



When and How to Perform a Liver Biopsy

After diagnosing your patient with liver disease through clinical examination, clinical biochemistry and/or diagnostic imaging, you may find yourself asking; 'Should I be performing a liver biopsy for histopathology? Or is it more appropriate to perform a fine needle aspirate (FNA) for cytological examination?'. The answer is not always a simple one.

FNA can be performed on the liver, however there are diagnostic limitations to this test. Liver FNA is typically only useful in diagnosing generalised liver disease (e.g. hepatic lipidosis in cats, lymphoma, widespread metastatic disease). If localised disease is obvious (i.e. a hepatic mass), ultrasound guided FNA may also be diagnostically rewarding.

Ultimately, liver biopsy is often necessary for a definitive diagnosis (e.g. chronic hepatitis, nodular hyperplasia versus carcinoma). Liver histology can also provide useful prognostic information and will assist in determining the most appropriate treatment regime. Follow up liver biopsy can be used to monitor disease progression and assess whether a treatment regime is effective.

Liver biopsy specimens are an important diagnostic tool in suspected cases of acute or chronic hepatitis and for other suspected hepatopathies in a range of species. Sampling technique is key to maximising the chances of an accurate and prognostically relevant diagnosis.

The American College of Veterinary Internal Medicine (ACVIM) consensus statement on the diagnosis and treatment of chronic hepatitis in dogs recommends that at least 12-15 portal areas are included in the evaluated biopsy samples. This means that larger biopsy samples are preferred to core biopsies, although the latter can be diagnostically useful for some conditions.

It is also important to remember that disease can vary markedly between liver lobes due to variation in blood supply and bile drainage. Therefore, where possible multiple liver lobes should be sampled for histopathology and/or ancillary testing (i.e. hepatic copper levels).

Your tissue samples should always be accompanied by a summary of the pertinent clinical history, diagnostic imaging results and any unusual haematological and biochemical findings. Pathologists use this information when corroborating the histologic findings to assist in making the most appropriate diagnosis.

Liver Sampling Techniques

The consensus panel recommends that at least 2 liver lobes are biopsied using the following methods:

- Multiple 14 – 16 G needle biopsies (> 4 biopsies)
- Laparoscopic cup forcep biopsies (5 biopsies)
- ***Use of 18 G needle should be avoided.**

At the time of the biopsy procedure, the panel also recommends acquiring samples for **culture** and **copper analysis**. The minimum wet weight required for copper analysis is **20-40 mg**. The more samples submitted the more reliable the results will be. Avoiding areas of fibrosis is recommended to prevent erroneously low copper measurements. Either of the biopsy techniques below will ensure the appropriate weight is achieved for copper analysis.

- 1 full 14 G (2-cm long) needle biopsy
- Half of a 5 mm laparoscopic biopsy sample
- *** 1 full length 18 G needle only provides 3-5 mg of wet tissue.**
- **** If you are taking tissue for culture AND copper analysis please remember to take twice the amount of tissue listed above.**

