

Splenic aspirates from a dog

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Signalment

Dog, Shar Pei, 3.5 years old, entire female

History

The dog was referred to the Hospital for Small Animals, Royal (Dick) School of Veterinary Studies, University of Edinburgh, UK for further investigation following a diagnosis of azotaemia and proteinuria. The dog had been recently treated for a urinary tract infection with amoxicillin-clavulanic acid, and the treatment was stopped 2 weeks prior to referral. She had a 2-year history of intermittent and recurrent episodes of lethargy, pyrexia, lameness of the hind legs, and swollen, hot hock joints. The signs responded to non-steroidal anti-inflammatory drugs. She was up-to-date with vaccinations and deworming, and had no history of travel outside Scotland.

Physical examination

At the time of admission, the dog was bright, alert and responsive with good body condition. Mucous membranes were pink and moist with a capillary refill time <2 sec. Hydration status was adequate. Cardiac auscultation revealed a heart rate of 100 beats/min and a regular rhythm with strong matching pulses, while no murmur was detected. The respiratory rate was 24 breaths/min, with normal effort and no adventitious sounds. Percussion of the chest and abdominal palpation were unremarkable. Peripheral lymph node,

limb, and joint palpation were unremarkable. Rectal temperature was 38.7°C. Rectal, neurological, and orthopaedic examinations were unremarkable. Systemic blood pressure using the Doppler method was mildly elevated (150 mmHg).

Clinicopathological evaluation

The complete blood count (ADVIA 2120, Siemens Medical Solution Diagnostics Ltd., USA) revealed a mild, non-regenerative anaemia (red blood cells: $5.30 \times 10^{12}/L$, RI: 5.50-8.50 $\times 10^{12}/L$; haemoglobin: 10.9 g/dL, RI: 12-18 g/dL; haematocrit: 34.2%, RI: 39-55%, reticulocytes: $23.6 \times 10^9/L$, RI: $<60 \times 10^9/L$). Moderate numbers of acanthocytes and small numbers of schistocytes were found during the blood smear examination. Serum biochemistry (AU480, Beckman Coulter, Brea, USA) revealed the presence of mild hypoproteinaemia due to hypoalbuminaemia, mild azotaemia, mild hypercholesterolaemia, mild hyperglycaemia, and borderline increase in ALP activity (Table 1). Urinalysis showed low urine specific gravity (1.015), increased urine pH (8), and a strongly positive protein reaction (+4) and weakly positive blood reaction (+1) on dipstick analysis. Urine sediment was unremarkable, while urine protein:creatinine ratio (AU480, Beckman Coulter, Brea, USA) was markedly increased (8.0, RI: <0.2). Point-of-care ELISA (Snap 4Dx Plus Test, IDEXX Laboratories, Westbrook, USA) was negative for *Dirofilaria immitis* antigen and antibodies to *Ehrlichia* spp., *Borrelia burgdorferi*, and *Anaplasma* spp.

Diagnosting imaging

Thoracic radiographs were unremarkable, except for a moderately gas-distended stomach, likely due to aerophagia. Abdominal ultrasonography revealed a moderately enlarged liver with mildly heterogeneous echotexture, gall bladder sludge, mildly and diffusely stippled splenic echotexture, bilateral, mild, diffuse adrenomegaly, and mild colonic wall thickening. Ultrasound-guided fine needle aspiration of the liver and spleen was performed.

Table 1. Clinical biochemistry results of a 3.5-year-old Shar Pei dog that was referred with a history of azotaemia and proteinuria.

Analyte	Result	Reference interval	Unit
Total proteins	51	58-73	g/L
Albumin	22.6	26-35	g/L
Globulins	28.4	18-37	g/L
Glucose	6.1	3-5	mmol/L
Cholesterol	10.3	3.8-7	mmol/L
Triglycerides	0.57	0.57-1.14	mmol/L
Urea	15.3	1.7-7.4	mmol/L
Creatinine	212	22-115	µmol/L
ALT	76	21-102	U/L
ALP	61	20-60	U/L
Bilirubin	2.4	0-6.8	µmol/L
Bile acids	4.5	0-10.5	µmol/L
Total calcium	2.4	2.3-3	mmol/L
Ionised calcium	1.27	1.15-1.5	mmol/L
Inorganic phosphate	1.2	0.9-2	mmol/L
Magnesium	0.90	0.69-1.18	mmol/L
Potassium	3.7	3.6-5.6	mmol/L
Sodium	145	139-154	mmol/L
Chloride	115	102-118	mmol/L
CK	78	50-200	U/L
C-reactive protein	<5	<6.8	mg/L

