



## How to Get the Most Information From Your Biopsy Samples

Mary Davis, DVM, DACVIM (Oncology)

We have a common saying in the oncology office, "If it's worth taking off then it's worth submitting for histopathology, and if it's worth submitting for histopathology, then it's worth getting a full microscopic description". There is a lot of additional information beyond the diagnosis line that could significantly change the treatment recommendations and prognosis for your patients.

1. Mitotic Index (MI). This is the number of mitotic figures in TEN HIGH POWER FIELDS and gives important prognostic information or grades on a variety of tumors. For example, mitotic index of 3 is the division between benign and malignant dermal melanomas. Mast cell tumors with a MI greater than 5-7 have a median survival of 5 months vs 70 months for tumors with a low MI. Soft tissue sarcomas are graded I, II, or III by their mitotic index. A MI greater than 20 is considered high grade and has a 50% or higher risk for metastasis. These are patients that should have a more serious discussion about treatment, prognosis, and monitoring. The mitotic index is very different than the number of mitotic figures PER HIGH POWER FIELD. A report showing 2-3 mitosis per hpf is actually a MI of 20-30 and indicates an aggressive tumor. So it's very important to identify what is being reported.
2. Margins. Different tumors have different recommendations for margins in order to declare it to be "completely excised". Grade 1 MCTs can be adequately excised with narrow margins but grade 3 MCTs need margins up to 3 cm to reduce the risk of local recurrence. Most soft tissue sarcomas should be excised with 2-3 cm margins and 5 cm are needed for feline injection site sarcomas. If the margin is smaller than recommended for a specific tumor type, then there is a high likelihood these tumors will recur.
3. Degree of cellular atypia and invasiveness. Tumors that have a lot of bizarre or atypical appearing cells, anisokaryosis, or multiple nuclei or nucleoli, are often tumors that have a higher risk of behaving more aggressively. Stromal or capsular invasion also carries prognostic info with some tumors.
4. Vascular or lymphatic invasion. Some tumors have prognostic information based on whether vascular or lymphatic invasion is seen. If there are tumor cells in any vessels, then metastasis is already in progress and these are patients that may benefit from additional therapy and closer monitoring.

With any new lump or bump, fine needle aspirate with cytology is the first step. This will help you plan the surgery. With some locally aggressive tumors such as injection site sarcomas in cats, it has been shown the best outcome occurs when a board certified surgeon has the opportunity to do the first surgery.

We are always here to help with cytology or histopathology results so please feel free to call us any time.

**Animal Medical Center of Seattle**  
**14810 15<sup>th</sup> Ave NE**  
**Shoreline, WA 98155**  
**P: 206-204-3366 F: 206-204-3858**  
**E: [amcsclientservices@specializedcare.pro](mailto:amcsclientservices@specializedcare.pro)**