Briskly Motile *Balantidium*-like Ciliate Morphologically Resembling *Chilodonella* spp. in Urine Sediment

Sir,

A 69-year-old female came with vague complaints of weakness, insomnia, increased urinary frequency, burning micturition, and a history of recurrent urinary tract infections. She was on antihypertensives and antidepressants. A routine urine examination showed pale yellow urine with a pH of 7.0, specific gravity of 1.010, no glucosuria, proteinuria, or presence of nitrite. The centrifuged deposits revealed one to two epithelial cells, one to two pus cells, two to four red blood cells per high-power field (400×) and occasional calcium oxalate crystals. In addition, few briskly motile ciliates ranging in size from 30 to 40 μm in length and 20 μm in diameter were also appreciated. Finer details (the cilia, nucleus, and food vacuoles) of these parasites were better appreciable when the motility became sluggish. The body of the ciliate had right arched ciliary kinetics and left straighter ciliary kinetics, and motility was observed to be along one surface. The second urine examination after 3 days did not reveal any parasite. A third urine examination performed after another 2 days showed these ciliates were accompanied by flagellates. These flagellates were 12–15 μm in length, 8–10 μm in diameter, and had “falling leaf” motility. Stained centrifuged deposits showed finer morphological details of these ciliates and flagellates [Figure 1]. The sterility of the collection methods and containers was assured. No other patients evaluated during this time had any evidence of similar parasites. Based on their motility and cytomorphology, a diagnosis of co-infection with *Balantidium*-like ciliate (resembling *Chilodonella* spp.) and *Giardia* spp. was considered. The indexed ciliate was smaller and had asymmetrical distribution of cilia in comparison to *Balantidium*. Stool examination carried on 2 consecutive days was negative for any parasite. The patient was treated with oral metranidazole 400 mg thrice daily for 7 days, and subsequent evaluation revealed normal urine sediments, free of any infestation.

*Balantidium coli* is the largest protozoon parasite and has been believed to be the only ciliate causing disease in man.[1] These organisms are known to cause dysentery with few reports documenting incidental infestation in urine and other body fluids.[1,2] Elderly, debilitated, immunocompromised individuals and those with deficient personal hygiene are particularly susceptible. Close morphological differential diagnoses considered in this particular case included *Balantidium*-like ciliates, namely, *Colpoda* spp.,[3] *Chilodonella* spp.,[4] and *Buxtonella* spp.[5] If the size of the organism is around 100 μm or more, *Balantidium* spp. is more likely; however, the differential appears to be broader with lesser size of around 40–60 μm. In latter situations, it seems rational to designate as *Balantidium*-like ciliates. It is almost impossible to categorize the specific genus of these ciliates without gene amplification and sequencing, the facility of which is available in a few isolated centers.[3] Chilodonellids are small ciliated protozoans found worldwide as free-living species in water and they are a common fish parasite infesting in their gills and skin.[4] The parasite in this index case had resemblance to *Chilodonella* and human infestation has not been reported. The patient did not give history of any diarrheal episodes, but the water being used for bathing was from the well, which may be a source of colonization by the organism. The presence of *Giardia* spp. in urine may be due to fecal contamination.

To conclude, human infestation by *Balantidium*-like ciliates is rare and thorough evaluation of morphology and motility, supplemented by molecular methods, may elucidate the potential pathogenic role of rare ciliates other than *Balantidium* in humans.

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**Conflicts of interest**

There are no conflicts of interest.

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Letters to Editor

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