Case #34

NAME Educational Activities Committee
Case provided by:

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1. The decedent was a 26-year-old male found dead in the woods with a gunshot wound of the head.

What is the incidental finding noted on brain histology? (FREE TEXT ANSWER)
Word Cloud

Metastatic tumor Schistosomiasis artifact infection Cross section Parasitic brain Neurocystocercosis larvae nematode Neurocysticercosis Parasitic worm parasite Taenia solium Maggot eggs Cysticercosis tumor worm Bug Metastatic adenocarcinoma sort fly larva postmortem insect larva infestation tissue insect
From either carryover during dissection of directly by the projectile.
Answer...
The decedent is a 26-year-old male who was found dead in the woods with a gunshot wound of the head. Prior to his discovery, he had been missing for almost three days. At autopsy, he was in a moderate state of decomposition with skin marbling, slippage, and discoloration, as well as extensive maggot activity. Large numbers of maggots were present within the cranium and atop the brain, having entered through the skull defect made by the bullet. This individual maggot, resting within a leptomeningeal vessel prior to autopsy, incidentally made its way into the cassette taken for routine examination of the brain. Note the lack of tissue reaction or cyst formation, which distinguishes this postmortem finding from an antemortem parasitic infection.

Maggot activity typically becomes evident approximately 2 days postmortem and can become extensive 4-10 days after death, though the timing depends on local environmental factors (1). The approximate timeline matches that of the decedent in this case, given that he was missing for three days and found outdoors. Maggots can have several forensic uses: for example, forensic entomologists can more precisely estimate time of death by measuring the size of the oldest larvae present. In addition, substances present in tissue being consumed by maggots can be detected by a toxicology lab in the maggots themselves, which can serve as a helpful alternative to blood toxicology in cases with severe decomposition (2).
Neurocysticercosis was another common answer we received, which is caused by parasitic infection of the central nervous system with larval stages of *Taenia solium*. These immature worms can penetrate the intestinal mucosa and reach several organs via the bloodstream. Inflammation, gliosis, fibrosis and necrosis can be identified in the surrounding tissue depending on the stage of infection. As you can see in our case, there is no surrounding tissue reaction to the parasite. Histology will show a parasite with calcareous corpuscles (irregularly shaped membranous foldings, 1) and scolices (hooklets, 2), generally surrounded by translucent fluid that is lined by a thin membranous wall.
Reference:
