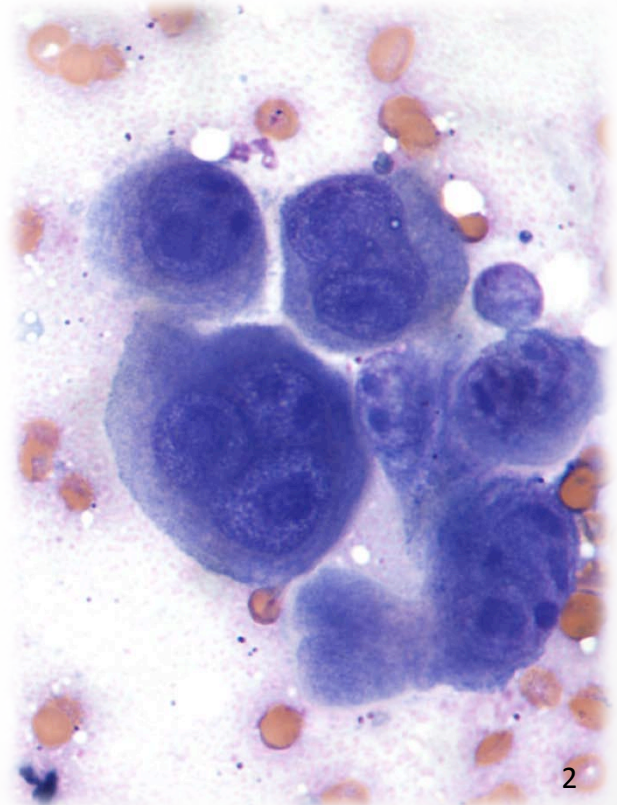
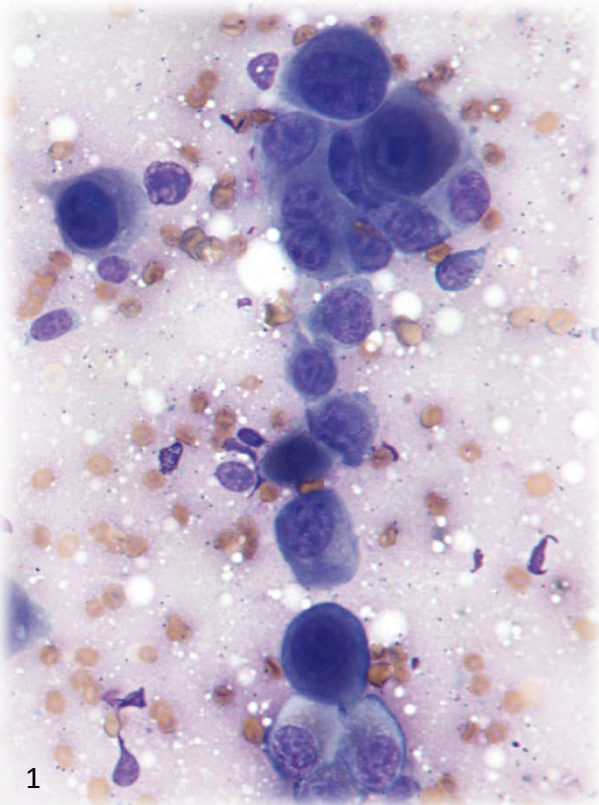


