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University: University of Georgia

Specimen: Blood smear

Signalment: Adult, FS American Pit Bull Terrier

History and Clinical Signs: An adult female spayed American Pit Bull Terrier presented to the University of Georgia's oncology service as a referral for suspected lymphoma due to firm, enlarged peripheral lymph nodes of one month duration. Fine needle aspiration of a peripheral lymph node confirmed the diagnosis and flow cytometry allowed for further classification as intermediate to predominantly large-sized B cells that labeled CD21+ MHCII+ and CD45+, consistent with B cell lymphoma. Additionally, on flow cytometry, there were also very low percentages of small to intermediate T cells within the lymph node. At that time, a CBC, chemistry panel, and urinalysis were performed and revealed no significant abnormalities, with the exception of a mild thrombocytopenia ($141 \times 10^3/\mu\text{L}$) and no evidence of circulating neoplastic cells. Chemotherapy was initiated with vincristine.

The patient returned in one week for chemotherapy and another CBC was submitted prior to treatment. A pathology review was performed on the CBC, which revealed lymphocytes morphologically concerning for an emerging circulating neoplastic population. These lymphocytes were predominantly small to intermediate in size with a mildly expanded, lightly basophilic cytoplasm that occasionally contained a few magenta granules and rarely contained vacuoles. Nuclei of these atypical lymphocytes were round to ovoid, and contained lightly clumped to smooth chromatin with no overt nucleoli. At this time, Adriamycin was administered due to concern for disease progression. Approximately two weeks later, the following CBC was received for pathology review.

Hematology Data:

TEST	UNITS	RESULT	REFERENCE INTERVAL
RBC	$\times 10^6/\mu\text{L}$	4.39 L	5.90 – 8.66
HGB	g/dL	10.7 L	13.7 – 20.7
HCT	%	32.4 L	42.2 – 59.8
MCV	fL	73.8	63.9 – 75.4
MCHC	g/dL	33.0	32.4 – 35.2
RDW	%	13.4 H	11.2 – 13.2
Platelets	$\times 10^3/\mu\text{L}$	57 L	226 – 424
MPV	fL	15.6 H	8.9 – 14.4
PDW	%	65.2	39.9 – 67.2
PCT	%	0.09 L	0.15 – 0.45
MPC	g/dL	23.0	17.2 – 23.6

WBC

4.0 L $\times 10^3/\mu\text{L}$

4.2 – 12.9

TEST	UNITS	RESULT	REFERENCE INTERVAL
Segmented Neutrophils	$\times 10^3/\mu\text{L}$	2.000 L	2.700 – 8.500
Lymphocytes	$\times 10^3/\mu\text{L}$	1.680	0.500 – 4.100
Monocytes	$\times 10^3/\mu\text{L}$	0.320	0.100 – 1.000

Eosinophils	x 10 ³ /μL	0.000	0.000 – 1.200
Basophils	x 10 ³ /μL	0.000	0.000 – 0.045
Others	x 10 ³ /μL	0.000	0.000 – 0.000
Nucleated RBC	/100 WBC	1	0 - 5

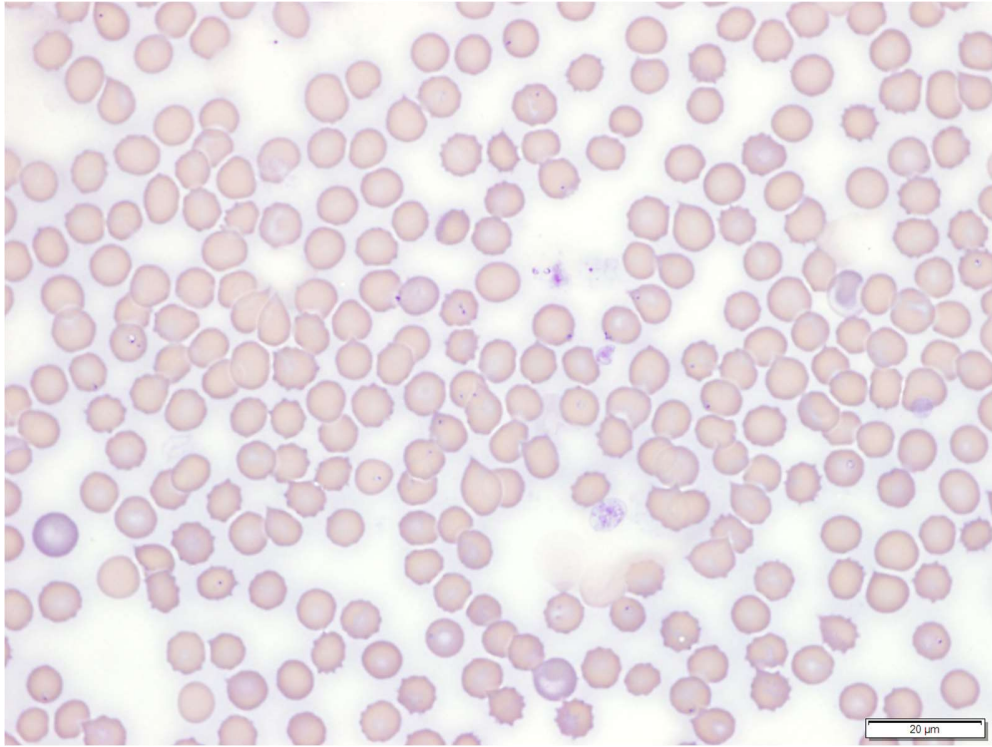


Figure 1. Blood smear from adult FS American Pit Bull Terrier. Wright-Giemsa stain. X100 objective.

