Atypical Mycobacteriosis
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The rapidly growing mycobacteria consist of a large group of bacteria that are normally present in the environment (soil, vegetation, standing bodies of water). They are introduced into the tissue when there is a break in the skin, most often secondary to a penetrating wound or bite. These infections have also been associated with surgical procedures and even injections. Cats often develop lesions in the inguinal fat pad, and the lesions tend to spread into surrounding tissues. Initially the infection may present as an abscess which progresses to thickening of the tissue, the development of characteristic draining tracts with a serosanguinous discharge, and the development of small purple-colored depressions in the skin. These areas are ideal for collecting exudate for culture as well as cytology for acid-fast stain. Most cats with rapidly growing mycobacterial infections have no systemic signs, but a few will develop fevers, maialse, and loss of appetite, especially when the disease flares up. Dogs can be infected with these organisms as well.

The key historical feature is a lack of response to conventional antibiotic therapy. Biopsies for histopathology and culture should be taken. If exudate can be aspirated from the small purple depressions, chances of isolating the organism are excellent. It is critical that material for culture be submitted to a laboratory with experience in isolating these organisms. If the organism can be isolated, it should be identified as to species and sensitivities done. Often identification and sensitivity testing is done by mycobacterial reference laboratories.

For most of these cats, immediate surgical excision is not recommended because the surgical sites often dehisce, particularly if the cat is not given the correct antibiotics. We have had some good success with treating with antibiotic therapy for one to two months first, then using wide surgical excision to remove the lesions when they have shrunk into smaller firm nodules. Antibiotics are usually continued for at least 1-2 months after the surgery.

Although these are rapidly growing mycobacteria, it still can take 7 days for them to grow, and then additional time will be needed in order to get the sensitivity testing done. As we wait for our data, we can pick some combinations of antibiotics that will cover most of the mycobacteria we are likely to isolate. There are several species, but they can be divided into groups which share sensitivity patterns. These include the M. fortuitum group, the M. chelonae and M. abscessus group, and the M. smegmatis group. Those in the M. fortuitum group have variable sensitivities but are often sensitive to fluoroquinolones and doxycycline. Those in the M. chelonae/M. abscessus group tend to be resistant to most oral options except for clarithromycin. Those in the M. smegmatis group are often sensitive to a number of agents EXCEPT for clarithromycin. Empirical therapy could therefore be started with a fluoroquinolone combined with clarithromycin. My first choice now is pradofloxacin (Veraflox, Bayer). It is most like the human drug moxifloxacin used in the sensitivity testing, and it attacks bacteria at two different points, making the development of resistance less likely. Pradofloxacin in the USA is labeled for 7 days, but it can be used off-label for long periods of time safely in adult cats, based on the European literature and experiences. Doxycycline could be added in as well for triple antibiotic therapy until the sensitivity results are back. The empirical choice of antibiotics will be determined by where in the world one practices, but the combination of a fluoroquinolone, clarithromycin and doxycycline should cover most of these species. For many species of rapidly growing mycobacteria, amikacin can be very effective. Although an aminoglycoside, it is less likely to cause renal problems than gentamicin, and with monitoring, it can be used for several months if needed.

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Dose (mg/kg)</th>
<th>Route</th>
<th>Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>doxycycline</td>
<td>5-10 mg/kg</td>
<td>PO</td>
<td>12 hrs</td>
</tr>
<tr>
<td>minocycline</td>
<td>5-10 mg/kg</td>
<td>PO</td>
<td>12 hrs</td>
</tr>
<tr>
<td>clarithromycin</td>
<td>10-15 mg/kg</td>
<td>PO</td>
<td>12 hrs</td>
</tr>
<tr>
<td>marbofloxacin</td>
<td>5.5 mg/kg</td>
<td>PO</td>
<td>24 hrs</td>
</tr>
<tr>
<td>pradofloxacin</td>
<td>7.5 mg/kg</td>
<td>PO</td>
<td>24 hrs</td>
</tr>
<tr>
<td>Moxifloxacin (human)*</td>
<td>10 mg/kg?</td>
<td>PO</td>
<td>24 hrs</td>
</tr>
<tr>
<td>amikacin</td>
<td>15 mg/kg</td>
<td>SQ</td>
<td>24 hrs</td>
</tr>
</tbody>
</table>

*Long term safety studies in cats are lacking

The prognosis for cats with atypical mycobacteriosis is always guarded, because the disease tends to relapse.

References


