

Small Animal Internal Medicine

Brain Teasers

(use of the 'clicker'
audience response system)

Richard Squires
James Cook University



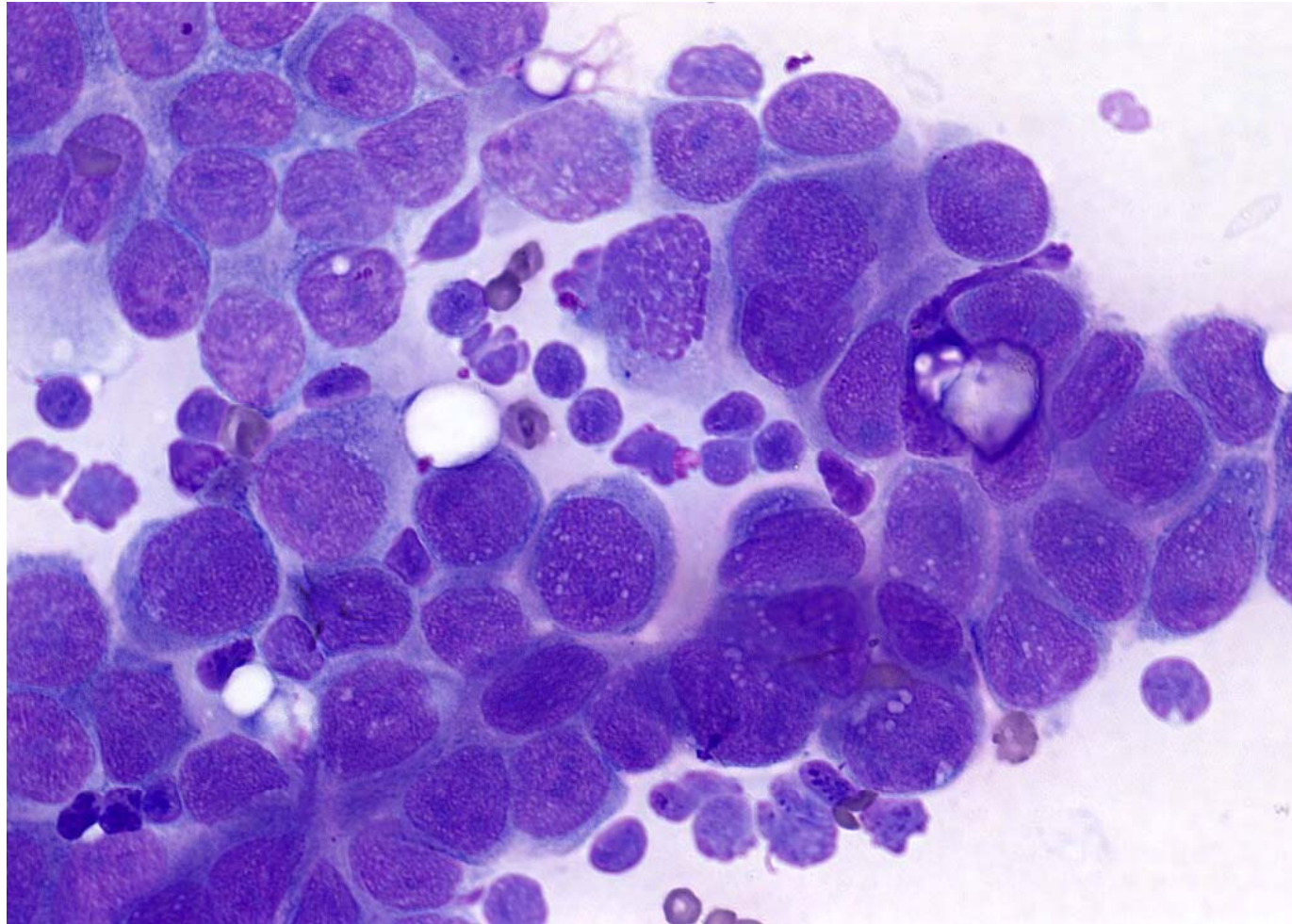
The most interesting colour in this bird's plumage is the:

