An unusual cause of lymphadenopathy in a dog

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Signalment: 4.5 year old, neutered male, English Springer Spaniel.

History: The dog was born in Scotland and had been in the owner's possession since a young puppy. There were 3 other dogs in the household. The dog was fully vaccinated and regularly de-wormed, and had a history of recurrent otitis externa. It was presented to the referring veterinarian on the 26th February, 2009 for right hind limb lameness. The rectal temperature was 40°C and the limb had a pitting oedema of the right hock. Despite treatment, with oral antibiotics, the oedema extended to the other limb and respiratory distress was noted. Radiography showed pleural effusion and haematology indicated moderate neutrophilia. Furosemide was added to the therapy but with little improvement over the next two days, it was referred on the 3rd March to the Cardiopulmonary Service of the Hospital for Small Animals at The University of Edinburgh.

Clinical findings at referral: The dog was quiet, alert and responsive. It weighed 23.8 kg, the rectal temperature was 38.7°C, the mucous membranes were pink, the HR was 116/min and the pulse was weak. It was tachypneic (RR 60/min) with increased inspiratory effort. Popliteal and prescapular lymph nodes were enlarged. There was pitting, non-painful oedema in both hind limbs and ventral abdomen, with mild extension to the fore limbs. Echocardiography revealed no cardiac abnormalities but a pleural effusion was visible. Chest radiographs following thoracocentesis did not identify the cause of the pleural effusion. Abdominal ultrasonography revealed sublumbar and abdominal lymphadenopathy.
Cytological examination of FNAs from a sublumbar lymph node was performed. Pleural effusion was also evaluated cytologically and sent for culture.

Initial laboratory investigation: The laboratory findings at the referring practice (2nd), on the day of referral (4th) and on the day of discharge (10th March), are shown below.

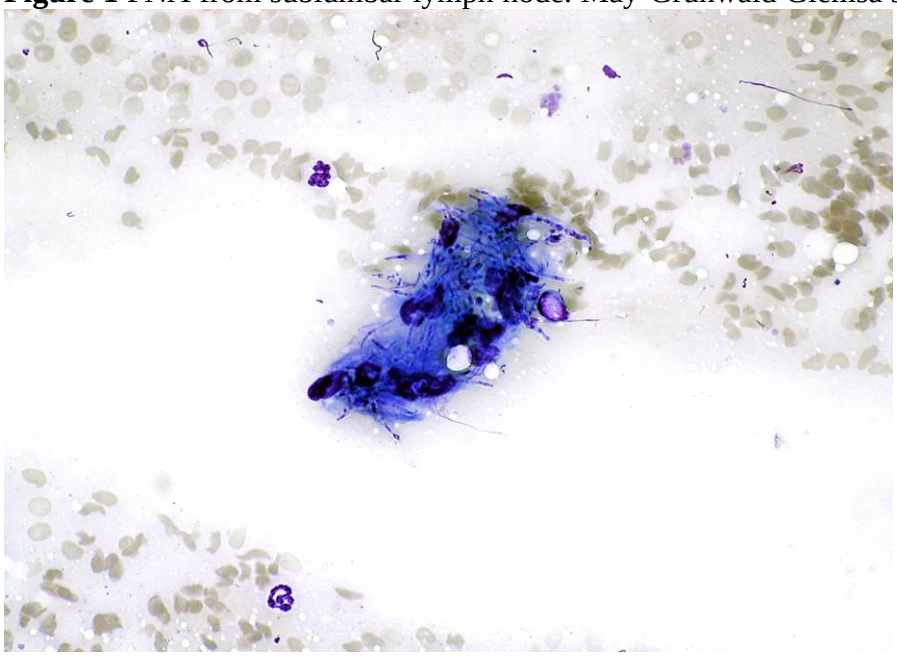
	02 March 09	**4 March 09**	**10 March 09**	**Reference intervals**
Total RBC count		**4.6**	**4.93**	5.5-8.5 x 10^{12}/L
Hb	12.1	**10.9**	**11.5**	12-18 g/dL
HCT	**0.372**	**0.329**	**0.348**	0.39-0.55
MCV		71	71	60-77 fL
MCHC	32.5	33.4	33	32-36%
Total WBC count	**44.3**	**26.6**	**34.1**	6-15 x 10^9/L
Segmented neutrophils	**38.000**	**24.738**	**28.303**	3.6-12.0 x 10^9/L
Band neutrophils		**0.532**	**0**	0 x 10^9/L
Lymphocytes	**0.630**	**0.266**	**0.682**	0.7-4.8 x 10^9/L
Monocytes		1.064	**5.115**	0-1.5 x 10^9/L
Eosinophils		0	0	0-1.0 x 10^9/L
Basophils		0	0	0-0.2 x 10^9L
Platelets	505	212	266	200-500 x 10^9/L

