Vetpath is a specialist veterinary laboratory dedicated to providing our clients with the finest laboratory diagnostic service. A team of veterinary pathologists and medical scientists with extensive experience in veterinary diagnostic pathology forms the core of the Vetpath team.

VNews

VETPATH LABORATORY SERVICES

JUNE 2018

Mammary gland cytology

Fine needle aspirates of mammary masses are commonly submitted, but definitive cytological diagnosis is often challenging.

Mammary glands are composed of multiple cell types and there is a significant degree of overlap in cell morphology between dysplasia, hyperplasia and neoplasia (both benign and malignant). The reported diagnostic accuracy of cytological differentiation between benign and malignant neoplasia ranges from 33% to over 90%, with underdiagnosing of malignant neoplasia being the most common problem. This can occur due to sampling error if the needle is not directed into all areas of the lesion, or due to variations in cell exfoliation.

Histological assessment of mammary tumours is vital to determine the malignant potential of a neoplasm. The best predictor of malignant behaviour in a mammary neoplasm is stromal invasion; a parameter that cannot be assessed in cytological preparations.

Figure 1 displays cells aspirated from a canine mammary complex adenoma. Numerous cytological criteria of malignancy are present, however histological assessment determined the tumour was well-encapsulated and benign despite individual cell pleomorphism.

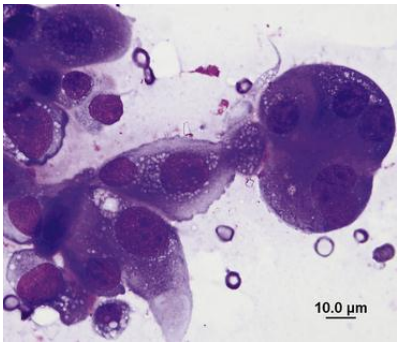

Figure 1: Canine mammary complex adenoma.

Figure 2 shows cells aspirated from a canine papillary mammary carcinoma. The cells are relatively uniform and suggestive of a benign lesion, however histological assessment revealed significant stromal invasion.

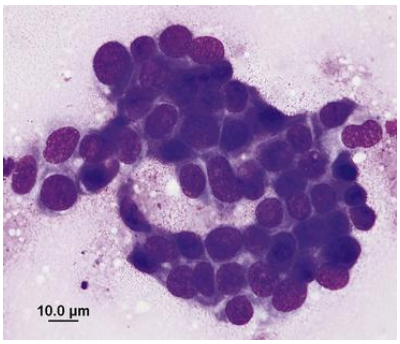

Figure 2: Canine papillary mammary carcinoma.

Excision and histopathology are always warranted for accurate diagnosis of mammary neoplasms.

Source:
https://veteriankey.com/subcutaneous-glandular-tissue-mammary-salivary-thyroid-and-parathyroid/

Tips for therapeutic drug monitoring

Phenobarbitone
Peak serum levels are 4-8 hours after dosing, although levels are usually quite steady due to a long half-life of the drug. Timing is therefore not critical. For consistency it may be best to collect a fasted sample in the morning before dosing. The sample is best processed within 24 hours. Testing may be done 2 weeks after starting treatment, again at 6 weeks once a steady state is reached, then every 6 months.

Thyroid hormones
In dogs a fasted sample is preferred, especially if a thyroid panel is requested. Monitoring is done 4-8 weeks after starting treatment (sooner if signs of hyperthyroidism develop) and 2-4 weeks after a dose change. If on twice daily treatment peak levels (4-6 hours after dosing) are best. If on once daily treatment both peak and trough (just prior to the next dose) may be useful.
In cats being treated with methimazole there is no connection between time following drug administration and thyroid hormone concentration. Therefore, timing of sample collection after treatment is not important. Total T4 may be affected by mild to moderate lipaemia, and haemolysis.

Digoxin
A serum sample should be collected 8 – 10 hours after the previous dose. A gel separator tube should not be used as the gel can absorb the digoxin. Testing should occur 7 – 10 days after initiation or therapy or a dose change.

Potassium Bromide
Potassium bromide has a long half-life (21 days in dogs and 14 days in cats) and so blood can be collected at any time during the dosing interval. A sample should be taken 60 – 120 days after initiation of therapy or a change in dose.

Levetiracetam (Keppra®)
Levetiracetam is known to have a short half-life (2 – 4 hours in dogs and 4 to 7 hours in cats), however individual variability can be marked. Therapeutic monitoring can be performed within days of beginning the mediation. Collecting a peak sample (2 – 3 hours after dosing) and a trough sample (just before dosing) is recommended.

Gabapentin
Gabapentin has a very similar half-life as Levetiracetam and so the same recommendations for monitoring can be used.

Cyclosporine
Monitoring of cyclosporine is complicated and few studies are available to correlate concentration and immune suppression in animals. At least 50% of cyclosporine is in erythrocytes, and so testing must occur on an EDTA sample. Cyclosporine levels can be checked within a few days of initiating therapy and a trough sample (just before the next dose) should be checked. For severe disease, a peak sample (2 hours after dosing) may also be warranted.

It should be noted that drug interactions can be an important consideration when treating and monitoring patients. For example, phenobarbitone will shorten the half-life of other drugs such as Levetiracetam. Conversely, the half-life of phenobarbitone can be shortened by other drugs that target drug metabolizing enzymes such as chloramphenicol and imidazole antifungals.

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