- a) Turquoise
- b) Yellow-Orange
- c) Cinnamon
- d) Russet
- e) Puce



This photograph was taken using a 35mm camera / 50mm lens two metres from the subject. It was most likely shot at:

- a) f/2
- b) f/5.6
- c) f/8
- d) f/16
- e) f/ knows



This fine needle aspirate from a middle-aged dog's mammary mass reveals:

- a) Mast cell tumour
- b) Malignant lymphoma (the great pretender)
- c) Relatively benign but unquestionably abnormal epithelial cells
- d) Highly malignant neoplastic cells
- e) Adenocarcinoma



Based on pattern recognition, this 10-year-old FS Labrador retriever most likely has:

- a) Mitral endocardiosis with pulmonary oedema
- b) A large pleural effusion
- c) A nasopharyngeal foreign body
- d) Laryngeal paralysis
- e) Tetanus



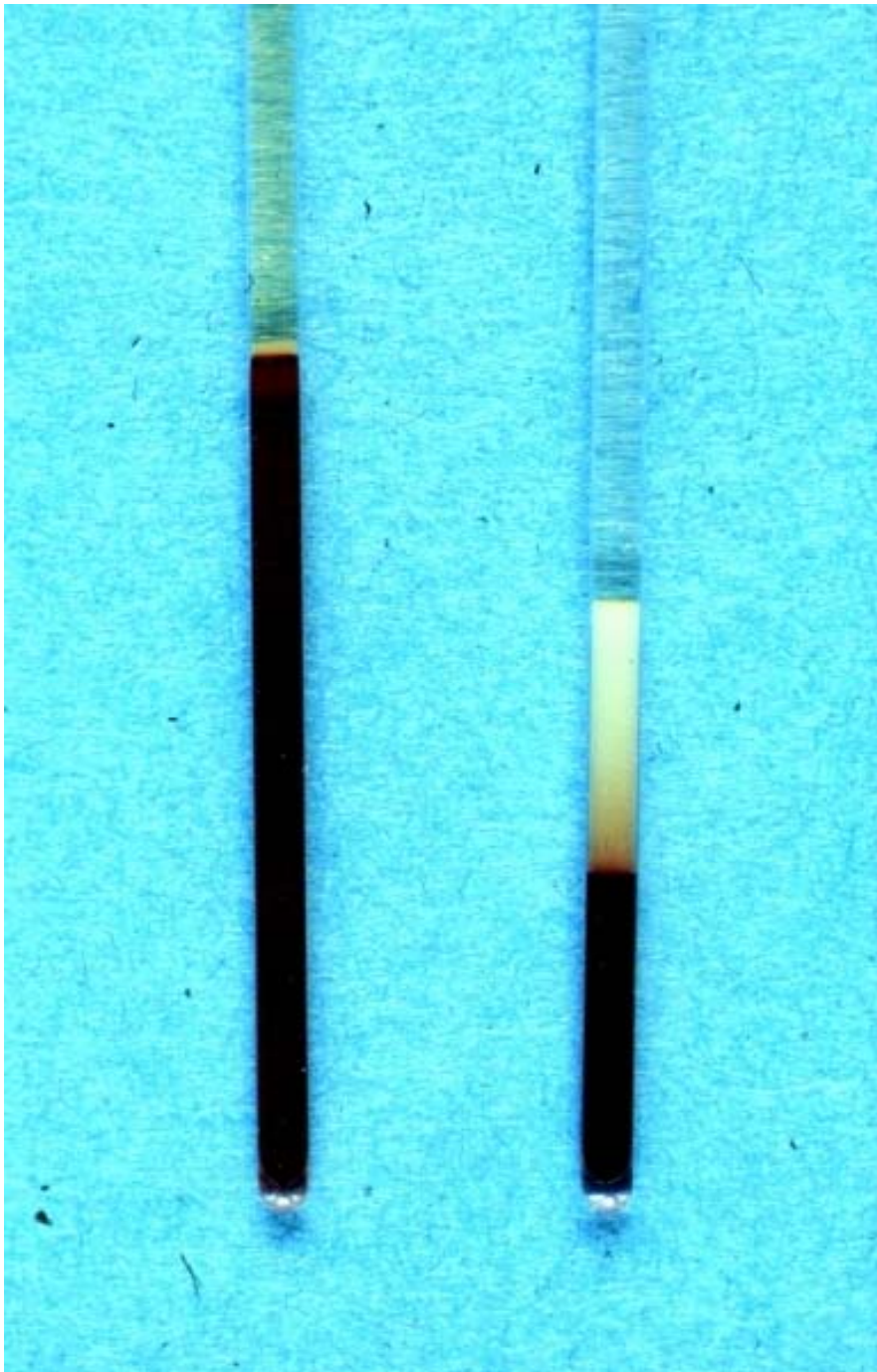
Based on pattern recognition, this 12-year-old little dog most likely has:

