**ANATRICHOSOMA**

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<th>Animal Group(s) Affected</th>
<th>Transmission</th>
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<th>Zoonotic</th>
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<td>Mammals (primates, marsupials, rodents, carnivores)</td>
<td>Unknown</td>
<td>Cutaneous, nasal, oral, gastric, or ocular nodules or ulcers</td>
<td>Clinically insignificant to severe ulceration</td>
<td>Avermectins, benzimidazoles</td>
<td>Hygiene and sanitation; control of wildlife in exhibit area. Prophylactic parasite treatments</td>
<td>Yes</td>
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**Fact Sheet compiled by:** Kate Gustavsen and Beth Bicknese  
**Sheet completed on:** 30 April 2011; updated 3 March 2013  
**Fact Sheet reviewed by:** Kelly Helmick; Dwight D. Bowman

**Susceptible animal groups:** Mammals. Reported in captive Old World monkeys, apes, captive marmosets, wild-caught tree shrews, wild American and Australian marsupials, wild rodents, domestic cats and dogs, and humans. Severe inflammatory cutaneous lesions in carnivores and some primates (including humans) suggest these are aberrant hosts.

**Causative organism:** *Anatrichosoma cutaneum* and *A. cynomolgi* have been found in nasal and cutaneous lesions in wild-caught and captive primates and are the presumed cause of most human and domestic animal cases. *A. buccalis* has been found in the oral mucosa of opossums, and was suspected in one human case. *A. ocularis*, *A. gerbilis*, and *A. haycocki* have been reported in wild or wild-caught tree shrews, gerbilid and murid rodents, and *Antechinus* spp. marsupials, respectively.

**Zoonotic potential:** Six human cases reported (Japan, Vietnam, Malaysia, Italy, USA), including one case in Illinois in 2010. Exposure route was unknown.

**Distribution:** Documented in wild animals from the Americas, the Middle East, Africa, India, and Australia, and in humans and domestic animals in the Americas, Europe, Africa, and Asia.

**Incubation period:** Unknown; clinical lesions are associated with migration of adult worms. Adult females tunnel through the epidermis, laying embryonated ova which reach the surface through normal exfoliation. Ova are then swallowed and passed in feces or released directly into the environment. Adult males reside in the dermis. Mechanism of infection is unknown. Attempts at experimental direct infection have been unsuccessful, suggesting an indirect life cycle, but no intermediate host has been identified. One report found free immature *A. haycocki* in the intestine of antechinus hosts, suggesting an enteric route of infection in this species.

**Clinical signs:**

- **Cutaneous** (*A. cutaneum, A. cynomolgi*): Nodules or track-like lesions with ulceration, apparent predilection for glabrous skin. Severe ulcerative pododermatitis in domestic cats.
- **Nasal** (*A. cynomolgi, A. cutaneum*): Nodules or tracks in the nasal mucosa of primates, minimal local inflammation.
- **Oral** (*A. buccalis*): Nodules or tracks in the oral mucosa. Minimal local inflammation in opossums, mucosal ulceration in one suspected human case.
- **Gastric** (*A. gerbilis*): Nodules or tracks in the gastric mucosa of gerbilid and murid rodents.
- **Ocular** (*A. ocularis*): Adults visible within the corneal or conjunctival epithelium of tree shrews, minimal local inflammation.
- **Glandular** (*A. haycocki*): Adults within the tissue of paracloacal glands or encapsulated in the lumen of the cloaca of antechinus, minimal local inflammation.
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<th>Post mortem, gross, or histologic findings:</th>
<th>Histopathology shows adults and ova embedded in epithelial tissue.</th>
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<td><strong>Diagnosis:</strong></td>
<td>Mucosal swab, skin scraping, biopsy, fecal floatation for ova (<em>Trichuris</em>-like). Eggs have also been identified by cytology of an otic flush in a dog.</td>
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<tr>
<td><strong>Material required for laboratory analysis:</strong></td>
<td>Swab, scrape, biopsy, or lavage of lesion; feces.</td>
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<td><strong>Relevant diagnostic laboratories:</strong></td>
<td>None</td>
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| **Treatment:** | Lesions have recurred after treatment in captive primates, suggesting either re-infection or incomplete response to treatment. Avermectins and benzimidazoles have effectively resolved clinical lesions in reported cases, recurrence is infrequently reported.  
Primates: fenbendazole 10-25 mg/kg PO once daily for 3-10 days.  
Domestic cat: ivermectin 0.3 mg/kg SC weekly for 4 weeks.  
Human: mebendazole 100 mg twice daily for 20 days. |
| **Prevention and control:** | The mechanism of infection is unknown. However, control of feral animals and wildlife in exhibit areas, sanitation and hygiene with regular removal of feces from enclosures, and routine prophylactic deworming are expected to be beneficial. |
| **Suggested disinfectant for housing facilities:** | None specified; expect sensitivity as for *Trichuris* spp. and *Capillaria* spp. |
| **Notification:** | None required. |
| **Measures required under the Animal Disease Surveillance Plan:** | None. |
| **Measures required for introducing animals to infected animal:** | None specified; treat infected animals prior to introduction if possible. |
| **Conditions for restoring disease-free status after an outbreak:** | None required; treat exposed individuals if possible, eliminate feces in enclosure. |
| **Experts who may be consulted:** | Dwight D. Bowman, MS, PhD  
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