Case # 58
Peripheral blood smear from a horse

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Signalment and history

- 16 year-old Clydesdale mare
- Presented to AULATH for pyrexia, ptyalism, lethargy, marked periorbital and buccal edema
- Good appetite maintained
- Up to date with deworming and vaccination
- 1.1 mg/kg flunixin meglumine IV
Presentation

- body temperature: 102.4°F (normal 99-101°F)
- pulse: 80 bpm (normal 25-40 bpm)
- respiratory rate: 40 brpm (normal 8-15 brpm)
- enlarged bilateral mandibular lymph nodes
## CBC

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Patient’s values</th>
<th>Reference intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hct (%)</td>
<td>27.1</td>
<td>32 - 48</td>
</tr>
<tr>
<td>MCV (fL)</td>
<td>45.1</td>
<td>34 - 58</td>
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<tr>
<td>MCHC (g/dL)</td>
<td>38.6</td>
<td>31 - 37</td>
</tr>
<tr>
<td>WBC (/µL)</td>
<td>147,910</td>
<td>6,000 - 12,000</td>
</tr>
<tr>
<td>Neutrophils (/µL)</td>
<td>5,916</td>
<td>3,000 - 6,000</td>
</tr>
<tr>
<td>Lymphocytes (/µL)</td>
<td>139,035</td>
<td>1,500 - 5,000</td>
</tr>
<tr>
<td>Monocytes (/µL)</td>
<td>1,479</td>
<td>0 - 600</td>
</tr>
<tr>
<td>Basophils (/µL)</td>
<td>1,479</td>
<td>0 - 100</td>
</tr>
<tr>
<td>LUC (/µL)</td>
<td>19,340</td>
<td></td>
</tr>
</tbody>
</table>
Peripheral blood smear
Peripheral blood smear: lymphocyte morphology
CBC interpretation

Lymphoid leukemia or lymphoma stage V
Mandibular lymph node cytology
Bone marrow cytology
Gross findings

Spleen

Liver

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Gross findings

Mesenteric lymph nodes

Bone marrow

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Histopathologic evaluation

Bone marrow

Local invasion of fatty marrow by dense sheets of neoplastic lymphocytes

Liver

Periportal and portal infiltration with neoplastic lymphocytes
Histopathologic evaluation

Spleen

Splenic red pulp severely and diffusely infiltrated with neoplastic lymphocytes

Lymph node

Largely effaced cytoarchitecture by neoplastic lymphocytes

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Final diagnosis:
**Multicentric follicular lymphoma, grade 3, stage V**
Follicular lymphoma

Follicle

- **dark zone**
- **light zone**

**CENTROCYTE**
- Small lymphocyte, deep nuclear indentation

**CENTROBLAST**
- Large lymphocyte, prominent multiple nucleoli

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Follicular lymphoma vs. Follicular hyperplasia

Follicular lymphoma

Follicular hyperplasia

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Follicular lymphoma

Based on the number of centroblasts/hpf

- Grade 1: 0-5 centroblasts/hpf
- Grade 2: 6-15 centroblasts/hpf
- Grade 3: >15 centroblasts/hpf

Grade 3

- more aggressive → lymph nodes, spleen, liver, bone marrow
- bone marrow → only 20% of human cases have peripheral centrocytes

DIAGNOSIS MAY BE MISSED!!!
Conclusion

• Despite the disease, a good appetite was maintained
  → insidious progression
  • Bone marrow is evaluated less frequently in animals than in people
  → centrocytes in peripheral blood

Follicular lymphoma
- rare diagnosis in animals
- detailed description of clinical and clinical pathology aspects are still lacking
ACKNOWLEDGEMENTS

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Clin path lab technicians