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ENTEROBIUS VERMICULARIS EGGS IN PRECOLUMBIAN HUMAN
COPROLITES FROM CHILE

L. Fernando Ferreira and B. M. Ribeiro Filho, Fundação Oswaldo Cruz, Rio de Janeiro, Adauto J. G. de Araújo and U. E. Confalonieri, U.F.R.J., Brazil, and L. Nuñez, Universidad del Norte, Chile

Paleoparasitology has emerged as a branch of paleopathology because of the findings of evolutive forms of parasites in archaeological material. These data have contributed to the study of the origin, evolution, introduction, and behavior of parasitic diseases in ancient populations.

Enterobius vermicularis infection was known in ancient times. The oldest record of pinworm eggs in archaeological material is in North America, dated 10,000 years B.P. (Fry and Moore 1969) and from 1076 B.C. to 1140 A.D. (Fry and Hall 1975). In South America, they were found in a brown granular material extracted from the abdominal cavity of a pre-Columbian Argentinian mummy (Zimmerman and Morilla 1983) and by Patrucco, Tello and Bonavia (1983) in Peru, dated from 4227 ± 181 B.P. No record of Enterobius vermicularis in archaeological material from Europe is available at this time.

Other oxyurid eggs were also found in coprolites, as Oxyuris equi (Jansen and Over 1962, 1966) and Parapharyngodon sceleratus (Araujo, Confalonieri and Ferreira 1982), all in well preserved morphological condition, in spite of their extreme age.

The human pinworm is considered to be phylogenetically inherited from the ancestors of man, as the infection is shared with great apes in Africa and Asia (Dunn 1966). Although there are no records of coprolites in the Old World, the infection was known to early physicians (Hoepli 1959).

This paper deals with Enterobius vermicularis infection in Chile, where human pinworm eggs were found in coprolites dated from 400 B.C. to 800 A.D., excavated from the archaeological site of Caserones, Tarapacá Valley (Fig. 1).

The coprolites showed macroscopically Prosopis sp. seeds, a common bush still used today as nourishment by the local population. It is interesting to note that recent child feces, subjected to artificial desiccation or simply natural dehydration, show an identical morphological aspect when compared with the prehistoric ones.

The coprolites were rehydrated in trisodium phosphate solution (Callen and Cameron 1960), and microscopic examination was done following the spontaneous sedimentation method (Lutz 1919). Of 10 samples, only one showed eggs morphologically identical to Enterobius vermicularis. These measured 60.12×30.06 u, and were very well preserved, showing the larva inside (Fig. 2). All 10 samples turned the solution a dark brown opaque color after 72 hours of immersion.

The presence of Enterobius vermicularis in pre-Columbian American populations

leads to consideration about the introduction of the parasite to the American continent. The accepted phylogenetic line implies its African origin, the infection being dispersed from there with Old World colonization. Tracing the introduction of Enterobius vermicularis in America presents some difficulties, because the parasite does not need to pass the soil stage, as in the case of hookworm and Trichuris trichiura, a subject discussed by Ferreira, Araujo and Confalonieri (1983) and Confalonieri (1983). Therefore, as the findings of Fry and Moore (1969) dated back considerably from the recognized Asiatic trans-Pacific contact of 3,000 B.C. (Meggers and Evans 1966), the Bering route is the most probable, although not necessarily the only one.

References

The extensive list of references can be obtained by writing to the Editor.

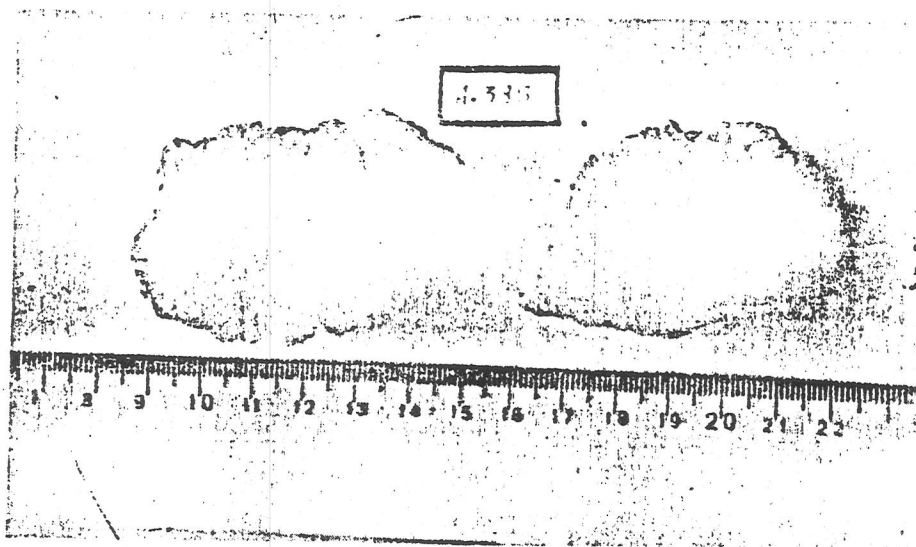


Fig. 1

Fig. 2
160 x

