



Tehran University of Medical
Sciences Publication
<http://tums.ac.ir>

Iran J Parasitol

Open access Journal at
<http://ijpa.tums.ac.ir>



Iranian Society of Parasitology
<http://isp.tums.ac.ir>

Case Report

Enterobius vermicularis in the Endometrium of the Uterus: A Case Report

Biserka PIGAC¹, *Silvija MAŠIĆ², Valentina MAŠIĆ³

1. Pathology, Cytology and Forensic Medicine Unit, Varaždin General Hospital, Varaždin, Croatia
2. Clinic for Oncology and Nuclear Medicine, University Hospital Center Sestre Milosrdnice, Zagreb, Croatia
3. Training and Education Center 'Vinko Bek', Zagreb, Croatia

Received 16 Dec 2016
Accepted 20 Mar 2017

Keywords:
Enterobius vermicularis,
Ectopic parasite,
Endometrium,
Uterus,
Croatia

***Correspondence**
Email:
silvijamasic57@gmail.com

Abstract

Enterobius vermicularis is an intestinal nematode of humans and the most common helminth infection. Main transmission path is direct contact between infected and uninfected person meaning ingestion of the eggs. Human infections are usually asymptomatic or manifest as perianal itching. Although ectopic locations are uncommon, *Enterobius* can occasionally be detected in appendix, kidney, male urinary tract and female genital tract. We present a case from Varaždin General Hospital, Varaždin, Croatia in 2012, involving a 90-yr-old female patient who underwent hysterectomy leading to accidental finding of *E. vermicularis* in the uterus despite being asymptomatic for enterobiasis. Since there were no signs and symptoms of parasitic infection, no antiparasitic drugs were administered. Parasite was not observed during macroscopic examination, yet microscopic examination of the material demonstrated helminth within endometrium surrounded by dense inflammatory infiltrate, predominantly lymphocytes and some eosinophils. Internal structures of the parasite were collapsed, while well-developed musculature and cuticle were preserved. We present this case to educate and remind physicians on this parasitosis as possible diagnosis. Although non-gastrointestinal locations of *Enterobius* infestation are rare, this infection should be considered in patients with abdominal pain, genitourinary symptoms, and pelvic pain in order to apply appropriate treatment and prevent further complications.

Introduction

Enterobiasis is common, highly contagious helminthic infection of gastrointestinal tract (1-3) spread mostly in Western Europe and North America

(4) which usually affects children (3). It usually presents as asymptomatic condition and is often considered only in cases of traveling to endemic areas which results in lower degree of

recognition of this entity as differential diagnosis (1). Ectopic localizations of *Enterobius* are uncommon and usually appear as incidental finding in tissue samples of asymptomatic patients (5). Some of those reported are peritoneal cavity, female genital tract, lung, liver, prostate, renal pelvis (5). Correct prevalence in female genital tract is not familiar (6).

We present a case of accidental finding of *E. vermicularis* in the endometrium of the uterus in a patient without data on traveling to this pinworm endemic areas.

Case report

A 90-yr-old female patient underwent elective hysterectomy due to descensus uteri in Varaždin General Hospital, Varaždin, Croatia, in 2012. She complained only about heaviness feeling in pelvic area. She had no previous

surgeries or illnesses, took no medication and reported no allergies. The patient recovered well after surgical procedure and was discharged from hospital. Informed consent was obtained from the patient. No personal data which would in any way violate the patient's privacy or reveal patient's identity, were used in the study.

We received removed uterus which was 6 cm long, 4 cm wide and 3 cm in anteroposterior diameter. Thickness of the endometrium was 0.4 cm. Macroscopic examination revealed small, atrophic uterus with no conspicuous pathological lesions. A sample of the tissue was routinely taken for further pathohistological analysis. H&E sections revealed presence of helminth within endometrium surrounded by dense inflammatory infiltrate, mostly lymphocytes with some eosinophils (Fig.1).

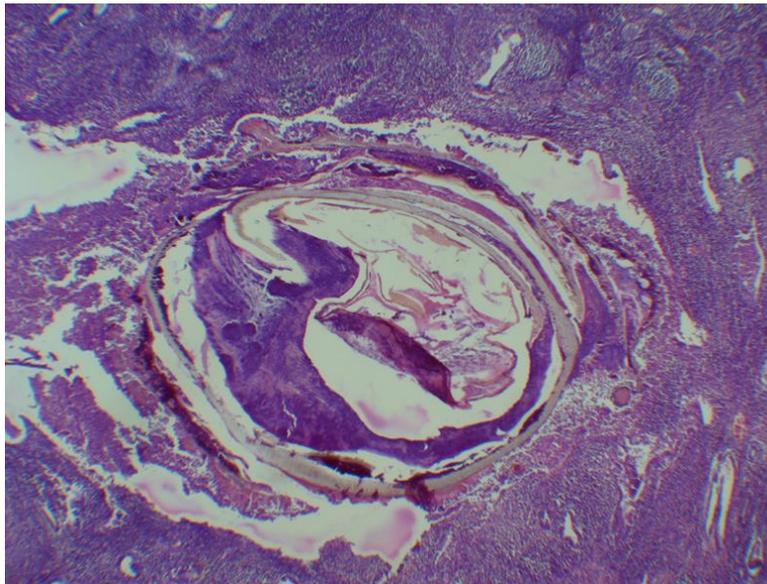


Fig.1: *Enterobius vermicularis* in the endometrium of the uterus surrounded by inflammatory cells (H&E, 10x)

We identified the parasite based on its morphology on H&E sections. Well-developed musculature and cuticle of the parasite were preserved, yet internal structures were not kept. According to patient's medical history, she complained of no medical problems that would indicate pinworm infestation. However,

no data on traveling to this helminths-endemic areas were obtained. The patient was asymptomatic for enterobiasis and that parasite finding was accidental, there was no need for use of antihelminthics. During 6 months follow-up no signs of helminth infestation were observed.