- a) A nasopharyngeal tumour
- b) Reverse sneezing
- c) Collapsing trachea
- d) Eversion of the laryngeal sacculles
- e) Chronic bronchitis



Based on pattern recognition, this little dog most likely has:

- a) A nasopharyngeal tumour
- b) Reverse sneezing
- c) Tonsillitis
- d) Eversion of the laryngeal sacculles
- e) Chronic bronchitis



The microhaematocrit tube on the left was from a normal dog. The one on the right was from an anorexic, depressed 6-year-old male German shepherd dog. It had a PCV of 13. What does the image reveal to you?

- a) Lipaemia, maybe pancreatitis
- b) Most likely lymphoid leukaemia
- c) IgA deficiency
- d) Most likely extreme neutrophilia
- e) I need to look at a buffy coat smear

Case 16

Is this 4-year-old dog very likely to be in renal failure?

1. Yes
2. No
3. Don't know

Evidence?

Case 16

Most likely Acute or Chronic?

1. Acute
2. Chronic
3. Don't know

Evidence?

Case 16

What do you think about the anaemia?

1. As expected
2. Supports CRF
3. Rather severe
4. Must be bleeding
5. Shouldn't be regenerative

10-year-old Terrier Mixed Breed dog

Most likely root of all the problems?

1. UTI
2. CRF
3. Hyperphosphataemia
4. Hypercalcaemia
5. Anal sac mass
6. Something else

Can you explain the hierarchy?

10-year-old Terrier Mixed Breed dog

PTH and ionized calcium were both found to be very high.

1. Renal secondary hyperparathyroidism
2. It's just the CRF
3. Apocrine adenocarcinoma of the anal sac
4. Primary hyperparathyroidism
5. Something else

Can you explain?

“Molly”

A 6 ½-year-old FS Setter Cross

- New client / patient
- Molly has a recent onset of increased thirst
- 3 years of stiffness, difficulty rising. Has been partially responsive to prednisone (provided by another vet)
- Bright, responsive, slightly underweight
- Very stiff joints, crepitus in the elbows, stifles and carpi; pain on extension of the hips

“Molly” – What to recommend now?

1. Another course of prednisone at an anti-inflammatory dose rate
2. An NSAID at a cautious dose rate
3. Get some further history
4. Do a rectal exam
5. Do a full orthopaedic exam
6. Something else



“Molly” 6 ½ year old FS Setter Cross – Further history

- Fully vaccinated, no previous illnesses
- OVH done three years ago, no known complications
- Stiffness started three weeks after the OVH
- Not on any medications at the moment
- >80 ml/kg/day water consumption

“Molly” – What to recommend next?

1. Dispense another anti-inflammatory course of prednisone
2. Dispense an NSAID at a cautious dose
3. Do some lab tests
4. Do a rectal exam
5. Do a full orthopaedic exam



“Molly” 6 ½ year old FS Setter Cross – Further physical exam

- Rectal exam: smooth, rounded 4cm diameter fluctuant mass found midline, ventral, ~ 8 to 10 cm cranial to the anus
- Peri-articular soft tissue thickening and reduced range of motion in carpi, tarsi and elbows
- Perhaps some joint effusion in the stifles, carpi and tarsi

Molly's Problem List

1. Recent onset of polydipsia / polyuria
2. 3-year history of stiffness & difficulty rising (partially prednisone-responsive)
3. Peri-articular soft tissue thickening, joint effusions(?), crepitus, painful hips
4. Fluctuant mass ventral to the rectum
5. Underweight

“Molly” – Differentials for her PU/PD?

