CASE REPORT: PSU12-02-11Oo

SPECIES: Killer whale (*Orcinus orca*)

DATE EXAMINED: 12-Feb-12

CASE REPORT BY:
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HISTORY
A killer whale was found dead in Long Beach (WA) on February 12th 2012. The Cascadia Research Stranding group performed a complete necropsy. Gas bubbles were found in different tissues. Four samples from the heart (n=2) and from the mesenteric veins (n=2) were taken. Samples were shipped in a sealed chamber together with a barometer/altimeter to register any changes in pressure during air shipment, and remitted to the Woods Hole Oceanographic Institution. Samples were received on February 21st 2012. Only 30 m altitude equivalent difference was found. This is negligible from a pressure point of view. Thus the samples remained at sea level pressure despite being shipped by air in the unpressurised plane hold.

RESULTS

<table>
<thead>
<tr>
<th>PSU12-02-11Oo</th>
<th>Remarks</th>
<th>% H₂</th>
<th>% CO₂</th>
<th>% O₂</th>
<th>% N₂</th>
<th>% CH₄</th>
<th>CO₂&gt;&gt;&gt;H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart</td>
<td>BD vac</td>
<td>10.9</td>
<td>78.4</td>
<td>0.0</td>
<td>10.7</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Heart</td>
<td>monoject</td>
<td>9.5</td>
<td>84.2</td>
<td>0.0</td>
<td>6.3</td>
<td>0.0</td>
<td>CO₂&gt;&gt;&gt; H₂&gt;N₂</td>
</tr>
<tr>
<td>Mesenteric v.</td>
<td>BD vac</td>
<td>17.3</td>
<td>82.7</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>CO₂&gt;&gt;&gt;H₂</td>
</tr>
<tr>
<td>Mesenteric v.</td>
<td>BD vac</td>
<td>14.6</td>
<td>85.4</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>CO₂&gt;&gt;&gt;H₂</td>
</tr>
</tbody>
</table>

Heart samples: 81.3±4.1 %CO₂; 10.2±1.0 %H₂ and 8.5±3.2 %N₂
Mesenteric vein samples: 84.0±1.9 %CO₂ and 16.0±1.9 %H₂

DISCUSSION
Gas composition is typical for putrefaction gases. However it is important to remember that the presence of putrefaction gases does not rule out the existence of a previous gas
embolism (Bajanowski et al., 1998; Bernaldo de Quirós et al., 2011; Pierucci and Gherson, 1968; Pierucci and Gherson, 1969). Samples did not suffer changes in pressure during shipping (only a difference in 30 m was recorded by the altimeter). No differences were found between the two types of evacuated tubes used, suggesting that monoject tubes might be as suitable for gas storage as BD vacutainers (Bernaldo de Quirós et al., 2011).