

## Case Report

# Ovarian enterobiasis: a case report

Geethu G. Nair<sup>1\*</sup>, Prejisha Balan<sup>2</sup>

<sup>1</sup>Department of Pathology, KMCT Medical College, Manassery, Kozhikode, Kerala, India

<sup>2</sup>Department of Obstetrics and Gynaecology, Malabar Medical College, Modakkallur, Kozhikode, Kerala, India

**Received:** 05 January 2018

**Accepted:** 03 February 2018

### \*Correspondence:

Dr. Geethu G. Nair,

E-mail: [drggnair573@gmail.com](mailto:drggnair573@gmail.com)

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

### ABSTRACT

*Enterobius vermicularis* (the pinworm) is the most common intestinal nematode in gastrointestinal tract of humans. It commonly infests the lumen of the intestine but on rare occasions has been found in the wall or in the tissues outside the gastrointestinal tract; female genital tract and peritoneum being the commonest sites. It is usually seen as an incidental finding. This is a case of 29-year-old female presented for elective sterilization. A tiny nodule was noted on the surface of ovary during procedure which was sent for histopathological examination. Lesion was composed of necrotic areas and inflammatory cells with cross section of a degenerated worm. The features of the eggs were diagnostic of *Enterobius vermicularis*. Multiple histologic sections may be required to establish diagnosis in older lesions as in this case.

**Keywords:** *Enterobius vermicularis*, Ovarian enterobiasis, Pinworm

### INTRODUCTION

*Enterobius vermicularis* is the most common intestinal nematode of humans. It normally resides in terminal ileum, caecum and appendix. Though considered to be a lumen dweller, occasionally it is encountered outside gastrointestinal tract. Female genital tract and peritoneum are the common sites of ectopic infestation.<sup>1-5</sup> Rarely they may also be seen in tissues like kidney, male urinary tract, conjunctiva, spleen, liver and lung.<sup>6</sup>

In such situations diagnosis is made only by histopathological studies. We report a case of ovarian enterobiasis, highlighting the importance of histopathological examination.

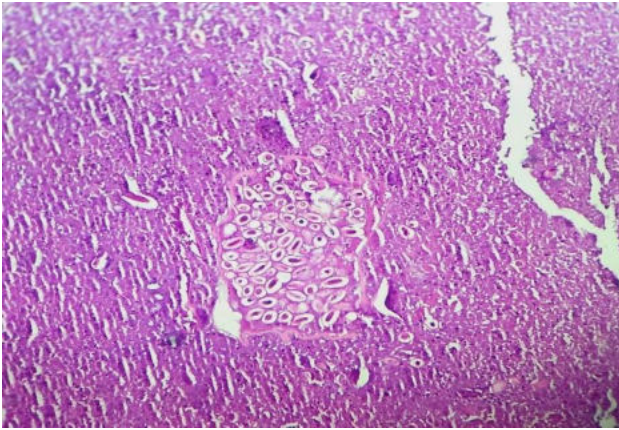
### CASE REPORT

A 29-year-old female presented to our institution for elective sterilization. Intraoperatively a tiny grey white

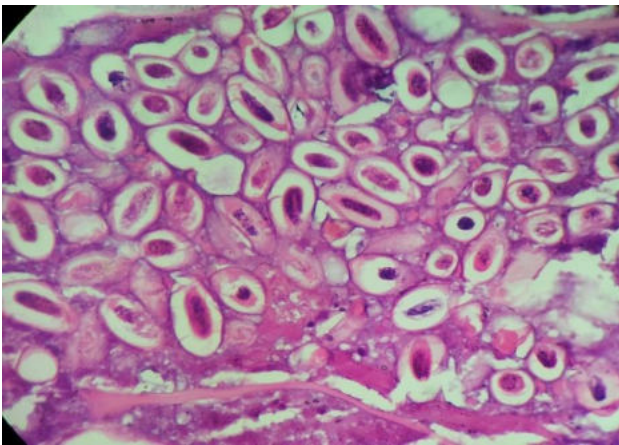
nodule of 1x1 cm was noted on surface of left ovary which was grossly unremarkable otherwise. The nodule was excised and sent for histopathological examination along with segments of fallopian tube. On gross examination, cut surface of the nodule was firm, grey white with yellowish areas.

Histologically, the nodule was composed predominantly of necrotic material with cross section of a nematode in the centre. Adult worm structure was too degenerated to be identified.

