10-year-old, female/spayed Shetland Sheepdog

History
• Decrease appetite for several days
• Nonresponsive the morning of presentation

CBC Findings:
• Erythrocytosis
• Acute inflammatory leukogram characterized by
  • Left shift
  • Moderate toxic changes
• Monocytosis
• Lymphopenia
## Chemistry abnormalities

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Units</th>
<th>Ref. Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urea nitrogen</td>
<td>69</td>
<td>mg/dL</td>
<td>9-33</td>
</tr>
<tr>
<td>Creatinine</td>
<td>3.0</td>
<td>mg/dL</td>
<td>0.5-1.5</td>
</tr>
<tr>
<td>Protein, total</td>
<td>4.8</td>
<td>g/dL</td>
<td>5.4-7.6</td>
</tr>
<tr>
<td>Albumin</td>
<td>2.5</td>
<td>g/dL</td>
<td>3.4-4.2</td>
</tr>
<tr>
<td>Calcium, total</td>
<td>8.9</td>
<td>mg/dL</td>
<td>9.7-12.1</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>10.8</td>
<td>mg/dL</td>
<td>2.4-6.4</td>
</tr>
<tr>
<td>Chloride</td>
<td>100</td>
<td>mmol/L</td>
<td>108-118</td>
</tr>
<tr>
<td>Bicarbonate</td>
<td>16</td>
<td>mmol/L</td>
<td>18-29</td>
</tr>
<tr>
<td>ALT</td>
<td>222</td>
<td>U/L</td>
<td>28-171</td>
</tr>
<tr>
<td>ALP</td>
<td>223</td>
<td>U/L</td>
<td>1-142</td>
</tr>
<tr>
<td>Creatine kinase</td>
<td>1794</td>
<td>u/L</td>
<td>128-328</td>
</tr>
</tbody>
</table>
Fine needle aspirate from abdominal fluid
Abdominal fluid: TNCC = 17,820/uL
Protein = 5.7 g/dL

What is your interpretation: Transudate/Exudate?
What is the blue matrix seen?
Bilirubin in serum < 0.2 mg/dL.
Bilirubin in abdominal fluid = 0.4 mg/dL

What is your interpretation?
Interpretation: Bile effusion (white bile) with neutrophilic macrophagic exudate

“White Bile”
Bile peritonitis in dogs

- Bile peritonitis is the inflammatory response of the peritoneal cavity to the presence of free bile.
- Rupture of the biliary system may occur spontaneously or more commonly a complication of biliary tract inflammatory disease, obstruction, manipulation or trauma.
- Out of 45 cases of dogs with gallbladder disease, mucocele or bacterial gallbladder infection was the most common concurrent findings in dogs with gallbladder rupture.¹
- Patients with sterile biliary effusion have a much lower mortality rate than those with septic biliary effusion.²
- Cytologic examination of the abdominal fluid typically shows golden to green pigment within macrophages or free in the background.
- If the abdominal fluid bilirubin concentration is greater than twice the concurrent bilirubin concentration a diagnosis of bile ascites is confirmed.
“white bile” in cytology

- There are cases of bile peritonitis in which on cytological examination a blue acellular, mucinous, amorphous extracellular material will be the prominent cytological finding - as seen in this case. ³
- Similar findings have been described in human patients secondary to extrahepatic biliary obstruction and is termed “white bile”.
- The etiology of white bile varies, however it is believed that it is produced by biliary and gall bladder epithelium as a sequela to extrahepatic biliary obstruction.
References:

