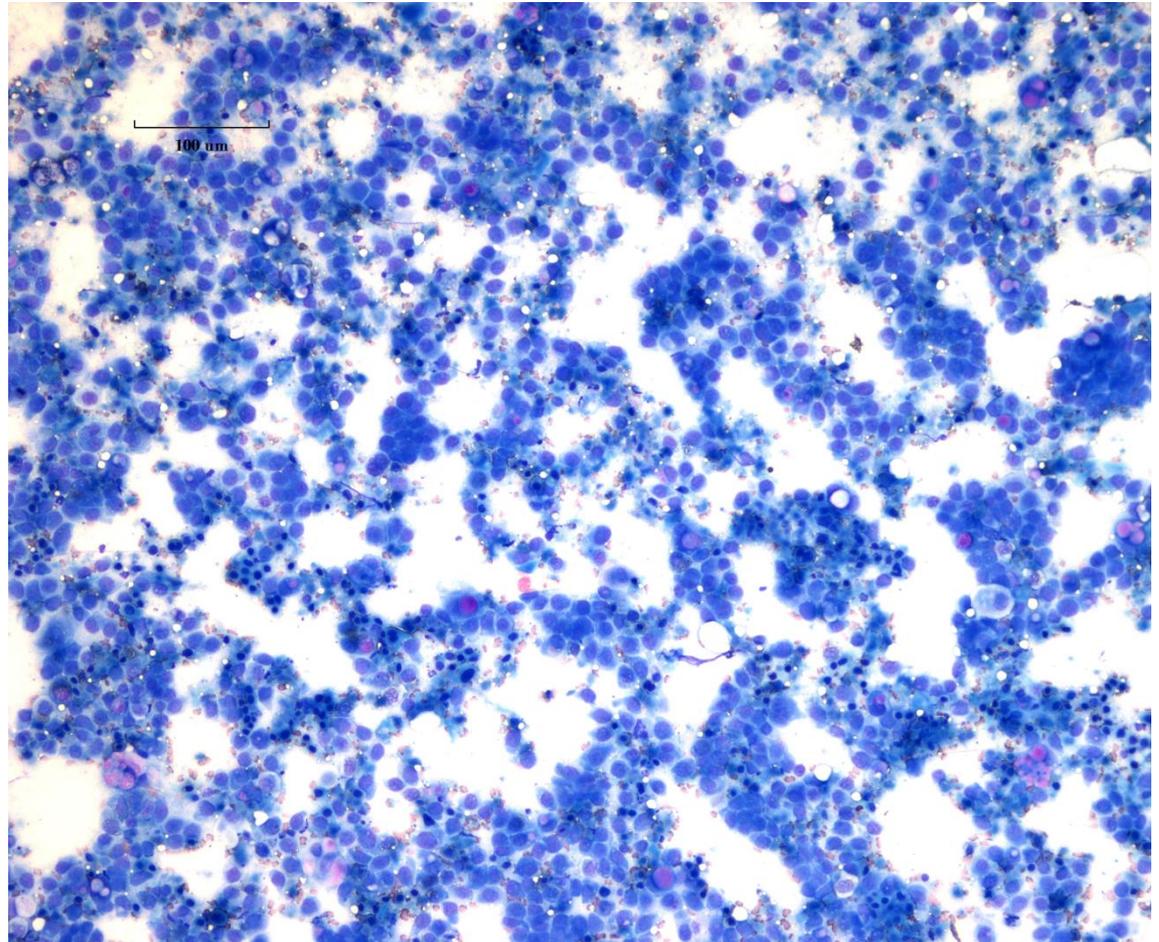


Lung aspirate from a 10 year
old spayed female, mixed
breed dog

Lung aspirate from a dog

10x view

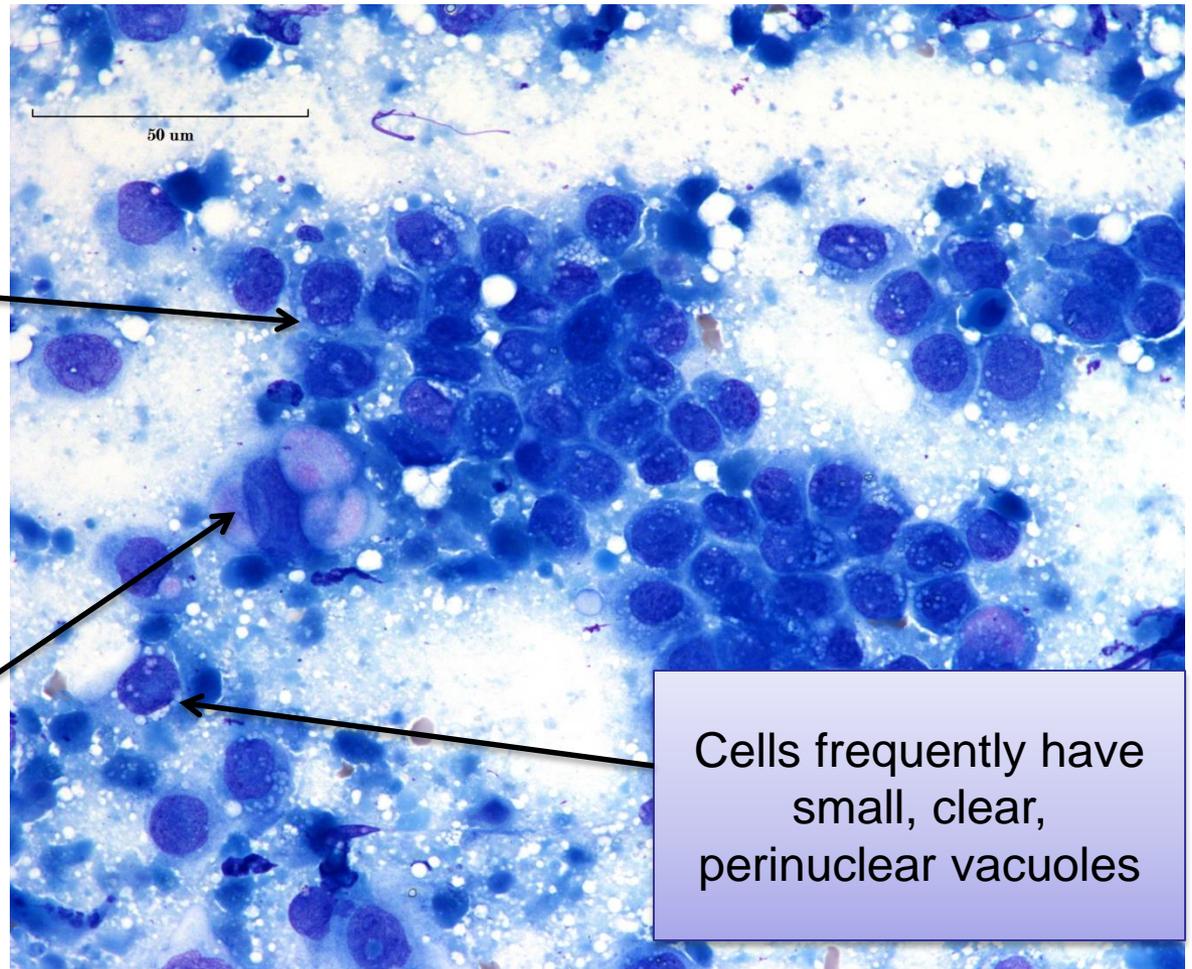
- Samples from healthy lung are sparsely cellular¹
- This sample is **highly cellular**
- Note the tight clustering of the cells and organized rows and papillary-like structuring of cells, which suggests **epithelial lineage**



