic specimens.
Under no circumstances should a sharps bin, glass jar, Tupperware containers or narrow necked pot be used in replacement of a biopsy pot. Use pots provided by the laboratory as these are fit for purpose. We do not wish to put anyone at risk by having to force open such containers or compromise patient clinical outcomes by being unable to process such samples.






Safe handling of formalin

Please refer to your site COSHH assessment and any procedures and guidelines that are in place. It is imperative to:

- Use personal protective equipment
- Clean up spillages immediately and dispose of in accordance with your COSHH assessment.
- Keep containers closed and only handle in well ventilated areas.
- Formalin should be disposed in accordance with your site procedure and via your designated waste contractor.

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