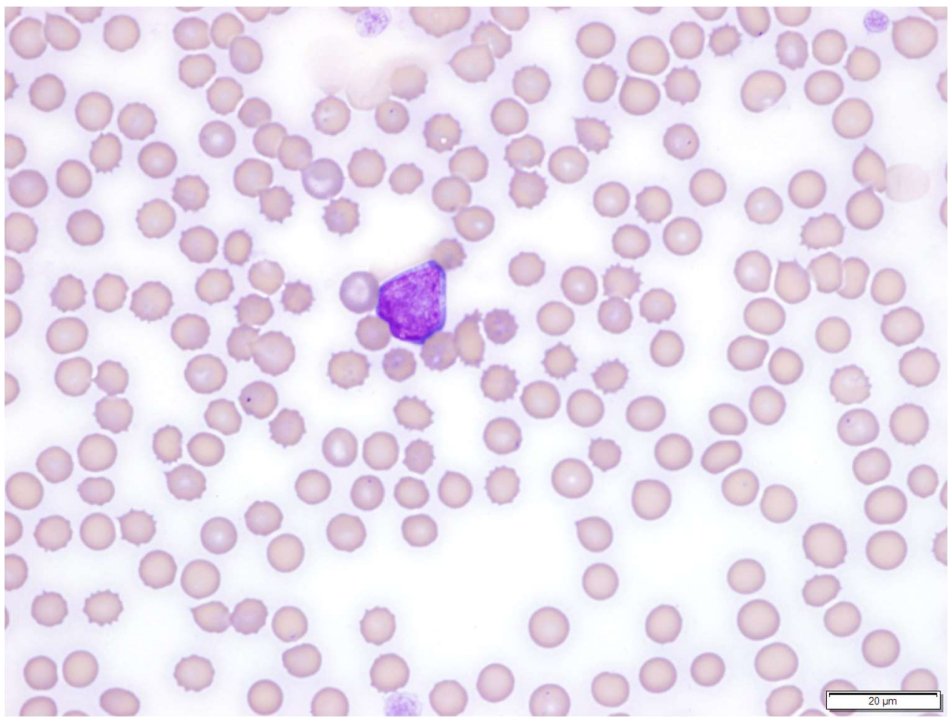


Figure 2. Blood Smear from adult FS American Pit Bull Terrier. Wright-Giemsa stain. X100 objective.

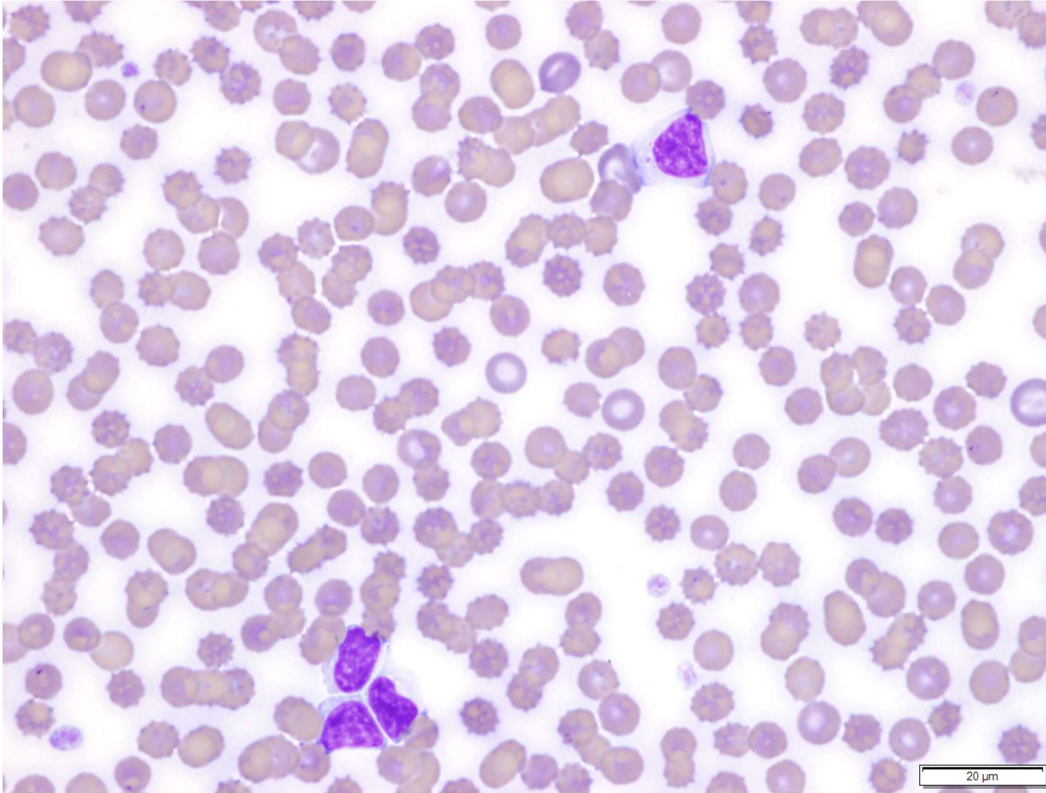


Figure 2. Blood Smear from adult FS American Pit Bull Terrier. Wright-Giemsa stain. X100 objective.

Questions:

1. **What are three differentials for the blood smear findings?**
2. **Given the history, what is the most likely diagnosis in this patient?**