Lung aspirate from a dog

40x view

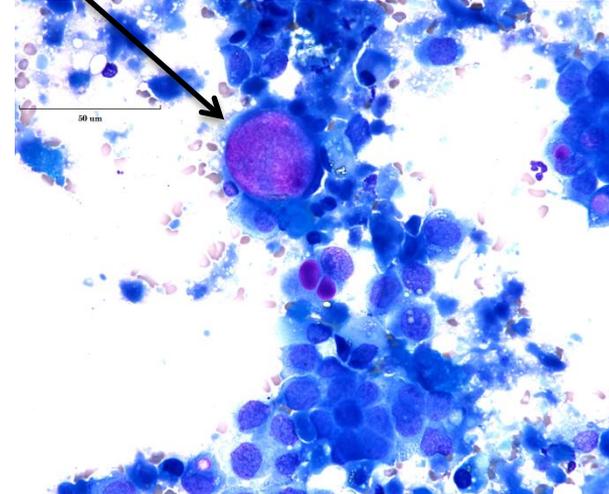
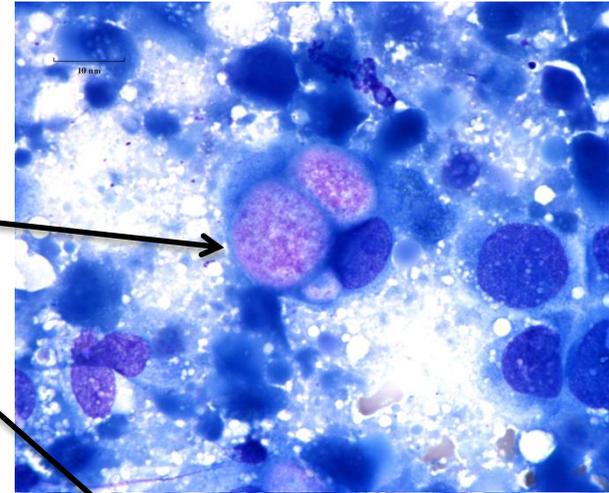
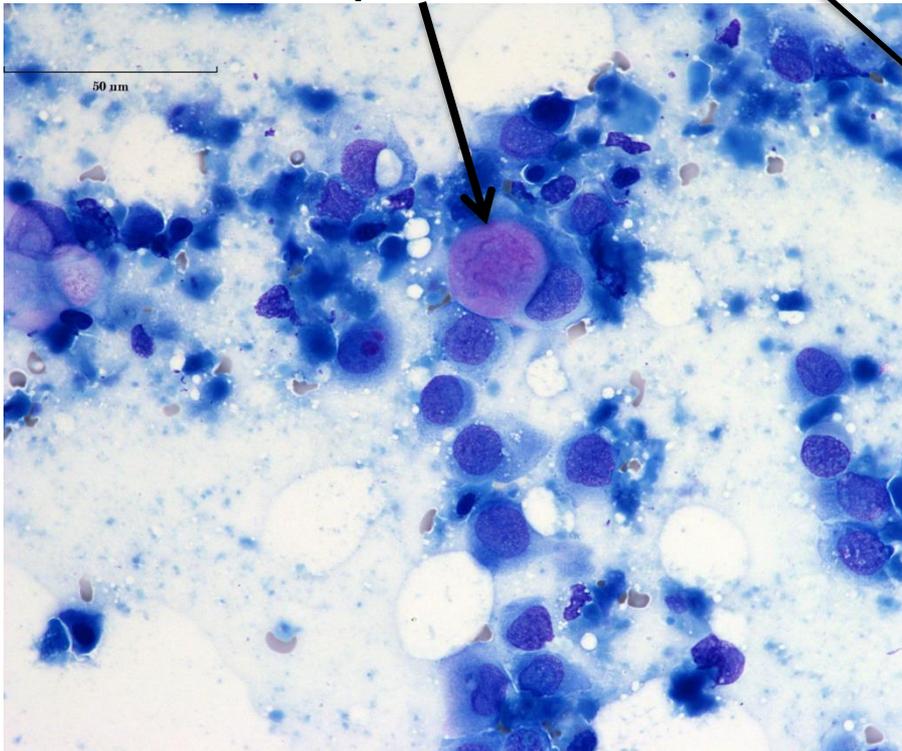
- At closer power again note the tight clustering and rows of the round or polygonal cells. These cells typically have high N:C ratios
- Also note that some cells have variably sized pink or magenta inclusions