1. Renal insufficiency / failure
2. Hypercalcaemia
3. Glomerulonephritis
4. Hypoadrenocorticism
5. Stump pyometra
6. None of these, show me more

“Molly” – Differentials for her joint disease?

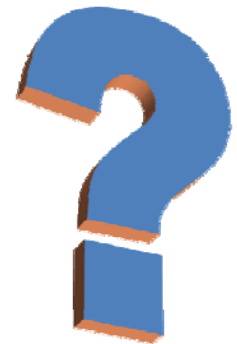
1. Rheumatoid arthritis
2. Systemic lupus erythematosus
3. Idiopathic non-erosive immune-mediated polyarthritis
5. Bacterial synovitis
6. None of these, something else

“Molly” – Differentials for the mass palpated rectally

1. Urethral / bladder neck tumour
2. Vaginal or cervical leiomyoma
3. Stump pyometra
4. Pyogranuloma in the ventral rectal wall
5. None of these, something else

“Molly” Diagnostic Plan – Top pick?

1. CBC / Serum biochemistry / Urine analysis
2. Urine bacterial culture
3. FNAB of the mass
4. Radiographic examination of joints
5. Abdominal radiography or ultrasound
6. Something else



Serum Chemistry

TPP	71	50 - 75 g/L
ALBUMIN	22	22 - 35 g/L
ALKP	189	0 - 200 U/L
CK	139	0 - 460 U/L
ALT	45	0 - 130 U/L
T. BILIRUBIN	3.42	0 - 6.9 $\mu\text{mol/L}$
CHOLESTEROL	9.78	2.58 - 5.85 mmol/L

Apart from the obvious, what else is of interest here?

Urine Analysis

Source	Cystocentesis
Volume	8 ml
Colour	light yellow
Turbidity	clear
S.G.	1.011
pH	7.0
Protein	4+
Glucose	negative
Ketone	negative
Bilirubin	positive
Haemoglobin	2+ (moderate)
Urobilinogen	0.2

Given these results, what do you need to look at next?

Urine Sediment

Epithelial cells	few transitional
Crystals	few amorphous
RBCs	1 -2 /hpf
WBCs	0 - 2 /hpf
Debris	small amount
Bacteria	none
Casts	few hyaline

Interpretation, in light of preceding data?

Most 'rooty' of the lab. findings?

1. Azotaemia in the face of isosthenuria
2. Mature neutrophilia
3. Hyperphosphataemia
4. Hypercholesterolaemia
5. Proteinuria

Hierarchy?

Imaging studies

- Peri-articular soft tissue swelling
- Periosteal new bone, DJD
- Soft tissue mass dorsal to bladder neck, ventral to rectum/colon junction
- Slightly small kidneys
- Hyperechoic renal cortices

Repeat rectal exam

- Evil, dark green, very viscous pus (able to be “strung” a metre) oozed from the vulva when digital pressure was applied to the fluctuant mass

Your updated plan – What next?

1. Buccal mucosal bleeding time
2. Endogenous creatinine clearance test
3. Urine protein: urine creatinine ratio
4. Joint taps for cytology \pm bacterial culture
5. Resection of the uterine stump +/- kidney biopsy
6. Something else

Further results

- UP:UC 6.5
- Joint taps
 - Reduced viscosity, increased cell count, mixed PMN / mononuclear WBC response, no toxic changes, no organisms seen
- Aerobic bacterial culture of synovial fluid
 - no growth

Your approach to onward management?

- Renal failure
- Proteinuria
- Joint disease
- Systemic arterial blood pressure
- The uterine stump
- Something else...