Eggs containing larvae of *Enterobius vermicularis* in vaginal smear

**ABSTRACT**

*Enterobius vermicularis* also known commonly as pinworm is the most common intestinal parasite. It is a nematode that inhabits the human terminal ileum, colon and appendix. The fertilized female migrates to the perianal area where eggs are deposited but occasionally introduces itself into adjacent orifices, most commonly the female genitourinary tract. Thus the eggs can be seen in the vaginal smear as a result of contamination. We report a case wherein the patient presented with signs and symptoms of vulvovaginitis. In her vaginal smear there were eggs of *Enterobius vermicularis* which showed a coiled larva within it. In the background there were plenty of acute inflammatory cells. This patient responded favorably to antihelminthics. We report this case to highlight the morphology of the parasite and also to emphasize that such findings should not be neglected. Timely reporting and appropriate treatment of such cases will prevent further complications of this parasite including endometritis, salpingitis and peritonitis.

**Key words:** Cervicovaginal smear; cytology; embryonated eggs; *Enterobius vermicularis*; female genital tract.

**Introduction**

*Enterobius vermicularis* is a nematode with the broadest geographic range of any helminth.[1] It is one of the most common parasites found in the intestines of humans.[2] Therefore finding eggs of *Enterobius vermicularis* in the vagina is quite unusual.[3] Transmission occurs through direct anus to mouth spread from contact with an infected person or through airborne eggs dislodged from contaminated clothing or bed linen. After ingestion eggs hatch and release larvae within the intestine.[4] Gravid adult worms often migrate to the anus during the night and in female patients may enter the vagina to release eggs and cause vulvovaginitis. They can enter the endometrial cavity causing endometritis and salpingitis.[2] Cases have been reported of parasites migrating along the entire length of the genital tract and entering the peritoneal cavity through the fallopian tubes.[5] One of the first reports on direct visualization of enterobius in the vagina is that of Vaughan in 1980.[3] Later other reports have appeared in the literature. The biostatistics department of the Ministry of Health in Mexico has stated that the prevalence of intestinal enterobiasis ranges from 35-70%, however, the frequency of female genital tract involvement with this parasite is not known since publications on this subject are scarce.[6]

**Case Report**

A 35-year-old female patient presented with a history of vulval pruritus and vaginal discharge that had started 10 days ago. Per speculum examination showed excessive vaginal discharge. The cervix was healthy. Scrapings were taken from the cervix and vagina and smears were made with the Papanicolaou method. The smear showed predominantly intermediate cells with few superficial cells. These cells showed mild inflammatory reactive changes. In the background there were numerous acute inflammatory cells. Amidst them a few embryonated eggs of *Enterobius*...
The most frequently diagnosed parasite in the female genital tract is *Trichomonas vaginalis*. Intestinal parasites causing vaginal enterobiasis have occasionally been detected cytologically.[7] Although infection with this worm is usually thought to be asymptomatic or to cause nuisance symptoms like perianal itching, this worm can cause severe and even life-threatening illnesses including fatality in primates.[1] Non-gastrointestinal manifestations of *Enterobius vermicularis* include pruritis vulvae, urinary tract infections, postmenopausal bleeding, epididymitis, pelvic mass, tubo-ovarian abscess, salpingitis and generalized peritonitis.[1,4]

The present case highlights the importance of identifying these parasites. Pinworm eggs can be identified without difficulty because of their characteristic morphologic appearance. They should not be confused with other parasitic ova, pollen grains or with contaminated vegetable cells.[2,8] Pollen grains are microscopic structures enclosed in two layers. The outer layer may be smooth or rough with warts, grains or troughs. These characteristics permit identification.[8] Eggs of *Enterobius vermicularis* measure 55 µ × 25 µ, i.e. width being half the length. and stain orange red with papanicolaou stain. The egg is flattened on one side as was seen in our case with a refractile sheath containing bright orange-staining larvae.[9] These features help in distinguishing from other potential contaminants that can be found in a vaginal smear like fibres, vegetable material, fungi, etc.[9]

Presence of the eggs of *Enterobius vermicularis* in cervicovaginal smears has been reported by few authors in the past. Eggs of *Enterobius vermicularis* are usually deposited by female worms on perianal and perineal regions following nocturnal migration from the large intestine. This is usually the case in children. However, finding eggs of *Enterobius vermicularis* in vaginal smears of adult women is very rare.

In the present case the background of the smear showed massive acute inflammatory cells and the patient also had symptoms of vaginitis. These findings suggest the probability of worm infestation of the vagina and not just contamination.

**Conclusion**

The present case report highlights the importance of cytology in diagnosing parasitic infestations which gives a valuable orientation to the clinician in certain cases of vaginitis. Although the observation of pinworm eggs in cervicovaginal smears may be a casual finding, their presence must be reported as it may contribute in establishing the final diagnosis in cases with clinical symptoms. The present case report indicates the possibility of detecting unexpected parasitic infestations in routinely screened smears and by doing so preventing further complications.

**References**


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