Case of the month – February 2013

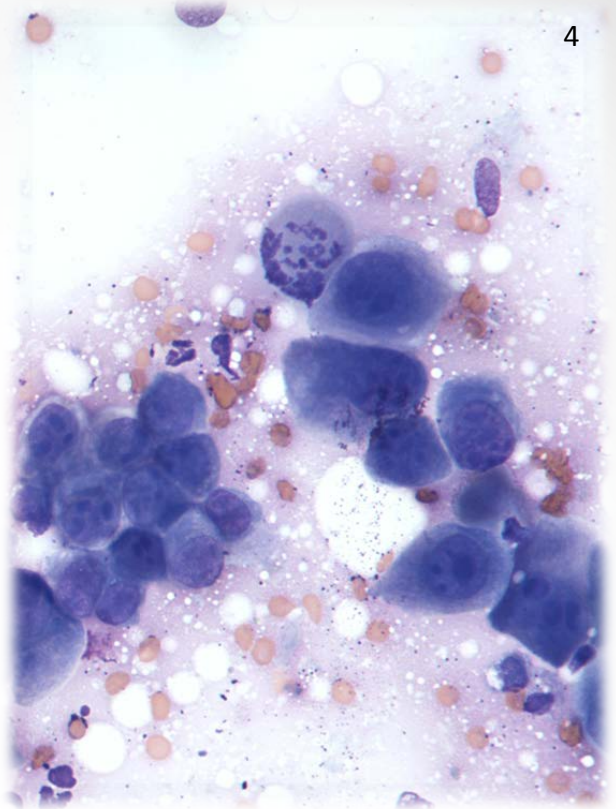
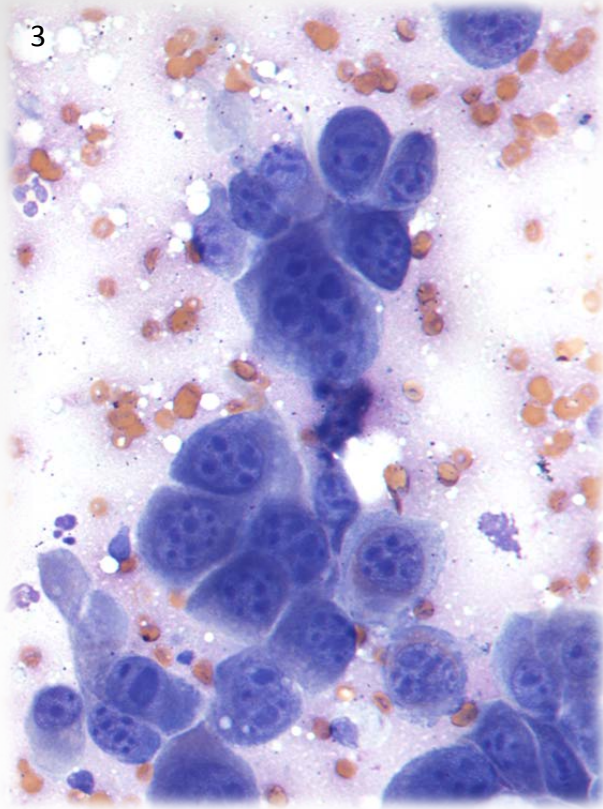
Fine needle aspirates from a inguinal mass in a dog

A 6-year-old female neutered Cocker Spaniel, was presented for investigation of a recently arising subcutaneous inguinal mass. She is receiving a NSAID for palliative management of a bladder transitional cell carcinoma which was diagnosed 9 months previously. A fine needle aspirate of the mass was taken from the inguinal mass (see pictures below).



50X - Immersion oil

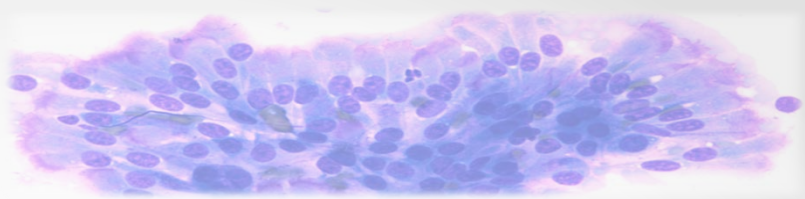




50X - Immersion oil

1. Based on the morphology and arrangement of these cells, is this an epithelial, mesenchymal or round cell population?
2. Can you identify any criteria of malignancy displayed by these cells?
3. What is your interpretation?

