Primary Omental Hemangiosarcoma in Five Dogs

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Introduction

Hemangiosarcoma is a malignant neoplasm of vascular endothelial cell origin that can occur in virtually any tissue and is more commonly seen in dogs, accounting for 0.3-2% of all canine tumors.1-2 The most common primary sites are the spleen, liver, heart, skin or subcutaneous tissue.2 Rare anatomic variants include, but are not limited to the lymph node, os penis, uterine heart, skin or subcutaneous tissue.2

To the authors’ knowledge, primary omental hemangiosarcoma is a rare and seemingly aggressive anatomic variant that has been sparsely reported in the veterinary literature. A multi-institutional retrospective study of 26 cats with feline visceral hemangiosarcoma reported primary omental hemangiosarcoma in 12% of their cases and is the only study identifying primary omental hemangiosarcoma in cats.3 There are only two reports of primary omental hemangiosarcoma occurring in dogs.4,5 Both studies are components of a larger study evaluating various forms of hemangiosarcoma. Ogilvie et al. indicated the omentum as the site of origin in three or less cases and Hammer et al. identified an omental hemangiosarcoma in one case.

Materials and Methods

Medical records from five dogs that were diagnosed with omental hemangiosarcoma were collected retrospectively from the Oklahoma State University Center for Veterinary Health Sciences over a 7-year period between 2009 and 2016. Follow up was obtained by reviewing medical records, or contacting the referring veterinarian or the owner. Information including clinical features, diagnostic tests, treatments and outcomes were collected.

Results

Two dogs were presented for signs of urinary obstruction, two dogs were presented for signs of colonic obstruction, and one dog was asymptomatic. A complete blood count and biochemistry was performed on each dog at the time of presentation and revealed a mild anemia in four dogs and a thrombocytopenia in two dogs. All dogs exhibited disease consistent with advanced clinical stage (stage II or higher). One dog demonstrated presumed gross pulmonary metastasis at the time of presentation. Computed tomography was performed in three dogs, consistently revealing a well circumscribed, peripherally enhancing mass in the caudal abdomen that was displacing other local abdominal organs. Surgical exploration in all dogs revealed a caudal abdominal mass that did not appear to be associated with any other abdominal organs, except the omentum. Successful removal was achieved in four dogs, and surgical debulking was performed in one dog. Histopathologic features of the excised omental hemangiosarcomas are summarized in Table 1. One dog underwent adjuvant chemotherapy and survived 170 days post-surgery. Adjunctive therapy was not pursued in the other four dogs. Survival time in three of these dogs ranged from 50-120 days; survival time in one dog could not be obtained.

Discussion

In dogs, primary omental hemangiosarcoma is a rare anatomic variant that presents with an advanced clinical stage at the time of diagnosis, and is usually manifested with consequences of an obstructive mass affecting local organs, such as an acute onset of dysuria or constipation. The origin of these masses is difficult to determine using traditionally employed diagnostic imaging modalities. Surgical intervention can be complicated by adhesion formation or invasion to adjacent structures, specifically to the ureters, urinary bladder and pelvic canal. Clinical outcome appears to be poor, as with splenic hemangiosarcoma. Post-chemotherapy survival time was only available for one dog, which was consistent with survival times reported in studies evaluating surgery with adjunctive doxorubicin chemotherapy in dogs with splenic hemangiosarcoma (MST, 150-172 days).6-7 Dogs that did not undergo adjuvant chemotherapy expressed survival times comparable to dogs with splenic hemangiosarcoma treated with splenectomy alone (MST, 48 days).8

Further studies assessing a larger number of cases are needed to more completely described the clinical features, biological behavior, and clinical outcome of this anatomic variant with comparison to more common forms of hemangiosarcoma.

References


Table 1. Summary of histopathologic features of primary omental hemangiosarcomas excised from 5 dogs

<table>
<thead>
<tr>
<th>Dog 1</th>
<th>Dog 2</th>
<th>Dog 3</th>
<th>Dog 4</th>
<th>Dog 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cellular pleomorphism</td>
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<td>Marked</td>
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<td>Marked</td>
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<tr>
<td>Mitotic count</td>
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<td>10</td>
<td>0-1</td>
<td>24</td>
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<tr>
<td>Necrosis</td>
<td>-</td>
<td>Moderate</td>
<td>Marked</td>
<td>Marked</td>
</tr>
<tr>
<td>Other features</td>
<td>Multiple bizarre mitoses</td>
<td>Regions of thrombosis</td>
<td>Extensive hemorrhage</td>
<td>Cytoplasmic immunoreactivity with vWF</td>
</tr>
</tbody>
</table>