

## **Peritoneal fluid from a dog**

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**Signalment:** 5-year-old, male castrated, Shetland Sheepdog, “Twister”

**Specimen:** Peritoneal fluid, Wright-Giemsa stain

**History:** Twister was referred to the Atlantic Veterinary College Teaching Hospital due to penile necrosis of an undetermined cause. Three weeks prior to referral the patient presented to the referring veterinarian with a blue-tipped penis and subsequently demonstrated stranguria and mild epistaxis. The bladder had been catheterized or manually expressed several times to promote complete emptying of the bladder. The patient was being treated with prednisone (2 mg/kg q12 hours) for suspected immune mediated thrombocytopenia. Other therapies prior to referral included deracoxib (Deramaxx®), metronidazole, cephalexin and ranitidine.

**Clinical findings:** On presentation (day 1) Twister was quiet and depressed but responsive. On physical examination Twister had tacky pink mucus membranes, tachypnea, increased respiratory effort, tachycardia and a tense and painful abdomen on palpation. The rostral aspect (~3-5 cm) of the penis was devitalized and a smaller (1-2 cm) area of the proximal prepuce had devitalized skin.

### **Diagnostic procedures:**

A complete blood count, serum biochemistry and urinalysis were performed. Results are in tables 1, 2 and 3.

Abdominal ultrasound (performed on day 1) revealed a large amount of echogenic free fluid throughout the abdomen. The bladder was mildly distended with echogenic fluid and a discontinuous segment of the caudal ventral bladder was noted. Within this region of the bladder wall, hyperechoic, distally attenuating foci were present and interpreted as free air. A positive contrast cystogram was performed using Omnipaque® and leakage into the peritoneum was not noted.

The peritoneal fluid obtained on day 1 via abdominocentesis was cloudy and slightly bloody. It was submitted for cytological evaluation (figures 1, 2 and 3). The nucleated cell count was  $48.9 \times 10^9/L$ , RBC count was  $0.03 \times 10^{12}/L$  and the protein concentration  $<25 \text{ g/L}$ . Additional results from the abdominal fluid: creatinine =  $1139 \mu\text{mol/L}$ , urea =  $39.7 \text{ mmol/L}$  and potassium =  $11.2 \text{ mmol/L}$ .

Table 1: Hematology results:

Analyte	Units	Day 1	Reference Interval
WBC	x10 <sup>9</sup> /L	<b>28.2</b>	5.4 - 14.3
RBC	x10 <sup>12</sup> /L	<b>4.6</b>	5.7 - 8.4
Hgb	g/L	<b>105</b>	135 - 198
Hct	L/L	<b>0.31</b>	0.40 - 0.56
Platelets	x10 <sup>9</sup> /L	231	218 - 470
Reticulocytes	x10 <sup>9</sup> /L	60	0 - 85
Segmented neutrophils	x10 <sup>9</sup> /L	<b>25.9</b>	2.8 - 10.1
Band neutrophils	x10 <sup>9</sup> /L	0.3	0.0 - 0.3
Lymphocytes	x10 <sup>9</sup> /L	<b>0.6</b>	0.9 - 4.6
Monocytes	x10 <sup>9</sup> /L	1.4	0.1 - 1.4

Table 2: Biochemistry results:

Analyte	Units	Day 1	Day 8	Reference Interval
Sodium	mmol/L	148	149	144 - 151
Potassium	mmol/L	5.2	4.9	3.9 - 5.3
Na: K ratio		28	30	
Chloride	mmol/L	107	108	105 - 117
Calcium	mmol/L	2.55	2.56	2.02 - 2.91
Phosphorus	mmol/L	<b>2.71</b>	1.13	0.84 - 1.83
Urea	mmol/L	<b>21.8</b>	5.2	2.8 - 9.8
Creatinine	μmol/L	<b>334</b>	<b>41</b>	54 - 122
Total Protein	g/L	64	58	56 - 71
Albumin	g/L	<b>24</b>	<b>28</b>	30 - 36
Globulin	g/L	<b>40</b>	30	25 - 38
A:G Ratio:		<b>0.6</b>	0.93	0.7 - 1.50

Table 3: Urinalysis Results:

Analyte	Day 1	Analyte	Day 1
Collection	Catheterized	Ketones	Negative
Color	Yellow	Blood	Trace
Clarity	Clear	pH	5
Specific gravity	1.026	Protein dipstick	Negative
Glucose	Negative	Protein SSA	0 g/L
Clinitest	0 mmol/L	Urobilinogen	1.7 μmol/L
Bilirubin	Negative	Microscopic findings	1-3 WBCs/400x, 0-2 RBCs/400x