Cells frequently have small, clear, perinuclear vacuoles

Lung aspirate from a dog

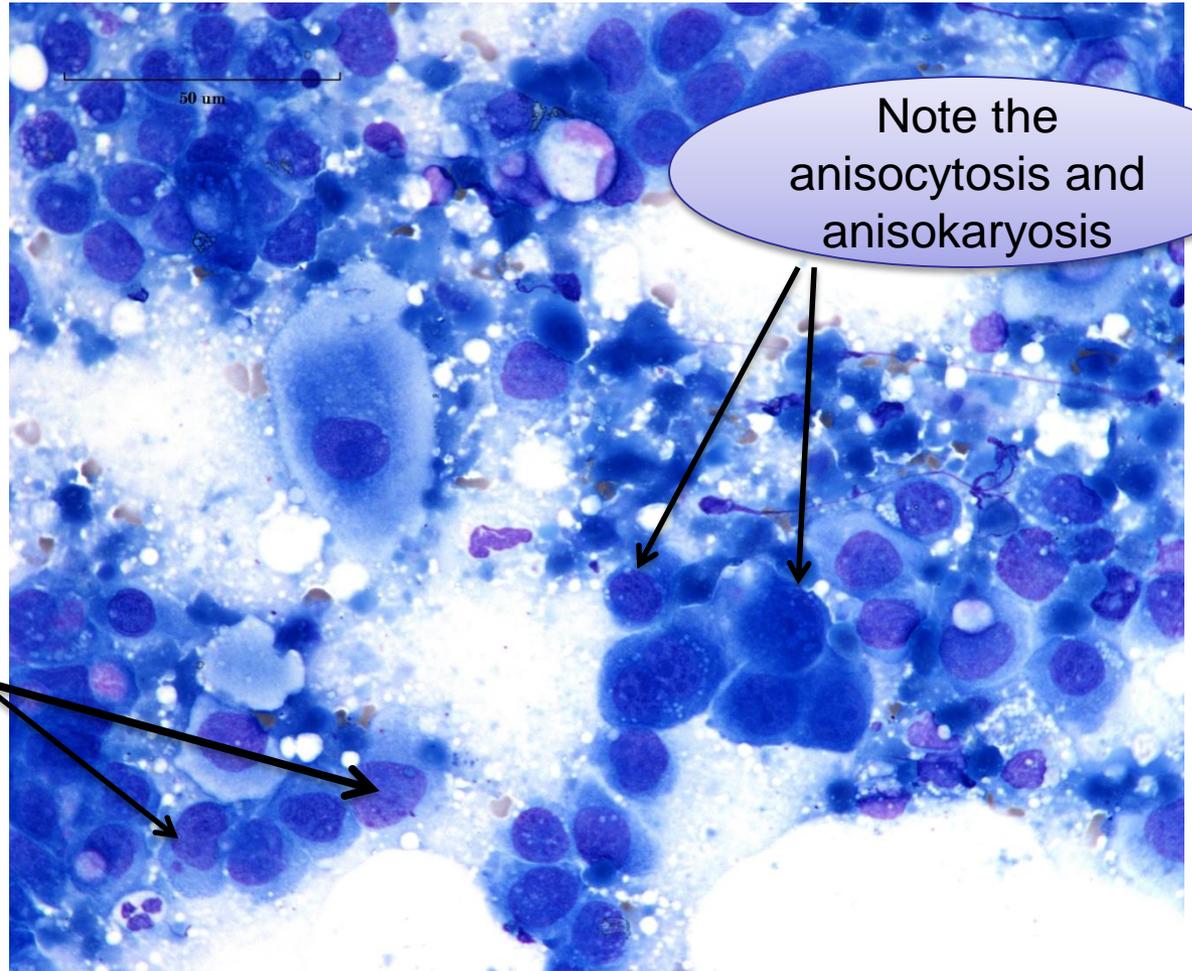
The magenta inclusions are a prominent feature in this sample



