Prevalence, Electron Microscopy and Molecular Characterization of Cryptosporidium species Infecting Sheep in Egypt

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Abstract:

Cryptosporidium sp. is predominant universally and sheep are an imperative zoonotic supply of the disease. Owing to the little information presented with respect to Cryptosporidium sp. infecting sheep, this study was directed to survey the predominance and molecular characterization of Cryptosporidium sp. among sheep of different ages and sexes in Qalyubia governorate, Egypt. The fecal specimens were gathered from 432 sheep of various ages (≤1 to 12 months) and sexes. The samples were microscopically examined after staining by modified Zeihl-Neelsen technique and the intestinal mucosa was scanned by electron microscopy. A nested PCR was connected to amplify a 830 bp of 18S rRNA sequence of Cryptosporidium. RFLP (restriction fragment length polymorphism) technique using SspI and VspI enzymes for digestion of the secondary product of PCR for species identification was applied. The total infection rate was 25.93%. The parasite was more prevalent in males than females of different age groups. Two zoonotic Cryptosporidium species were distinguished after RFLP-PCR sequencing: C. parvum and C. ubiquitum (identified previously as Cervine genotype). The finding recommends that sheep must be considered as a noteworthy potential source of human cryptosporidiosis. A strict reconnaissance of zoonotic cryptosporidiosis must be set up to counteract human infection and to assess forthcoming disease when applying control programs.

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