

CASE REPORTS

Clinical Significance of Mites in Urine

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We report a case where a mite egg found in urine caused diagnostic confusion. The possibility of gut or bladder mite infection should be entertained only after repeated identification of mites in urine or stool samples from a symptomatic patient with no other cause for the symptoms and where the possibilities of contamination and spurious infection have been excluded.

CASE REPORT

Artifacts in stool or urine samples often cause diagnostic confusion and can be mistaken for parasites (3). We report a case where a mite egg found in urine was mistaken for an egg of *Schistosoma haematobium*. A urine concentrate was referred from a routine laboratory to the Parasitology Reference Unit of the National Institute for Communicable Diseases for investigation. The urine came from a 36-year-old female patient. The referring technologist reported seeing strange microscopic objects in the urine, which had led to diagnostic confusion. The technologist was unsure if she had seen schistosome ova or if the objects were completely insignificant. She also reported numerous red blood cells in the urine, which made her suspect schistosomiasis. We examined the urine concentrate microscopically and found a few oval objects with rough shells measuring 123 μm in length and 78 μm in width (Fig. 1). After we gently squashed the eggs on the slide under the coverslip, a six-legged mite larva emerged.

Mites belong to the order Acarina, and only a few species are known to affect humans. The mites most commonly associated with humans are *Sarcoptes scabiei*, which cause scabies, and *Demodex* species that live in hair follicles as commensals causing normally benign infestations. Some rickettsial infections, e.g., scrub typhus and rickettsial pox, are mite transmitted. Trombiculid mite larvae are popularly known as “chiggers” and can cause itchy dermatitis, as can some bird and animal mites. Allergy to fecal material of house dust mites can present as asthma and extensive dermatitis. Forage mites are pests found in stored food products and can cause a contact allergy. If these mites are swallowed or inhaled, they can cause gastric disturbances or respiratory symptoms (2).

There are very few articles in English medical publications that deal with the medical significance of finding mites or mite

eggs in urine and stool specimens. Mite eggs in stool specimens have been described as spurious human infections when the eggs pass through the alimentary canal without causing infection (3). Adult house dust mites of the genus *Tarsonemus* have been found in human sputum, but their medical significance

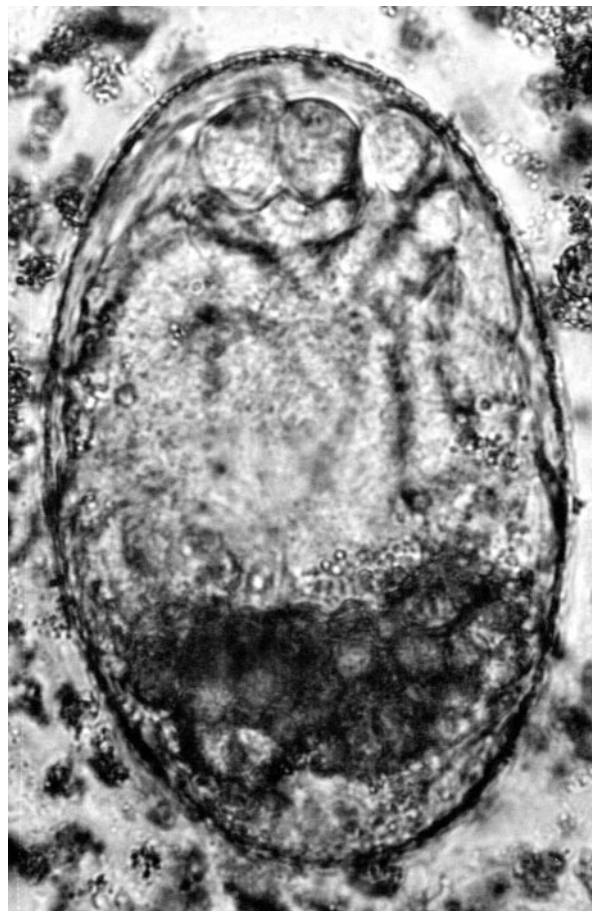


FIG. 1. Photograph of an oval mite egg with a rough shell found in urine concentrate, measuring 123 μm in length and 78 μm in width.

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was unclear (7). Adult scabies mites, *Sarcoptes scabiei*, were found in a patient's urine. The urine was most probably contaminated by a scabies infection on the patient's penis and scrotum (5). Healthy people with scabies generally have a stable mite population of between 15 and 20 mites. Some immunocompromising conditions predispose patients to large infestations of up to thousands of mites per patient (crusted or Norwegian scabies). Persons typically at risk for this form of infection are infants, immobilized geriatric patients, and patients with AIDS, leprosy, or hematological malignancies, but there may be no clearly identifiable risk factors in a substantial proportion of cases (1, 6). Patients shedding large quantities of scabies mites are obviously more likely to contaminate urine specimens than those who are not. A study in China found that 3.5% of urine samples and 6.2% of stool samples contained adults, larvae, or eggs of environmental mites. On colonoscopy-guided biopsy specimens, live mites and eggs were observed in large-bowel mucosal lesions. On cystoscopy, adult mites were observed. Damage to the intestinal and bladder walls was noted. The prevalence of human intestinal and urinary acariasis (mite infection) was higher in individuals working in medicinal herb storehouses, rice storehouses, mills, and other sites where the density of mites is high (4). Whether there was a causal association with mucosal pathology, however, remains unresolved.

The size similarity between mite and schistosome eggs prompted the referral of the specimen, although the lack of a terminal spine would normally preclude misidentification as *Schistosoma haematobium*. *Schistosoma mansoni* eggs may (uncommonly) be found in urine because of ectopic fluke location or fecal contamination of urine. On the slide, these eggs may sometimes lie with their lateral spines in a vertical or oblique plane and therefore appear atypical. Gently pressing on or tapping the coverslip helps to move them into a more usual orientation and may also result in their hatching. The contents of nondegenerate schistosome and mite eggs are completely dissimilar, which would help resolve confusion, even if un-

hatched. We concluded that the microscopic objects in this urine specimen were most likely eggs of house dust or other free-living mites that had contaminated the urine container. To avoid contamination from mites, clean urine containers should be used when sampling patients, and containers should be kept closed until they are ready for examination. The finding of mite eggs and larvae in urine or stool specimens may not always be artifactual and of no clinical significance, particularly if the mite is not identified fully. From the laboratory's perspective, it may not be possible to decide whether the presence of mites is due to contamination, a spurious infection, or a true infection, as their identity and source are often unknown. The clinical significance of mites in urine samples largely hinges on the identification of the mite species. However, the referral of mites for expert identification is ideal but usually not practical because of the nonavailability of such expertise and the large size and diversity of the Acarina order. The possibility of gut or bladder mite infection should be entertained only after repeated identification of mites in urine or stool samples from a symptomatic patient with no other cause for the symptoms and where the possibilities of contamination and spurious infection have been excluded. In such cases, endoscopic examination may be indicated.

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