Lung aspirate from a dog

40x view

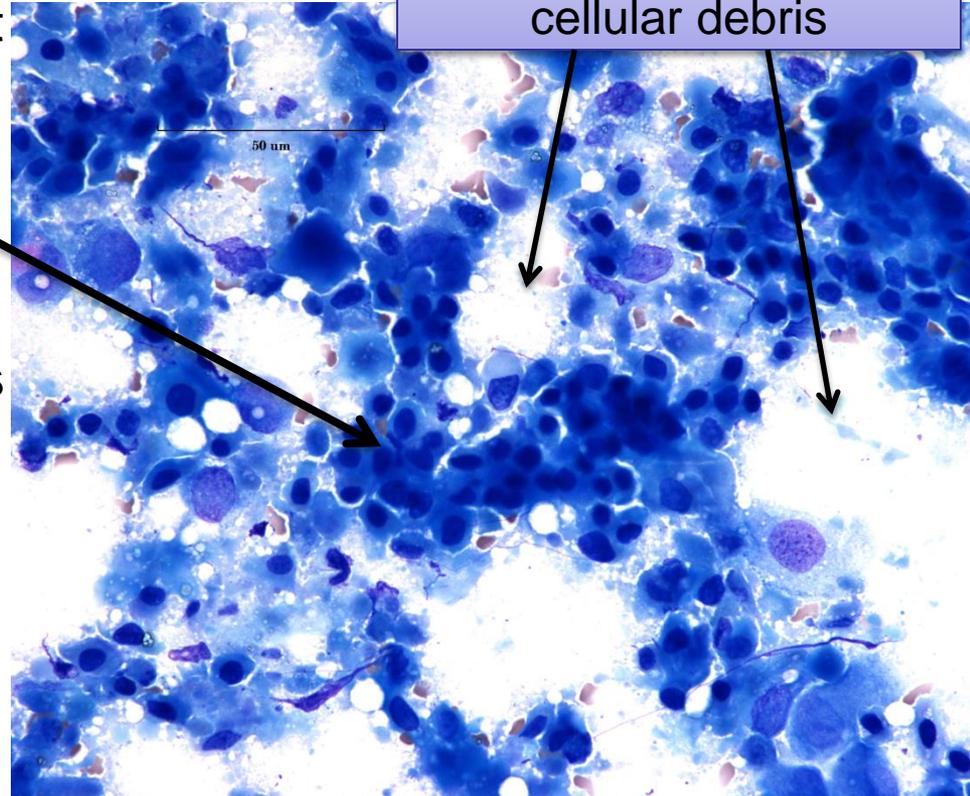
- While many clusters of cells are relatively uniform, frequent cells exhibit prominent features of malignancy
- Note the variable N:C ratios
- Prominent nucleoli are a common feature
- Occasional multinucleate cells were also seen



Lung aspirate from a dog

40x

- Also present admixed amongst the first epithelial cell population is another population of smaller epithelial cells with angular borders and condensed nuclei
- These are **atypical squamous epithelial cells** and this process likely represents **squamous metaplasia**. *Metaplasia* is a change in which one adult cell type is replaced by a different adult cell type of the same germ lineage.²



Cytologic interpretation

- **Carcinoma**

- Some of the cytomorphologic features, particularly the round or polygonal epithelial cell population with large pink or magenta inclusions, are suggestive of a **metastatic transitional cell carcinoma (TCC)**, although other carcinomas could not be ruled out
- While these pink or magenta cytoplasmic inclusions are commonly featured in most TCC, but they are not pathognomonic. They represent accumulations of glycosaminoglycans.⁵
- This patient had been previously diagnosed and was undergoing treatment for TCC in the bladder, which supports the diagnosis of metastatic TCC
- Squamous metaplasia may occur with TCC. Care must be taken to differentiate TCC from squamous cell carcinoma.^{3,4}

Transitional cell carcinoma

- Transitional cell carcinoma (TCC) is the most common urinary tract cancer in dogs and cats¹⁻⁵
- It is a highly malignant tumor and frequent metastasizes to lung, lymph nodes, bone and other organs³⁻⁵
- Risk factors include obesity, female sex, and exposure to older-generation flea control products, herbicides and pesticides³
- Breed predispositions include: Scottish terriers, Shetland sheepdogs, Beagles, Wire-haired fox terriers, and West Highland White terriers^{1,3,5}

References

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4. Walker, D. B., Cowell, R. L., Clinkenbeard, K. D. and Turgai, J. (1993), Carcinoma in the Urinary Bladder of a Cat: Cytologic Findings and a Review of the Literature. *Veterinary Clinical Pathology*, 22: 103–108.
5. Withrow, Stephen J, Vail, David M, Page, Rodney. *Small Animal Clinical Oncology*, 5th ed. Elsevier 2013: 119