Total protein	63	**54.3**	**51**	58-73 g/L
Albumin		**24.8**	**24.6**	26-35 g/L
Globulin		29.5	26.4	18-37 g/L
ALT	23	23	**17**	21-102 IU/L
Alkaline phosphatase	**191**	**194**	**168**	20-60 IU/L
Bile acids		**9.9**	**7.2**	0-7.0 umol/L
Total bilirubin		2.1	4.5	0-6.8 umol/L
Glucose	4.65	4.5	3.8	3.0-5.0 mmol/L
Blood urea	7	**12**	**12.3**	1.7-7.4 mmol/L
Creatinine	125	110	**147**	40-132 umol/L
Inorganic phosphate		1.54	**2.67**	0.9-2.0 mmol/L
Calcium		**2.24**	2.36	2.3-3.0 mmol/L
Chloride		102	114	99-115 mmol/L
Sodium		142	**157**	139-154 mmol/L
Potassium		4.1	4.3	3.6-5.6 mmol/L

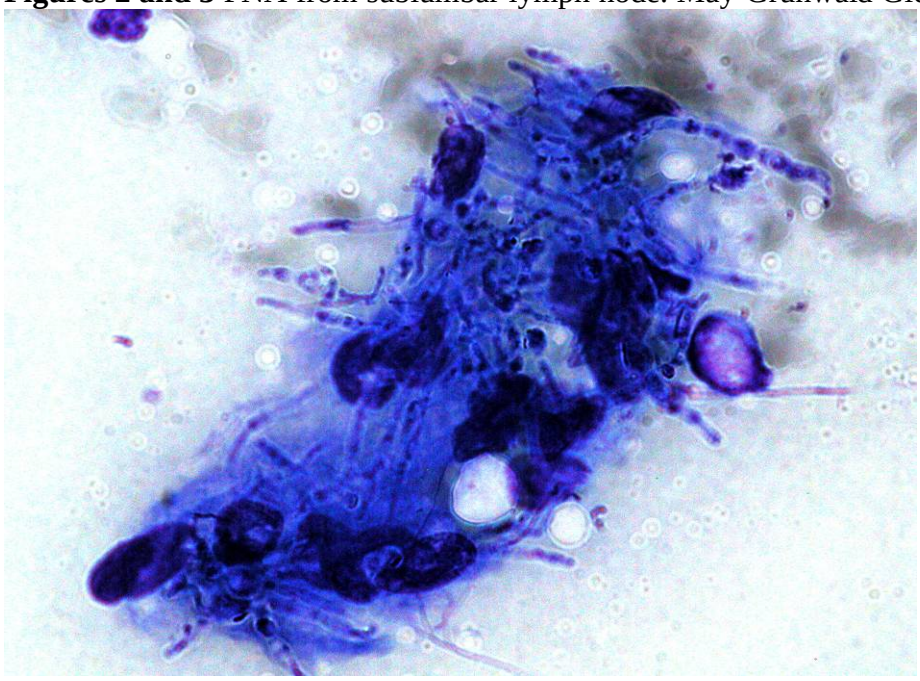
Pleural fluid analysis

Appearance	Slightly turbid, straw colour
Specific gravity	1.024
Total protein	28.1 g/L
Total cell count	26.5 x 10^9/L

Figure 1 FNA from sublumbar lymph node. May-Grünwald Giemsa stained, x400.



