Fine Needle Aspirates

Jenny Fisher, RVT, VTS (oncology)

Early cancer detection is vital for long term survival with veterinary cancer patients. Veterinary personnel and pet parents play significant roles in cancer detection. Definitive diagnosis is used to establish prognosis and treatment protocols. There are two main methods for diagnostic sampling for diagnosis. Histology and cytology utilize different collection methods and sampling techniques, and provide different information available from that chosen sample. Histology requires collection of tissue (gross sample) for sample submission. Cytology is the collection, preparation and submission of cells (microscopic sample) for pathology review. Fine needle aspirates (FNA) or needle biopsies are the methods for collection of cells from a mass, lesion or lymph node.

Cancer diagnosis risk increases with age in veterinary patients. In order to establish a baseline and way to monitor for external lumps and bumps, body mapping is recommended for any patient with a mass or over the age of 8. The process of body mapping includes mapping and measuring each lesion and recording it within the medical record. There are species specific body maps that can be used to pinpoint the mass location and ensure the location for further diagnostics if needed. Fine needle aspirates should be performed after the lesion is measured, in case of bleeding or swelling associated with the aspirate. There are two commonly used FNA techniques. An aspirate performed with the needle alone is referred to as the woodpecker technique. An aspirate performed with the needle attached to a syringe is referred to the plunger technique. Both techniques are routinely used but can having varying results based upon tissue aspirated.

In order to achieve diagnostic quality, there are many variables that play into deciding on which technique to use. There are three main tissue origins to take into consideration. The ability for certain tissues to exfoliate directly impacts the diagnostic quality. The woodpecker technique (needle alone) should be utilized for tissues that are more likely to exfoliate and the plunger technique should be used for tissues that may not exfoliate as well. Round cell, epithelial cell and mesenchymal cells have different exfoliative traits. Round cells tend to exfoliate very well, and the cells are delicate and fragile. They are cytologically round, with distinct cellular borders. Epithelial cells also tend to exfoliate well and cytologically clump or cluster together. Mesenchymal cells are the least likely to exfoliate. They are cytologically spindle shaped, with wispy tails. These cells are also connected with intra-cellular matrix, which is the reason they tend not to exfoliate. The needle only technique is better utilized with round cell or epithelial cell tumors. The needle and syringe technique are better utilized for mesenchymal cell lesions. For the best chance at diagnostic quality, its important for the professional to understand why they choose one technique over the other. Each anatomic location should have a minimum of two slides per site. One of the slides should be saved, unstained for pathology submission, while one of the slides should be checked in house for diagnostic quality before submission. Ensuring diagnostic quality before submission, can save time and money in the event the sample is non-diagnostic. The “sample” slide is the slide, on which the sample is expelled. This slide should be saved for pathology review. The “smear” slide should be stained in house and checked for diagnostic quality. Fine needle aspirates are an effective diagnostic tool that if done properly can yield a definitive diagnosis and establish proper monitoring of lumps and bumps on veterinary patients.