Visceral mast cell tumor in a Sumatran Tiger
(Panthera tigris)
Case history

- 6 year-old male Sumatran tiger
- In the CERZA parc for one year, living with his brother
- No specific past clinical history
- Five days of anorexia and lethargy
- Anesthesia for clinical examination
Clinical examination

Anemia and subicterus
Clinical examination

- Anemia
- Subicterus
- Swollen but soft abdomen
Hematology

- Complete blood cell count
- Blood smear
- Felv-FIV test
### Hematologie

<table>
<thead>
<tr>
<th>Nombre globulaire</th>
<th>Hématies</th>
<th>5.920 M/mm3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hémoglobine</td>
<td>12.1 g/100ml</td>
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<tr>
<td></td>
<td>Hématocrite</td>
<td>34.7 %</td>
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<td></td>
<td>U.G.M.</td>
<td>58.0 %</td>
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<td></td>
<td>C.C.M.H.</td>
<td>35.3 %</td>
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<td></td>
<td>I.C.M.H.</td>
<td>20.4 uug</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Leucocytes</th>
<th>22.900 /mm3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutrophiles</td>
<td>57.0 %</td>
</tr>
<tr>
<td>Éosinophiles</td>
<td>13053 /mm3</td>
</tr>
<tr>
<td>Basophiles</td>
<td>1.0 %</td>
</tr>
<tr>
<td>Lymphocytes</td>
<td>10.0 %</td>
</tr>
<tr>
<td>Monocytes</td>
<td>2290 /mm3</td>
</tr>
<tr>
<td>Métélyocytes</td>
<td>9.0 %</td>
</tr>
<tr>
<td>Myélocytes</td>
<td>2061 /mm3</td>
</tr>
<tr>
<td>Myélocytes</td>
<td>20 %</td>
</tr>
<tr>
<td>Formule contrôlée par une lecture au microscope</td>
<td></td>
</tr>
<tr>
<td>Numeration des plaquettes</td>
<td>25.000 /mm3</td>
</tr>
</tbody>
</table>
Hematology

- Complete blood cell count
- Blood smear
- Felv-FIV test
Blood smear, MGG x
Circulating population of large round cells:
round nucleus, abundant cytoplasm

Blood smear, MGG x 200
Blood smear, MGG x1000
Hematology

- Complete blood cell count
- Blood smear
- Felv-FIV test: negative
Necropsy

- Death during anesthesia
- Necropsy
  - Severe abdominal hemorrhage (over 2 liters)
Necropsy

- Severe abdominal hemorrhage (over 1 liter)
- Hepatomegaly
- Numerous 2-10 mm diameter, firm white nodules in the hepatic parenchyma
- Marked splenomegaly
- Severe hypertrophy of the mesenteric, hepatic and splenic lymph nodes
- Multifocal gastric ulcers
Histologic examination

Spleen. HE X 40
Histologic examination

Lymph node. HE x 40
Liver. HE X 40
Histologic examination

Liver. HE X 400
Histologic examination

Liver. HE X 200
Histologic examination

Kidney HE X 400
Histologic examination

Lung HE X 100
Histologic examination

- Spleen, liver and lymph nodes: severe infiltration by sheets of neoplastic round cells.
- Eosinophilic cytoplasm, well-delimited cell borders, round central nucleus
- Associated with numerous eosinophils
- Kidneys and lungs also slightly infiltrated

→ High grade round cell tumor
Liver. Toluidine blue x 1000
Liver. Toluidine blue x 1000
Special stain

- Toluidine blue stain
- Few metachromatic granules in the cytoplasm of neoplastic cells
- Mast cell origin
Diagnosis

Visceral mast cell tumor with splenic, hepatic lymphoid, renal and pulmonary infiltration and leukemic invasion.
Discussion (1)

- **Pathogenesis:**
  - Liver failure caused by the tumor
    - Subicterus
  - Degranulation of mast cell tumor
    - Abdominal hemorrhage and gastric ulcers
  - Coagulation disorders or bone marrow infiltration:
    - Anemia and thrombocytopenia

- Evaluation of hepatic enzymes, coagulation factors and bone marrow analysis not available
Discussion (2)

- Mast cell tumors rarely described in exotic felids:
  - Visceral in a tiger and a jaguar
  - Cutaneous in a lion

Jejunum from the jaguar

**Discussion (3)**

- **In the domestic cat, distinction between**
  - Cutaneous: 2nd most common cutaneous tumor mastocytic type (well differentiated or anaplastic) histiocytic type
  - Visceral mast cell tumors:
    - Primary splenic mast cell tumor with systemic extension and mastocytemia
    - Primary intestinal mast cell tumor
Discussion (4)

- Characteristic feature of the Ir splenic form
  - Splenomegaly, gastric ulcers
  - Dissemination
  - Peripheral blood mastocytosis
Conclusion

- Definitive diagnosis important to exclude infectious process

- Histology is pathognomonic
Acknowledgements

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Dr Huygues (Cerza parc)
Thank you for your attention