Ankylostomiasis or Uncinariasis.

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The official report that the miners in the Dolcoath Mine at Camborne, Cornwall, are suffering from ankylostomiasis behoves practitioners, especially in the mining districts in Britain, to make themselves familiar with the signs and symptoms and treatment of the disease.

Definition.—Ankylostomiasis is a condition of anæmia, attended by marked disorder of the digestive organs, palpitation, and anæmic cardiac murmurs due to changes in the blood and nutrition caused by the presence of the Ankylostomum duodenale in the intestines.

Nomenclature. — Ankylostomiasis — or, as it is also sometimes spelt, anchylostomiasis—is also known as miner's anæmia and mine cachexia. Recently, however, the generic name Ankylostomum has been suppressed as being scientifically incorrect, and the title Uncinaria substituted. Hence the parasite must be known as the Uncinaria duodenalis. W. Stiles, in the *Journal af American Medicine*, has recently announced the fact that another species or variety of the parasite exists, and has termed it the Uncinaria Americana.

Geographical distribution.—Ankylostomiasis or uncinariasis prevails in Italy, India, Egypt, the United States, West Indies, and Brazil. In many parts of Europe the Uncinaria (or Ankylostomum) has been found in man, and has come as near our shores as Belgium and Holland. The cases met with in Germany were those of Italian or Belgian workmen engaged during the winter in Belgian mines and during the summer in German brickfields. Until within the last few weeks the disease has never appeared in the character of an outbreak in this country.

The parasite.—The Ankylostomum duodenale, or Uncinaria duodenale (Dochmius duodenalis of Leuckart), belongs to the order of the Nematodes and to the family of the Strongylides. The worm

Ova of Uncinaria (Ankylostoma) in various stages of segmentation, after Perroncito, magnified 300 times.

is cylindrical and fairly thick; the male worm measures about one-third of an inch in length, and the female a little more than half an inch. The female is about 1 m.m. in breadth, the male somewhat thinner. The ova, met with in the fæces, are oval, 52μ long by 32μ broad, and possess a thin transparent shell. At the moment of discharge the yelk is in the earliest stages of segmentation.

The Uncinaria live in the upper part of the small intestine, more often in the jejunum than in the duodenum. The worm fastens itself by its head between the folds of the intestinal mucous membrane. The head presents an oral capsule like a cupping glass, by which means a piece of mucous membrane is drawn into the oral cavity and fixed there by teeth which act as barbed hooks. The worm opens the blood vessels by a needle-like process at the base of the capsule and imbibes the blood.

Development outside the body.—The partially segmented ova, met with in the fæces, cannot develop into embryos and larvæ in the intestinal canal, as they require oxygen. In moist, warm earth, however, the development advances to completion.

Mode of entering the human body.—Wherever human fæces containing the ova of Uncinaria (Ankylostomum) is deposited in the vicinity of human habitations, as is the case in mines, brickfields, tea plantations, &c., there is a danger of the water, clothing, feet, or hands getting contaminated by the earth or dust, and of the encysted larvæ finding their way into the mouth. This is most apt to occur in labourers who eat their meals on the spot and convey the food to their mouths with hands not quite clean; especially are children likely to become thus infected.

The larvæ can be developed in fæces, or in moist earth, or in a mixture of earth and fæces, kept at a temperature of 25·0° to 30·0°C. A hole is made in the centre of the mass and filled with water, into which the larvæ swim when they escape from the ova. There they can be seen swimming actively, and, by filtering the water in which they swarm through blotting paper, the culture can be isolated, for the larvæ bore through the blotting paper. Loois, whilst experimenting with the larvæ, found that they can even bore their way into the human skin, and thus gain entrance to the body.

Signs and symptoms.—Unless the adult worms number some 300 or 400 in the intestine, the general health of the infected individual does not markedly deteriorate. As a rule, the larvæ are introduced gradually, and the patients in time become pallid, are easily tired, and suffer from digestive trouble. The appetite is at first increased, but later markedly decreases; geophagia is a frequent symptom. A gnawing pain, with weight and discomfort in the region of the stomach and pain along the intestines, are commonly complained of. Constipation at first, with later diarrhœa or even dysenteric symptoms, is the rule. Anæmia, due partly to the blood imbibed by the parasites, partly to the subsequent bleeding from the spots where the parasites have fed and, in all probability, by the develop-

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