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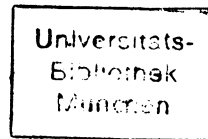
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# Human infection with *Gongylonema pulchrum*: A case report

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## Abstract

A 43 year old woman developed a painful tumor at the left buccal mucosa. Following local anti-inflammatory treatment a 35 mm long, living female adult worm of *Gongylonema pulchrum* was extracted from the affected side. No further treatment was needed and recovery was complete 5 days after extraction. Infection had occurred possibly 6 weeks before in Hungary with ingestion of contaminated water from an open draw well. Although commonly occurring as parasitic infection of domestic cattle and other vertebrates, gongylonemiasis is very rare in humans. Only 48 cases have been described in the literature since 1864. Life cycle and pathology of *G. pulchrum* are discussed.

## Introduction

*Gongylonema pulchrum* Molin, 1857 is a common parasite of swine, ruminants and other animals. It is usually found in the upper digestive tract. Human infection, although occurring very rarely, is widely distributed. It was first mentioned 1864 in Italy by Pane (Pane, 1864). 48 cases from various countries have been described since then: the Soviet Union, the United States, China, Bulgaria, Italy, Turkey, Morocco, New Zealand, Austria, Sri Lanka, Germany, Hungary, Australia (Cappucci et al., 1982; Maksimova et al., 1991) and Spain (Illescas-Gomez et al., 1988). We report on the case of a German tourist who presumably acquired *Gongylonema*-infection during a journey to Hungary.

## Case report

Six weeks after a journey of 4 weeks duration to Hungary a 43 year old woman developed an irritating and slightly painful tumor at the left buccal mucosa. She reported about the sensation of movements inside the tumor. Four days following initiation of an anti-inflammatory local treatment by her dentist she extracted an intact living filiform worm from the affected mucosa. The worm could be identified as mature female of *G. pulchrum* Molin 1857 with a total length of 35 mm and greatest

width of 0.34 mm. The anterior region was covered by 8 longitudinal series of cuticular bosses (Figure 1). The caudal end was bluntly conically shaped. The uterus was located 0.24 mm away from the caudal end and contained eggs.

Laboratory investigations included blood count, ESR, measurement of total serum-IgE and serological testing against antigens of *Onchocerca volvulus*, *Dirofilaria immitis*, *Trichinella spirallis* and *Toxocara canis*. All results were within the normal range and the patient showed no antibody response to the antigens used. The buccal tumor vanished without further treatment 5 days after extraction of the worm. The patient was well thereafter and did not develop any further signs of parasitic disease.



Fig. 1 Anterior region of *Gongylonema pulchrum* with characteristic longitudinal series of cuticular bosses.

## Discussion

There are 25 species of *Gongylonema* in mammals (Yamaguti, 1961) and a further 10 in birds (Cappucci et al., 1982). Human infection has usually been attributed to *G. pulchrum* which is termed gullet worm or scutate threadworm (Cappucci et al., 1982). Embryonated eggs are passed in the feces of the host and are ingested by intermediate hosts, such as coprophagous beetles and cockroaches. The larvae perform two moults towards the infective third stage in about 4 weeks (Levine, 1968). Animals acquire the infection by feeding on these insects or swallowing them accidentally with their forage. The larvae may emerge spontaneously and remain infectious for a short time if their intermittent hosts fall into water. Man is infected by accidental ingestion of the insect host or by drinking contaminated water (Soulsby, 1965 and 1968). An uncommon route of infection in man could be the occasional voluntary eating of cockroaches which reportedly have a honey-like taste (Weber and Mache, 1973). The latter was declined virologously by our patient. A possible route of infection in the case described here could be the drinking of a single cup of water from a

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traditional draw well in a rural area of Hungary. The route by which the worms reach the upper intestinal tract is unknown (Cappucci et al., 1982). Probably they migrate within the wall of the intestine up to the oesophagus and the buccal cavity (Faust et al., 1970). Within 8 weeks they develop to adult worms and the females start ovipositing (Faust et al., 1975).

Although the infection with *G. pulchrum* is common worldwide in cattle and wild animals, humans are only rarely infected. Recurrent infection occurs regularly in animals and has been described in humans, too (Dismuke and Routh, 1963). Diagnosis is established by microscopical examination of maturing and adult worms (Faust et al., 1970). Little is known about immunological reactions following infection. A specific immuno-diagnostic test applicable in routine diagnostics has not been described and cross-reactions to other helminthic antigens seem not to occur. Treatment of gongylonemiasis consists in recovering the worm. Local application of antiseptics or anaesthetics might accelerate the migration of *Gongylonema* from their burrows and ease their removal as demonstrated in this case (Faust et al., 1970). An effective chemotherapy has not been described yet (Cappucci et al., 1982). The prognosis is excellent: the lesions heal generally within a few days following the removal of the worm (Cappucci et al., 1982).

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