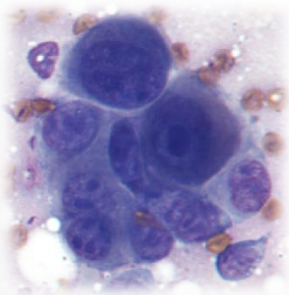




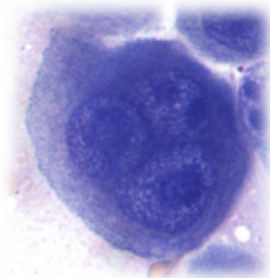
Answers

1. The cells exfoliated by the mass are epithelial. The criteria which helps in differentiating epithelial cells from other cell lines are:
 - Cell exfoliated in sheets or cohesive clusters
 - Cells adhere to each other and may display distinct thigh junctions (desmosomes) - (See *picture 3*)
 - Cells have generally sharp cytoplasmic borders
 - Cells shape may vary, depending on the epithelial type, from polygonal to cuboidal to columnar. In these case the cells are polygonal.
2. These cells display may criteria of malignancy such as:
 - Nuclei: marked anisokaryosis , variable to high N:C ratio, thickened nuclear membrane, coarse chromatin, multinucleation, karyomegaly, nuclear moulding
 - Nucleoli: multiple, prominent, variably sized, irregularly shaped
 - Atypical mitotic figures

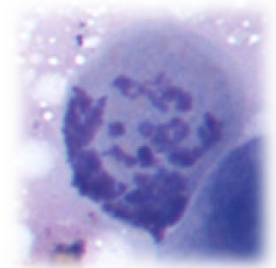
Examples:



Nuclear moulding,
anisokaryosis, high N:C ratio



Multinucleation, large prominent
nucleoli, coarse chromatin,
thickened nuclear membrane



Atypical mitosis

3. Interpretation: Carcinoma, likely metastasis from the previously diagnosed bladder transitional cell carcinoma (TCC). Although no lymphoid tissue has been identified in these preparations, this mass could represent a completely effaced metastatic inguinal lymph. Metastasis to this site has previously been described in literature. In this respect, histopathology would be required to confirm this.

Transitional cell carcinoma is more commonly encountered in older dogs (median age 11 years) and it represents the most common neoplasm affecting the urinary bladder in dogs. It is rarely found in cats. The aetiology of TCC is currently unknown but this seems to be derived from a combination of several factors including genetic predisposition and environmental factors. Recognised risk factors include exposure to topical insecticides, obesity, possibly cyclophosphamide, female sex and specific breeds. Breeds at high risk in developing TCC include Scottish Terriers (which have an 18-20 fold higher risk of TCC than other dogs), Shetland Sheepdogs, Beagles, West Highland White Terriers, and Wire Hair Fox Terriers.

The most common clinical signs are haematuria, stranguria and less commonly weight loss, lameness and lethargy. Lameness has been observed in some cases of TCC as a result of a paraneoplastic hypertrophic osteopathy. Diagnosis

relies on complete anamnesis, physical examination (abdominal palpation and rectal examination), abdominal ultrasound and x-ray, cytology of the urine sediment. A definitive diagnosis requires histopathology. Sample for biopsy may be obtained by cystotomy, cystoscopy or catheter biopsy. Transcutaneous biopsies or fine-needle aspirates are discouraged because of the risk of seeding neoplastic cells along the needle tract.

In dogs, TCC is a highly metastatic tumour and up to 40% of dogs have spread at the time of diagnosis, 17% involving the lungs. Staging, including thoracic and abdominal radiographs and abdominal ultrasound, is required.

The treatment for TCC includes surgery, chemotherapy (mitoxantrone, carboplatin, doxorubicin, or cisplatin) and NSAIDs (piroxicam) alone or in combination. The median survival has been associated with clinical stage and ranges from 3-12 months.

References:

- Chun et al (2010) – “Urogenital and mammary tumors” in Ettinger: Textbook of internal medicine, 7th edition
Cowell et al (2008) – Diagnostic cytology and hematology of the dog and cat, 3rd edition
Henry (2003) – “Management of transitional cell carcinoma”: VetClinNorthAmPract (33):597-613
Mutsaers et al (2003) – “Canine transitional cell carcinoma”: JVIM (17):136-144

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