Cytological images of the splenic aspirates

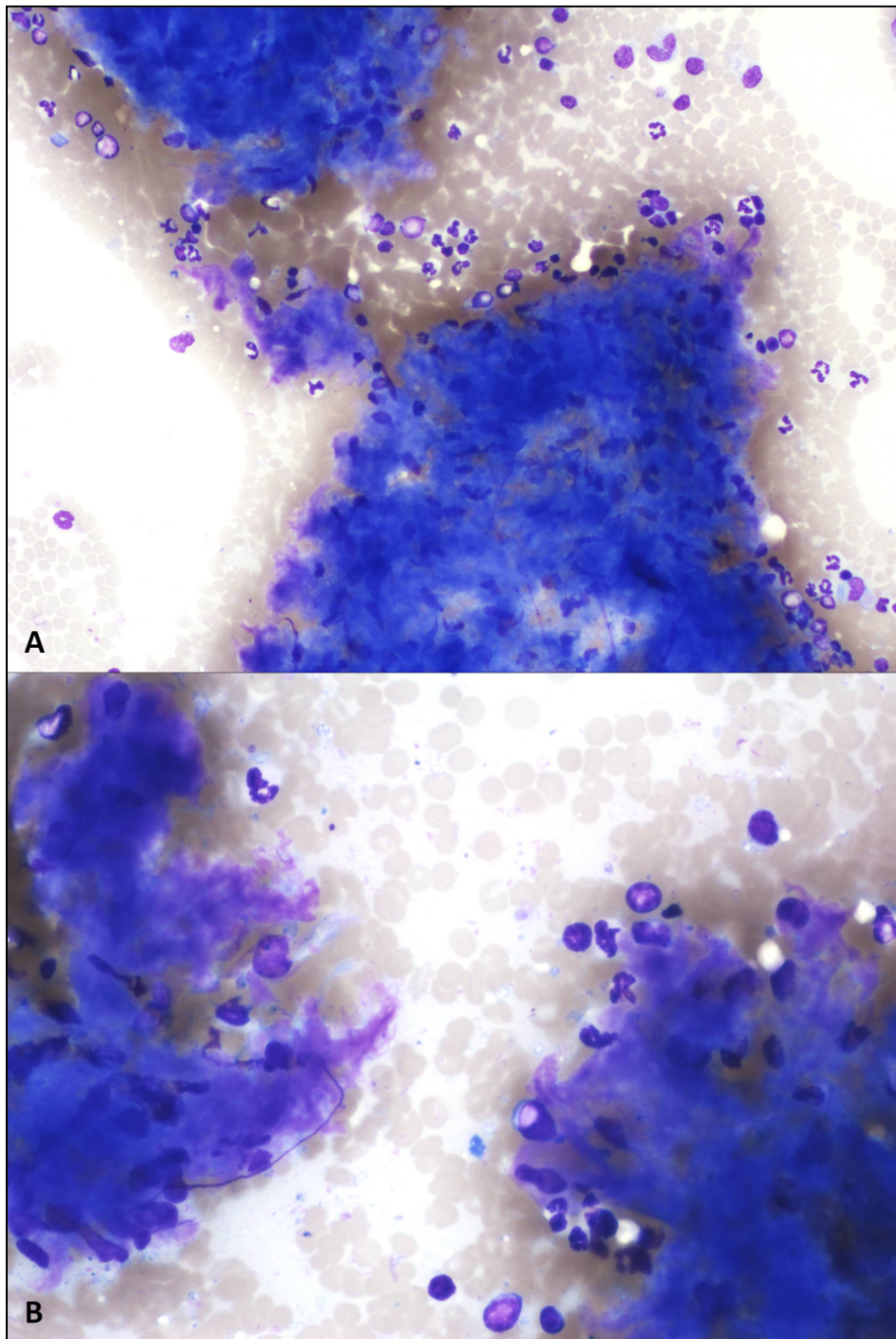


Figure 1. Spleen, ultrasound-guided FNA from a 3.5-year-old Shar Pei dog. May-Grünwald Giemsa. **A)** x20 objective. **B)** x40 objective.

Questions

What is your cytological description and interpretation of the cytological findings?

What additional tests could be performed to further investigate this case?