

## **FECAL CYTOLOGY, THERE'S A LOT TO DIAGNOSE IN POOP**

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### **Rectal scrapes and fecal smears**

Fecal smears are very easy to obtain and perform; only a small amount of fecal material is necessary to get a useful sample. A swab can be taken from fecal material or a gentle swab of the rectum. The swab is then rolled on a glass slide. Once the material is dried, the slide can be stained. A rectal scrape is slightly more complicated but can still be easily obtained in a non-sedated patient. A cotton tipped applicator can be used. Feces should be removed from the rectum and the cotton tipped applicator inserted and pressed firmly against the rectal wall. A gloved finger is used to press the applicator against the wall and dragged along the mucosa. The applicator is removed and a slide is prepared similar to a fecal smear.

### **Normal cytology**

Fecal smears are of very low cellularity. No nucleated cells should be seen. A mixed population of bacteria should be present. Additionally, digesta can be observed. In a rectal scrape, in addition to the bacteria, clusters of rectal epithelium should be observed. This is a sign of a diagnostic quality sample.

### **Inflammation and microorganisms**

Fecal cytology in particular has very low numbers of inflammatory cells. Even rectal scrapes will only have rare neutrophils so any number of inflammatory cells on a fecal smear is significant. Neutrophils and eosinophils are the most common cells to see, although a pyogranulomatous inflammatory response can be seen with histoplasmosis. The quality of the rectal scrape is determined by the presence of epithelial cells. If no epithelial cells are identified, the rectal scrape is likely not satisfactory to diagnose histoplasmosis. Part of the evaluation of feces is the evaluation of the flora. A mixed population of bacteria is expected so if there is a heavy predominance of one type of bacteria it may suggest bacterial overgrowth. Low numbers of Clostrideal organisms are acceptable however more than 3-5/hpf suggests a Clostrideal overgrowth. Additionally, the presence of rare *Campylobacter* sp. organisms is a significant finding, especially if the patient has diarrhea. Presence of *Candida* sp. and *Saccharomyces* sp. yeast organisms are common findings and likely are not pathogens.

### **Neoplasia**

Common tumors of the rectum and anal area include perianal gland tumors and apocrine anal sac adenocarcinoma. These neoplasms have distinct features which make them fairly easy to diagnose with cytology. Perianal gland tumors are described

as hepatoid tumors because cytologically the cells look remarkably similar to hepatocytes. The majority of these tumors are benign. However they do not exhibit consistent criteria of malignancy, even if they are malignant, so surgical excision of these tumors with histopathology is recommended. Apocrine anal sac adenocarcinomas consist of fragile cells. Often, the majority of cells are ruptured and consist of bare nuclei stripped of their cytoplasm. The intact cells have a scant rim of basophilic cytoplasm and a large round nucleus with a small but prominent nucleolus. These cells exhibit minimal criteria of malignancy but their distinct features make diagnosis fairly straight forward. Other tumors of the colon and rectum include adenocarcinoma, lymphoma and plasmacytoma. All three of these tumors exfoliate well and can be diagnosed with cytology.

**Suggested Reading:**

Raskin RE, Meyer DJ. Canine and Feline Cytology, A Color Atlas and Interpretation Guide, 2<sup>nd</sup> ed. Saunders Elsevier, St. Louis, MO. 2010.

Cowell RL, Tyler RD, Meinkoth JH and DeNicola DB. Diagnostic Cytology and Hematology of the Dog and Cat, 3<sup>rd</sup> ed. Mosby Elsevier, St. Louis, MO 2008.