Cerebral myiasis in a pet rabbit

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Aberrant migration of fly larvae into the brain occurs sporadically in animals and humans. Genera of flies whose larvae can cause intracerebral myiasis include Cuterebra (dogs, cats), Hypoderma (cattle, horses, humans), Oestrus (sheep), and Dermatobia, Lucilia, and Phaenicia (humans). The present report describes a case of cerebral myiasis in a pet rabbit caused by an unidentified fly larva. In early July 2008, two pet Dutch rabbits in South Dartmouth-MA developed a neurologic disease characterized by inability to ambulate, ataxia, vertical nystagmus, absent extensor thrust reflex, partial seizures, anisocoria, and lack of spinal reflexes. These rabbits were littermates, with similar husbandry. They were housed indoors at night and during the day, when the weather was appropriate (moderate temperatures and no precipitation), they were kept in a fenced-in outdoor area adjacent to a yard. The 2 sick rabbits were treated with prednisone, dexamethasone, enrofloxacin; fenbendazole, and metacam. The clinical course of the disease was 5 days. One rabbit was euthanized due to poor prognosis and submitted to the CAHFS Laboratory at Davis for necropsy while the other recovered. At necropsy, there were no significant gross lesions except for a markedly distended urinary bladder full of urine. No skin wounds were seen. Histopathology examination revealed a single fly larva in the brain within the neuropil of one cerebellar peduncle. The larva was surrounded by many gitter cells, few heterophils, and small numbers of erythrocytes (malacia, inflammation, and hemorrhage). Swollen axons, axonal spheroids, and pleocellular perivascular cuffing were also observed in the neuropil adjacent to the larva. Morphological features of larva included the presence of prominent, single-pointed, spike/thorn-like structures (chitinous spines/hooks) arranged in rows or distributed randomly along its cuticle, presence of oral hooks, and a trachea. Scattered throughout the neuropil of the brainstem, where no parasites could be found, there were areas of axonal swelling, presence of axonal spheroids, and infiltration by lymphocytes, monocytes, plasma cells and gitter cells. In the spinal cord, in the ventral and lateral areas of the cervical, thoracic, and lumbar white matter, there was axonal swelling with infiltration by myelinophages (wallerian degeneration/digestion chambers). Lesions were more severe and more extensive in the cervical and thoracic segments of the spinal cord. The ear canals were filled with large numbers of heterophils, mononuclear cells, fibrin, and numerous yeasts (bilateral otitis externa), and there was fibrinosuppurative inflammation of the surrounding soft tissues including the skeletal muscles of the head and adjacent salivary and ceruminous glands. No fly larvae or any other lesions were found in the subcutis, nasal cavity, trachea, or middle/inner ears. The genus of the fly larva present in the brain of this rabbit couldn’t be identified by histopathology. Specimens of this maggot were not available for parasitological examination. The portal of entry of the fly larva into the brain was not evident from necropsy or microscopic examination. Because the rabbit was kept outdoors during the day in summer months there was potential exposure to myiasis-causing flies. To our knowledge reports of cerebral myiasis in leporids is not published.