Equine Parasites

Internal parasites pose a relevant and common health risk to horses; thus, it is important for you to have a basic background in the major internal parasites in horses as well as some of the common anthelmintics used to treat these parasitic infections. This PowerPage is not intended to cover every parasite that a horse may acquire but rather, will present some of the major parasites in horses and the more commonly used dewormers available.

Key Points

• Internal parasites of the gastrointestinal system can cause significant health problems in horses manifesting as weight loss, diarrhea and/or colic in horses with infestations.
• Numerous anthelmintics are available to combat internal parasites but resistance to these commonly used medications is developing.

Gastrointestinal Parasites

Large Strongyles:
Significant cause of intestinal disease in horses which may result in colic, diarrhea and/or chronic weight loss. The adult strongyles are located within the cecum and colon of infected horses but this group of parasites also migrates throughout host tissues during the developmental stages resulting in damage to various organs. The members of large strongyle family are:

Strongylus vulgaris
• S. vulgaris is most commonly associated with clinical signs of disease; however, with the advent of modern anthelmintics, colic as a result of S. vulgaris is fairly infrequent.
• Larvae penetrate submucosal arteries and migrate along endothelium to the cecal and colic arteries and then to the base of the cranial mesenteric artery; they return to the intestine via the arteries.
• As parasites migrate through mesenteric arteries, it can result in thrombosis, inflammation and infarction and subsequent necrosis of the intestine.

Strongylus edentatus
• Larvae invade gut wall and penetrate blood vessels and migrate to liver via the hepatic portal vein; larvae then travel through the liver and return to the large intestine via the mesentery.
• Migration may or may not result in observable clinical signs.

Strongylus equinus
• During maturation, larvae leave the intestine and migrate to the liver; from there they migrate back to the large intestine.
• Migration may or may not result in observable clinical signs.

Anoplocephala perfoliata:
Anoplocephala, also known as the equine tapeworm, may or may not be a common cause of colic in the horse. This parasite inhabits the region of the ileocecal junction and can produce ulcerations of the mucosa. They have been
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associated (and implicated by some) with intussusceptions, but it is not specifically known if these tapeworms are the cause of the intussusception, or are they simply present in this region and observed during colic surgery.

Parascaris equorum:
P. equorum (also known as roundworms or ascarids) cause disease in foals and is not a significant parasite in the adult horse (adult horses develop immunity to ascarids and thus are not associated with disease in adults). Disease in foals results in ill-thrift and poor weight gain but can also result in significant disease from such a heavy burden of large worms resulting in intestinal impaction.

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Cyathostomes (small strongyles):
Cyathostomes, also known as small strongyles, include a number of species (40+) and can cause severe diarrhea in adult horses. This condition, known as larval cyathostomiasis, typically occurs in the late winter or spring and is associated with the simultaneous emergence of a large number of fourth-stage larvae from the intestinal mucosa. This rapid emergence
Respiratory Parasites

Dictyocaulus arnfieldi (equine lung worm)

Dictyocaulus arnfieldi infections are commonly observed in donkeys, but rarely produce clinical signs. In fact, donkeys and mules have been suggested to be the natural host and inapparent carriers for this parasite. In contrast, infections in horses, which must have contact with donkeys or their pastureland to acquire this parasite, can be more severe and result in bronchial inflammation and chronic cough. The lung worm can grow upwards of 16 cm long.

Keep in mind that while P. equorum is not a “lung worm,” the larvae migrate through the lung of foals and can produce signs of respiratory disease.

Equine Anthelmintics

Deworming of horses is an important preventative measure to ensure the health of the horse. However, recent literature has documented increasing resistance to various anthelmintics and standard deworming protocols have been re-examined. Nonetheless, a basic review of the common anthelmintics is presented here, keeping in mind regional resistance to some of these medications may be present (table intended as guide; recommendations to clients should be based on veterinary recommendation).

<table>
<thead>
<tr>
<th>Class</th>
<th>Anthelmintic</th>
<th>Mode of Action</th>
<th>Effective Against Parasite(s)</th>
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</thead>
<tbody>
<tr>
<td>Macroyclic Lactones</td>
<td>Ivermectin</td>
<td>Affect glutamate-gated chloride channels</td>
<td>Lg Strong; Mig Lg Strong Larvae; Cyathostomes; Ascarids; Bots</td>
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<tr>
<td></td>
<td>Moxidectin</td>
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<td>Benzimidazoles</td>
<td>Fenbendazole</td>
<td>Beta-tubulin binding and inhibition of microtubule formation</td>
<td>Lg Strong; Mig Lg Strong Larvae; Cyathostomes; Ascarids; Bots</td>
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<tr>
<td></td>
<td>Oxfendazole</td>
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<tr>
<td></td>
<td>Mebendazole</td>
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<tr>
<td>Pyrimidines</td>
<td>Pyrantel pamoate</td>
<td>Cholinergic effect on parasite ganglia</td>
<td>Lg Strong; cyathostomes Ascarids</td>
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<td></td>
<td>Pyrantal tartrate</td>
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<tr>
<td>Heterocyclics</td>
<td>Piperazine</td>
<td>Neuromuscular hyperpolarization</td>
<td>Lg Strong; cyathostomes; Ascarids</td>
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<tr>
<td>Pyrazinoisoquinolines</td>
<td>Praziquantel</td>
<td>Increased Calcium permeability</td>
<td>Tapeworms</td>
</tr>
</tbody>
</table>

Adapted From: Equine Clinical Pharmacology (2004); Ed: Bertone JJ, Horspool LJ; pg 65.
Lg Strong – adult large strongyles; Mig Lg Strong – migrating large strongyle larvae; Cyathostomes – adult smallstrongyles.

References