

Answer to Telecytopathology case

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Signalment: 8 yr old female Rottweiler

Clinical history:

Rescue dog, so age is approximate

Acute presentation 2 days prior of enlarged popliteal LN on same side as digit with swollen nail-bed - owner thought from traumatic incident where nail had got caught. Vet notes simultaneous development of blepharospasm and both eyes have cloudy appearance - possible aqueous flare rather than corneal oedema and perhaps some irregularity of iris consistent with bilateral uveitis.

Other lymph nodes seem normal.

Prescapular LNs easily palpated and submandibular salivary glands felt large.

Mass in area of popliteal lymph node (LN) freely movable under skin & approx 3-4cm diameter with slightly irregular, firm shape - a separate LN could not be felt on this limb

The vet performed a fine needle aspirate of the affected lymph node (Wright's modified preparation) and sent 28 digital images to a telemedicine provider. The images were taken at different magnifications with a camera placed over one of the eyepieces.

Cytologic description of images:

Twenty eight jpeg images are submitted from a FNA of a cytological preparation of a mass located in the vicinity of the popliteal lymph node are of adequate quality for assessment. The images represent multiple microscopic fields at different magnifications.

Cellularity appears high and comprises a main population of round cells admixed with melanophages. The round cells have the following characteristics: moderate anisocytosis and anisocaryosis, mostly distinct cell borders, coarsely to finely granular, basophilic cytoplasm of moderate to deep staining intensity that is occasionally finely vacuolar; round single nuclei with multiple, often prominent, nucleoli that are round to irregular and vary in size, with occasionally macronucleoli; mitotic figures are seen in several fields and appear asymmetric. Black (presumably melanin) granular pigment is viewed in several fields (images 1036/109, 1008, 1011, 1010) though it is most prominent in melanophages, which are abundant.

There are no lymphoid cells to confirm the tissue is of lymphoid origin.

Interpretation:

These findings are most consistent with malignant (amelanotic) melanoma.

Comments to the veterinarian:

Lymph node (LN) tissue cannot be confirmed due to lack of lymphoid cells in these images (there may be none in your specimen either), though from the reported history, findings are consistent with a metastasis to the LN or spread of the neoplasm in the area of the node. In Rottweilers, frequent melanophages in LN and abundant melanin pigment can be normal but there would not be this many melanophages as in photo 1008. The cellular characteristics are typical of melanoma, ie. the granularity and sea-blue texture of the cytoplasm. Furthermore, the multiple nucleolar features confirm this round cell neoplasm as malignant.

Further assessment for distant metastasis and other (potential primary) affected sites is advised.

Final cytologic diagnosis: Probably amelanotic melanoma with lymph node metastasis

Discussion:

Telecytology can be useful if the following criteria are respected:

- High quality cytologic prep (cellularity, good cellular spreading to easily observe cells and high cellular integrity)
- Adequate staining technique
- Numerous images at different magnifications representative of specimen, not only areas of interest but all areas to show diversity in cell types and distribution, etc. Minimum of dozen slides for most submissions
- The requesting veterinarian is a good cytologist already (or has good grounding) and asks specific questions

How does a telecytology report differ from a conventional report?

- You cannot always comment on certain aspects of a specimen such as : slide number and quality for the whole of a set of slides; cellularity may be difficult to assess unless you are provided very low power images (4x or 10x objective shots)
- In the telecytology report, describe findings referring to image identification number for specific observations (eg. inclusions)
- Address specific vet queries in the Comments section of the report as you are dealing with a generally already experienced cytologist and are often giving confirmation of the requesting vet's suspicions or clarifying a doubt
- Provide feedback on quality of prep and image 'sampling': number and representation of specimen at different magnifications

In this case, the vet's questions were:

Vet's aims for ruling out an alternate diagnosis prior to examining slides: "Is this multicentric lymphoma giving findings in the eye?"

But after examining LN prep, the vet leans to a nailbed melanoma

Other specific questions:

Are dark inclusions in macrophages haemosiderin rather than melanin in melanocytes?

The veterinarian further seeks confirmation of his cytological observations regarding the cellular features. He notes:

" There is marked cellular pleomorphism which I don't think would be consistent with lymphoma. There are a lot of clear vacuoles and a moderately basophilic background matrix. I'd really appreciate your interpretation of the attached photos down the microscope of a diff-quick stained FNA from what I suspect to be the popliteal LN."

Overall, the quality of the questions and the comments demonstrate that the veterinarian uses cytology routinely and is familiar with both the approach to microscopic assessment of cytological specimens and with common cytological features in non inflammatory lesions. This case illustrates that telemedicine can be useful in such cases, where the veterinarian, familiar with the 'territory' , can provide a useful and reliable representation of images for what is, in effect, a second opinion.