**Peritoneal fluid cytology:**

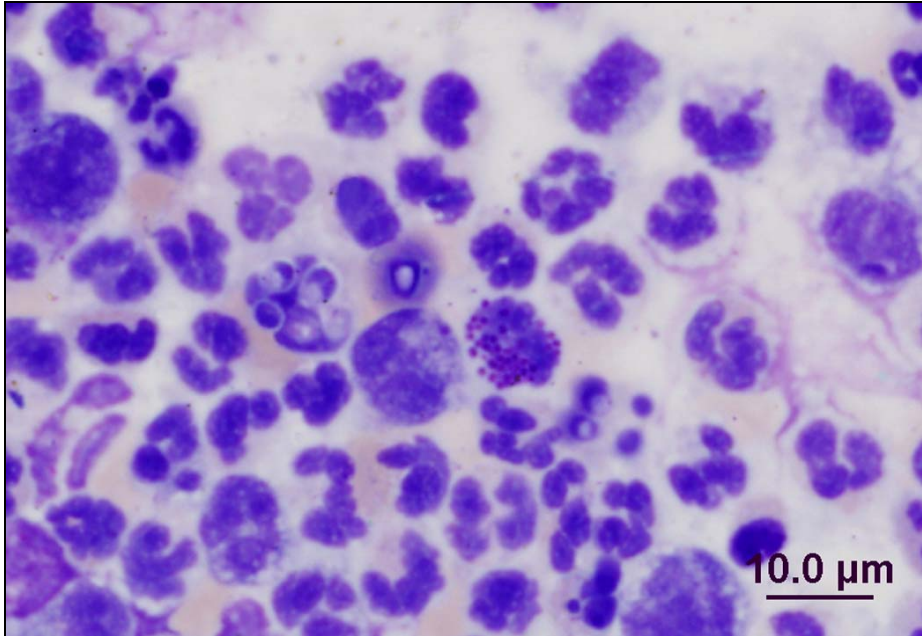


Figure 1: Cytocentrifuged preparation of canine peritoneal fluid. Wright-Giemsa Stain.

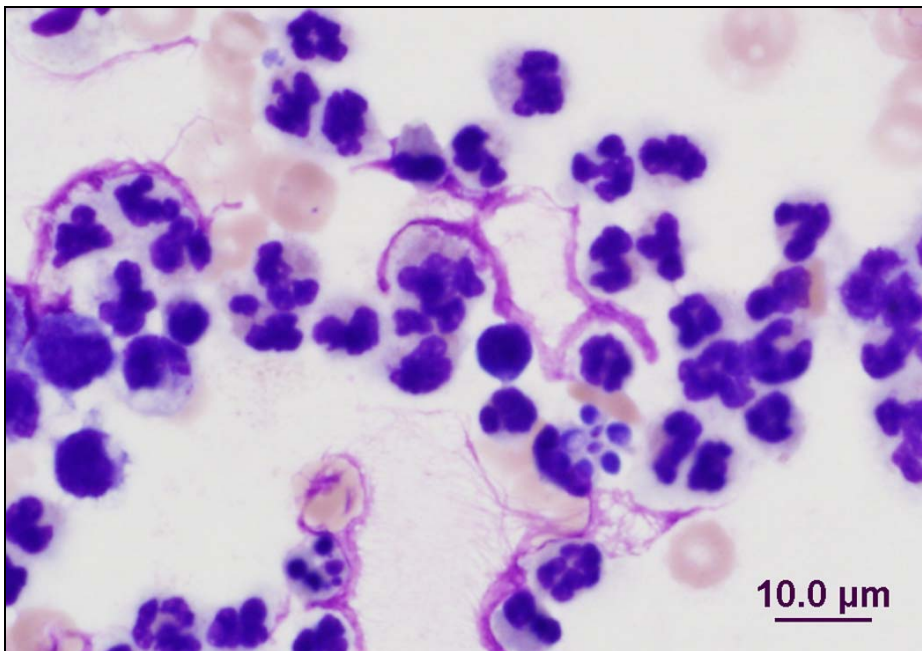


Figure 2: Sediment smear of canine peritoneal fluid. Wright-Giemsa Stain.

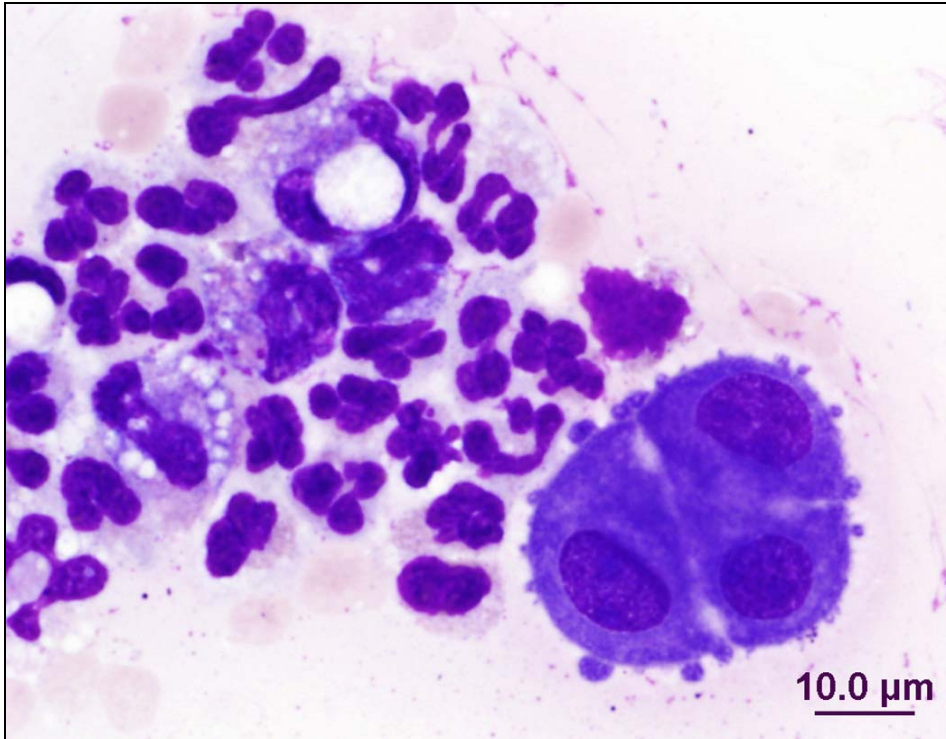


Figure 3: Sediment smear of canine peritoneal fluid. Wright-Giemsa Stain.

**Questions:**

1. What is your cytological diagnosis and interpretation for the peritoneal fluid?
2. What further tests would help confirm the cytological diagnosis?