The life cycle of *M. laryngeus* is not completely known, but it is assumed to be similar to *S. trachea*, which penetrates the intestinal wall and migrates through the body of the animal to the tracheolaryngeal region (8). Eggs produced are deposited in the tracheal mucosa, swallowed, and pass in the feces.

Chronic cough and fever are the major symptoms associated with *M. laryngeus* in humans, with occasional reports of hemoptysis when the worms are in the bronchus. Worms in the larynx may cause irritation and a crawling or scratching sensation. Symptoms of asthma have been reported, and leukocytosis and eosinophilia may occur. Our patient had respiratory symptoms, persistent cough, and hemoptysis, without leukocytosis or eosinophilia.

The diagnosis of parasitosis is usually made by finding expectorated worms or visualizing by bronchoscopy and removal by forceps. Eggs may be found in sputum or feces. In our case, eggs were not found in sputum or feces.

The worms are coughed up by the patient or removed with forceps during bronchoscopy. When antihelmintics such as mebendazole and albendazole have been used, patients have reported improvement.

Although mammomonogamiasis may not be considered an emerging parasitosis, physicians should be aware of the condition especially in patients with pulmonary symptoms who visited disease-endemic areas.

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Human *Angiostrongylus cantonensis*, Jamaica

To the Editor: *Angiostrongylus cantonensis* is the most common cause of eosinophilic meningoencephalitis worldwide (1). The parasite's presence has been well documented in Jamaica in rats (definitive host) and a variety of mollusks (intermediate hosts); infections occur in humans sporadically on the island. However, the mode of transmission of infections to humans in Jamaica, where raw or undercooked mollusks are not usually eaten, is not well understood (2).

An outbreak of *A. cantonensis* occurred among American medical students vacationing in Jamaica in 2000. An epidemiologic investigation identified the probable source of infection (Caesar salad), but no biologic contaminant was determined (2). During a field investigation of *A. cantonensis*, we spoke with local farmers and vendors to identify possible routes of food contamination. While our observations were preliminary and anecdotal in nature, our findings provide valuable insight into local transmission and control of this parasite.

Humans can become infected by eating the intermediate hosts, slugs and snails, of *A. cantonensis*. Freshwater shrimp serve as paratenic hosts and reservoirs of infection for humans, both naturally and experimentally (3,4). Most reports of Jamaican eating practices indicate that terrestrial snails and slugs are not eaten and that shrimp and other meats are always eaten well cooked (5). However, during interviews with a farmer near Mavis Bank, a rural area outside of Kingston, and fishermen at the Coronation Market, Jamaica's largest fresh produce market, we discovered that freshwater and saltwater shrimp, as well as mussels (paratenic hosts), are occasionally eaten raw. Freshwater shrimp or mussels are eaten, particularly by men, directly from rivers and streams, and freshwater and saltwater bait shrimp are eaten by fishermen.

In Jamaica, molluscicides are routinely applied to growing vegetables such as cabbage, lettuce, and bok choy to keep snails and slugs away, although this practice is not effective. Snails and slugs withdrew from produce after the molluscicide was applied to surrounding vegetation, but returned after several days. We purchased a lettuce head that had been reportedly treated with molluscicides at the Coronation Market and found a small slug inside. The role of produce in transmitting *A. cantonensis* is still unclear; humans may become infected by inadvertently consuming small slugs or other infected hosts or by consuming produce directly contaminated with larvae. Infections in slugs have not been found in previous studies conducted on the island (2). Regardless, the use of molluscicides to limit human infection from produce is an ineffective strategy.

At the Coronation Market, vendors repeatedly used a bucket of water to rinse vegetables before displaying them. This practice could transmit *A. cantonensis* in 2 ways. First, if free larvae are deposited on vegetables in either the slime or feces of mollusks, cross contamination can occur. Second, dead or decaying intermediate hosts may release larvae into water (6). If infected mollusks were rinsed from vegetables into the buckets, the water could become contaminated with larvae. While cross-contamination by common wash buckets has not been implicated in an outbreak of a parasitic infection, it has been linked to outbreaks of other infectious agents (7,8).

Vendors at venues such as Coronation Market primarily buy produce to sell. These vendors typically purchase their produce from intermediaries who purchase and transport it from farms in outlying areas. As a consequence, many vendors are unsure of the farm or region from which their produce came. This practice makes it difficult, if not impossible, for health officials and researchers to isolate and link etiologic agents with particular produce items or regions and complicates the investigation of any foodborne infection.

A. cantonensis is an important parasitic agent in Jamaica for which a definitive route of infection is often not found. We found that potential paratenic hosts are occasionally eaten raw. Because of the high prevalence of *A. cantonensis* infection in mollusks in certain parts of Jamaica, consumption of raw, infected shrimp may be a source of sporadic angiostrongyliasis on the island. Control of *A. cantonensis* is complicated because of the apparent ineffectiveness of molluscicides, the potential for cross-contamination of produce at markets, and the difficulty of tracking produce and other products to their source.

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Nipah Virus Strain Variation

To the Editor: AbuBakar et al. described strain variation in Nipah virus during the 1998–1999 outbreak in Malaysia (1). They found an isolate from pigs in Perak, as well as from a flying fox, that differed markedly from pig and human isolates from the main epidemic in southern Malaysia. AbuBakar et al. proposed that this finding indicates 2 separate spillover events from bats to pigs occurred, the first in Perak in 1998 and the second in southern Malaysia in 1999. However, investigations at the time of the outbreak showed that many pigs were moved from Perak onto southern farms in early 1999. We suggest that successive spillovers of the pig population in the north can also explain the observed strain differences between northern and southern isolates.

A model from experimental studies and active farm data demonstrate that Nipah virus may have circulated repeatedly and become endemic within 1 or several large pig farms in Perak (J.R.C. Pulliam, unpub. data), which is consistent with the occurrence of human cases in Perak before the 1998–1999 outbreak. Evolution of the virus population in pigs, fol-