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 cellular
- 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

Note the anisocytosis and anisokaryosis
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 cats\textsuperscript{1-5}
- It is a highly malignant tumor and frequent metastasizes to lung, lymph nodes, bone and other organs\textsuperscript{3-5}
- Risk factors include obesity, female sex, and exposure to older-generation flea control products, herbicides and pesticides\textsuperscript{3}
- Breed predispositions include: Scottish terriers, Shetland sheepdogs, Beagles, Wire-haired fox terriers, and West Highland White terriers\textsuperscript{1,3,5}
References