Discussion

E. vermicularis, also referred to as pinworm, oxyuris or threadworm (7) is helminth characterized by low pathogenicity and therefore most of infections are asymptomatic (4, 5).

Enterobius is transmitted by ingestion of ova through contaminated hands or food which leads to egg disolvment and release of larvae. Then fertilization of mature female worms occurs (usually in caecum or terminal ileum) who then migrate to perianal region and lay eggs resulting in itching. Scratching of the infested area leads to further contamination of hands and transmission of the parasite to others and the host (4, 8). Larvae from the eggs can also migrate from the anus to gastrointestinal tract where they mature (8). Another possible way of infection is inhalation and swallowing of airborne eggs (7).

Adults of *Enterobius* come to female genital tract from perineum to vagina and therefore to other parts of genital tract (5). Infestation of female genital tract is unusual (7) and most often presents as accidental finding of ova on cervical smears or as vulvovaginitis, salpingitis, pelvic pain, pelvic masses, irregular menstrual cycles, postmenopausal bleeding (2, 4, 5).

Other extraintestinal manifestations of enterobiasis are also rare. Some of them are appendicitis, recurrent urinary infections, peritonitis, abdominal pain (7, 9, 10).

In some cases, formation of granuloma in the uterus can occur and should be taken into consideration since it resembles malignant lesions, fibroma, leiomyoma, endometrioma (5). However, eggs of *Enterobius* can be confused with *Schistosoma hematobium*, fungal spores, *Entamoeba histolytica*, *Microfilaria*, *Strongyloides stercoralis*, *Trichuris trichiura*, *Ascaris lumbricoides* and *Taenia* eggs (6, 7).

Diagnosis of *E. vermicularis* infestation is established by performing cello-tape anal swab technique in order to identify *Enterobius* eggs on microscopic examination (3). Eggs are characterized by orange-red staining with

Papanicolaou stain and flattened on one side with dimensions about 25x50 microns (8, 11). In case of ectopic localizations diagnosis can only be established by histopathologic analysis since lesions presenting as granulomas with parasite ova, inflammation or degenerated adult helminth can be found (6).

Treatment includes use of antihelminthics such as mebendazole or albendazole (7).

Conclusion

E. vermicularis is very common parasitic infestation, yet ectopic locations of its presence are uncommon. Physicians consider this parasitosis as possible cause of common symptoms such as abdominal and pelvic pain in order to provide adequate medical management including avoiding unnecessary surgical procedures, differentiation from malignancies and treatment of parasitosis in time in order to avoid further complications. It is important to recognize infestation of female genital tract to prevent serious complications and preserve female reproductive health.

Acknowledgements

No financial support was required.

Conflict of Interests

The authors declare that there is no conflict of interest.

References

1. Al-Saffar F, Najjar N, Ibrahim S, Clark M. Pin worms presenting as suspected Crohn's disease. Am J Case Rep. 2015;16:737-9.
2. Gazvani MR, Emery SJ. Intraoperative *Enterobius vermicularis* infection: a case report. Infect Dis Obstet Gynecol. 1996;4(1):28-30.
3. Zahariou A, Karamouti M, Papaioannou P. *Enterobius vermicularis* in the male urinary tract: a case report. J Med Case Rep. 2007;1:137-9.

4. Ng YW, Ng SB, Low JJ. *Enterobius vermicularis* infestation of the endometrium - a cause of menstrual irregularity and review of literature. *Ann Acad Med Singapore*. 2011;40(11):514-5.
5. Al-Rufaie HK, Rix GH, Pérez Clemente MP, Al-Shawaf T. Pinworms and postmenopausal bleeding. *J Clin Pathol*. 1998;51(5):401-2.
6. Raju K, Verappa S, Venkataramappa SM. *Enterobius vermicularis* infestation masquerading as cervical carcinoma: A cytological diagnosis. *J Nat Sci Biol Med*. 2015;6(2):476-9.
7. Ngui R, Ravindran S, Ong DB, Chow TK, Low KP, Nureena ZS, Rajoo Y, Chin YT, Amir A, Ahmad AF, Lim YA, Mahmud R. *Enterobius vermicularis* salpingitis seen in the setting of ectopic pregnancy in a Malaysian patient. *J Clin Microbiol*. 2014;52(9):3468-70.
8. Tandan T, Pollard AJ, Money DM, Scheifele DW. Pelvic inflammatory disease associated with *Enterobius vermicularis*. *Arch Dis Child*. 2002;86(6):439-40.
9. Efraimidou E, Gatopoulou A, Stamos C, Lirantzopoulos N, Kouklakis G. *Enterobius Vermicularis* infection of the appendix as a cause of acute appendicitis in a Greek adolescent: a case report. *Cases J*. 2008;1(1):376-8.
10. Rizvi G, Rawat V, Pandey HS, Kumar M. Acute abdomen: an uncommon presentation of a common intestinal nematode. *Trop Parasitol*. 2015;5(2):123-6.
11. Shetty JB, Kulkarni DV, Prabhu V. Eggs containing larvae of *Enterobius vermicularis* in vaginal smear. *J Cytol*. 2012;29(1):94-6.