First case of human gongylonemosis in France

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Abstract – Gongylonema spp. are cosmopolitan spirurid nematodes that are common parasites of wild and domesticated mammals and birds. Gongylonema pulchrum Molin, 1857 is most common in ruminants, where it invades mucosa and submucosa of the mouth, tongue, oesophagus and forestomachs. It extremely rarely occurs in man, and fewer than 60 cases have been reported worldwide. We report a case from the Alsace region, which appears to be the first case of human gongylonemosis described in France.

Key words: Gongylonema, human infection, zoonosis, France, case report.

Résumé – Premier cas de gongylone’mose humaine en France. Les nématodes du genre Gongylonema sont des spiruridés cosmopolites parasites fréquents dans de nombreux mammifères et oiseaux sauvages ou domestiques. Gongylonema pulchrum Molin, 1857 est l’espèce la plus souvent rapportée chez les ruminants, dans la muqueuse et la sous-muqueuse de leur bouche, langue, esophage et rumen. Il n’est que très exceptionnellement retrouvé chez l’homme. Moins de 60 cas ont été décrits à travers le monde. Nous rapportons dans cet article le premier cas français, découvert en Alsace.

Case report

During the summer of 2012, a healthy 48-year-old man felt the presence of a moving, worm-like organism in his mouth. Initially, the patient would occasionally feel, but not see, this mass at different sites: cheek, palate, gums and internal surface of the lower lip. The sensation would subside after several hours without leaving any visible lesions and without being accompanied by any associated localized or generalized symptoms.

The patient had no medical history. He is a resident of Alsace, France, and had not travelled abroad. He works as a maintenance service agent in a harbour on the river Rhine. He reported not to have changed his lifestyle, especially not his diet, in the recent past. He also had no knowledge of having accidentally ingested an intermediate insect host. He consulted a doctor and all results of the clinical examination fell within the normal range. Haematology investigation revealed no abnormalities, particularly no elevated eosinophil count, and no microfilariae were seen using stained blood films; the filariasis serology was negative. No medical treatment was initiated.

After 3 weeks of migration, the thread-like worm installed itself on the inner surface of the lower lip (Figure 1), allowing the patient to extract it by tongue pressure firstly, then using his fingers. He placed the parasite in alcohol and submitted it to a medical laboratory. The biologist in charge sent the specimen to the Laboratory of Parasitology and Medical Mycology of the Strasbourg University Hospital for identification. No recurrence, lesions, bleeding or other symptoms have since been experienced by the patient.

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mammals or poultry, has been discussed by Euzeby [5]. Defined stud-
ied. Alicata [1] suggested that larvae excyst in the stomach of the insect or parts of it containing third-stage larvae. These developing into the infective third-stage, first in the haemocoel, but finally most infective larvae become encapsulated in the muscles. This development in the intermediate host takes about 30 days [1]. The definitive host becomes infected by ingestion of the worm in its definitive host is not well studied. Alicata [1] suggested that larvae excyst in the stomach and invade its wall, then migrate anteriorly to the oesophagus or oral cavity where they reach sexual maturity in about 2 months. Due to the way of transmission, human gongylo-

Specimen

The entire worm has been removed and stored in 70% ethanol; it was cleared in lactophenol and examined under a compound microscope. The morphological characteristics of this single male correspond to those of Gongylonema pulchrum Molin, 1857 (measurements in micrometres unless otherwise stated): Body length 39 mm, maximum width 250 (Figure 2A). Anterior end with longitudinal rows of verruciform cuticular bosses (Figure 2B), extending 950 posteriorly from apex, der-

Discussion

Gongylonema spp. are heteroxenous parasites of the upper digestive tract of many species of birds and mammals. They are most often described in ruminants, but also in rodents, bears or monkeys [10]. The adult worms occur in the stomach and in the oesophagus where they burrow and migrate in the mucosa, forming a characteristic sinuous pathway. The females lay embryonated eggs which pass in the faeces where they are swallowed by coprophagous insects, mainly dung beetles and cockroaches; more than 70 species are possible intermediate hosts [11]. First-stage larvae hatch and moult twice before developing into the infective third-stage, first in the haemocoel, but finally most infective larvae become encapsulated in the muscles. This development in the intermediate host takes about 30 days [1]. The definitive host becomes infected by ingestion of the insect or parts of it containing third-stage larvae. These larvae may emerge from intermediate hosts that fall into water or are crushed on vegetables and remain infectious for a month [2, 6]. The existence of paratenic vertebrate hosts, such as small mammals or poultry, has been discussed by Euzeby [5]. Defin-

Figure 1. Serpentine path of Gongylonema pulchrum in lip mucosa.
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Figure 2. Gongylonema pulchrum. A, entire male. B, cuticular bosses and deirids (arrows). C, posterior end and left spicule (arrows). D, precloacal papillae. E, postcloacal papillae. F, posterior end: right spicule (arrow) and gubernaculum (dotted arrow). Bars: 100 μm.
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