

Molecular Detection and Identification of *Cryptosporidium viatorum* in a Human Immunodeficiency Virus-seropositive Patient

Sir,

Cryptosporidium was reported by Tyzzer in 1907 and well known to veterinarians since 1953. Since the human immunodeficiency virus (HIV) and acquired immune deficiency syndrome became pandemic, it has brought *Cryptosporidium* to the forefront as an important pathogen in immunocompromised individuals. *Cryptosporidium hominis* and *Cryptosporidium parvum* are the two major species causing human cryptosporidiosis in India, followed by *Cryptosporidium felis* and *Cryptosporidium meleagridis*. Here, we describe the first report of *Cryptosporidium viatorum* in a patient attending our tertiary care center. *C. viatorum* has been reported in the UK in travelers returning from the Indian subcontinent.^[1]

Stool sample from a 35-year-old HIV-seropositive female presenting with diarrhea showed the presence of *Cryptosporidium* oocysts using microscopy. The small subunit rRNA (ssu rRNA) sequence showed 100% identity with three isolates of *C. viatorum* (JX978271, JN846708, HM485434) present in the GenBank. The sequence was submitted to GenBank under the accession no. KX174309. *C. viatorum* n. sp. was first identified in travelers with gastrointestinal symptoms returning to Great Britain from the Indian subcontinent.^[1] However, no reports of *C. viatorum* are available so far from India. *C. viatorum* was identified in HIV-seropositive patients in Nigeria and Ethiopia and in Swedish patients who had traveled to Kenya and Guatemala.^[2-5]

The patient belonged to rural area in Uttar Pradesh, a state in the northern part of India, had a history of contact with cattle. The potential for zoonotic transmission between cattle and humans in India has previously been reported.

^[1] Likewise, patients infected with *C. viatorum* in Kenya and Ethiopia had a history of animal contact. So far, no animal reservoir for *C. viatorum* has been described, but the possibility to identify this species in animal hosts cannot be excluded.^[4] The patient had acute diarrhea without any history of vomiting. Elwin *et al.* reported that 90% of *C. viatorum* cases had diarrhea, 50% had abdominal pain and fever, 20% had nausea, and only 10% had vomiting. However, compared to *C. parvum*, vomiting was reported less often. No association of

C. viatorum with vomiting was seen in HIV-seropositive patients from Ethiopia.

The report warrants the need of further studies in humans and animals from the Indian subcontinent based on ssu rRNA sequencing for the specific detection of *C. viatorum*. It is expected that accumulating data will add to our understanding of the phylogeography, host specificity, and clinical significance of this little-studied parasite.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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