Figures 2 and 3 FNA from sublumbar lymph node. May-Grünwald Giemsa stained, x1000



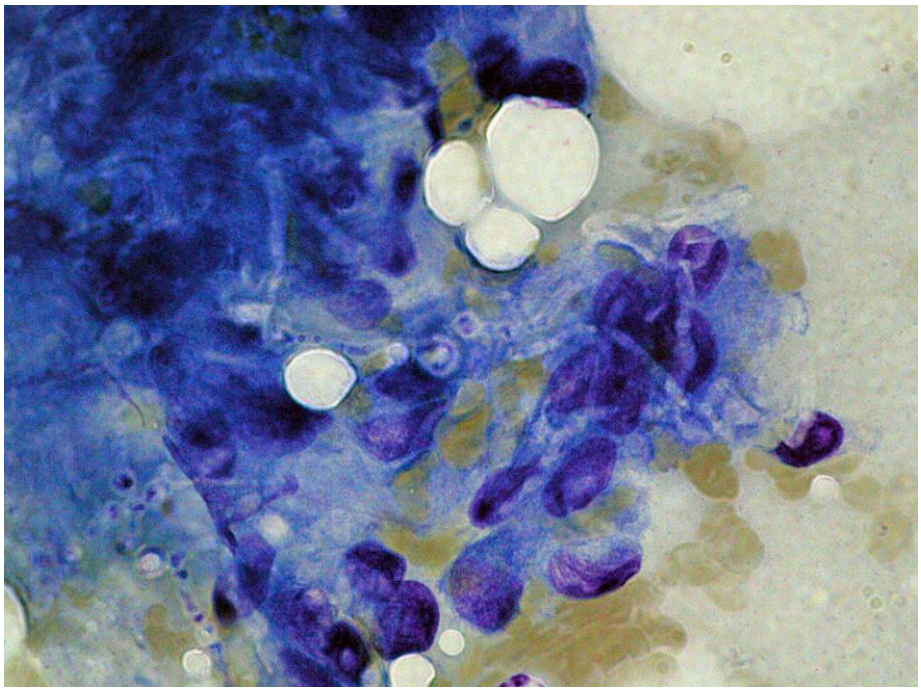
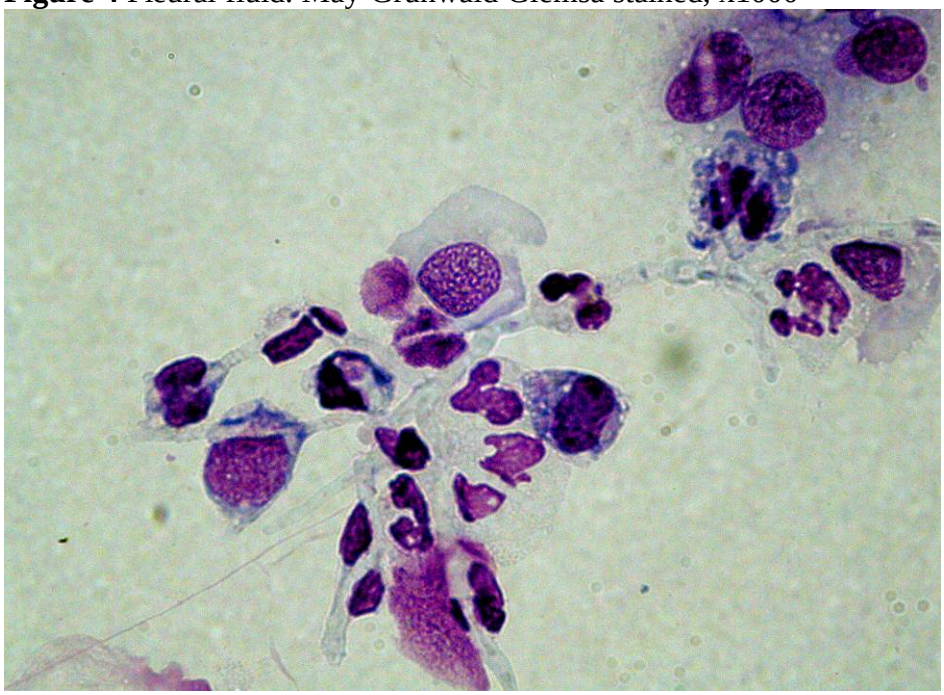


Figure 4 Pleural fluid. May-Grünwald Giemsa stained, x1000



Questions:
What is your preliminary diagnosis?
Which other tests or stains would you carry out to obtain a definitive diagnosis?