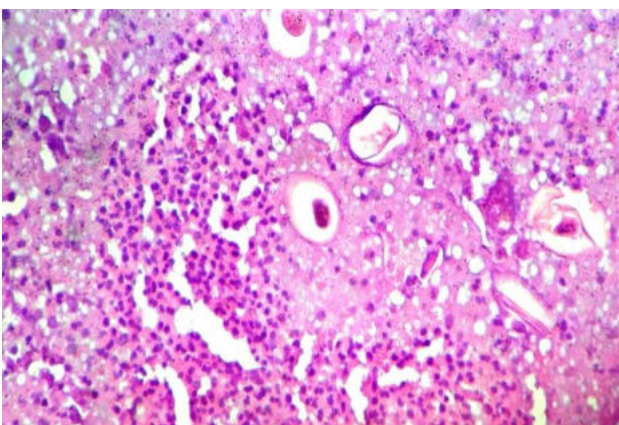
But sectioned worm had thick cuticular surface and is gravid with lots of eggs inside. Morphology of eggs were characteristic of *Enterobius vermicularis*. Several eggs were found scattered among inflammatory cells around worm section. Eggs had thick chitin shell with one side flattened and other convex. Many of them showed germ inside. No history of enterobiasis was elicited when specifically asked and she was prescribed albendazole.



**Figure 1: Section of a degenerated nematode in the necrotic tissue. Note presence of thick cuticle and multiple ova. (Haematoxylin and eosin stain, 100x).**



**Figure 2: High power view showing viable E. vermicularis ova. Note the characteristic plano-convex shape. (Haematoxylin and eosin stain, 100X).**



**Figure 3: Scattered eggs seen among inflammatory cells. (Haematoxylin and eosin stain, 100x).**

## DISCUSSION

The life cycle of *Enterobius vermicularis* occurs normally in the lumen of the human gastrointestinal tract. Eggs are

deposited on perianal folds. Transmission is faecal-oral as a result of self-contamination of hands, or ingestion of contaminated fomites. Following ingestion of infective eggs, the larvae hatch in the small intestine. The adult worms inhabit the distal small and proximal large bowel, where mating occurs. Gravid females migrate nocturnally outside the anus and oviposit while crawling on the skin of the perianal area. The eggs embryonate within hours and remain viable for 20 days. These eggs may then infect the same or a new host through faeco-oral transmission. Rarely “retroinfection” can also occur which means the migration of newly hatched larvae from the anal skin back into the rectum.

Extraintestinal infections of *Enterobius* though rare, has been reported in many sites. Ascent of larvae from the perineum into the female genital tract is most common. Navigational error by the parasite can lead to granulomas of the vulva, vagina, uterus, fallopian tubes and ovaries. The probable mechanism of spread is migration of gravid female worms from the perianal region to the vagina and subsequent ascent of parasites along the genital tract. Escape of worms through the fallopian tubes into the peritoneal cavity may result in peritonitis or granuloma of the pelvic peritoneum.<sup>7,8</sup>

Its presence on the peritoneum in males can only occur if the appendix (or intestine) perforates as a result of such inflammation. Following entry into the peritoneum, it can also reach other organs like liver, spleen, kidney or male genital tract.<sup>3,9,10</sup> In most of the cases, patients are asymptomatic. Sometimes patient present with complications like endometritis, salpingo-oophoritis and tubo-ovarian abscess.<sup>2,4,5,7,8</sup> Rarely they can be mistaken for metastatic deposits if occurs as small nodules on serosal surfaces in known cases of malignancy.<sup>4,6</sup>

Extra intestinal infection generally results in granulomatous inflammation. Histologically, the adult worm is identified in cross section by its characteristic cuticular wall and narrow lateral cuticular alae. But in older lesions, the worms get degenerated, making it difficult to identify. In such situations features of egg especially its plano-convex shape aids in diagnosis. Sometimes it is difficult to identify the worms in lesions, for which multiple sections has to be taken.

## CONCLUSION

*Enterobius*, though considered to be lumen dweller can involve extra-intestinal sites, commonly female genital tract. It has to be considered as one of the differential diagnosis when granulomatous inflammation is encountered in female genital tract. Multiple sections have to be taken and careful search has to be made for the presence of eggs which helps in the diagnosis.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

## REFERENCES

1. Mcdonald GSA, Hourihane B. Ectopic *Enterobius vermicularis*. *Gut.* 1972;13:621-6.
2. Powell G, Sarmah P, Sethi B, Ganesan R. *Enterobius vermicularis* infection of the ovary. *BMJ case reports.* 2013;2013:bcr2013201146.
3. Ondič O, Neubauer L, Sosna B. Extraintestinal oxyuriasis-report of three cases and review of literature. *Cesk Patol.* 2014;50(3):152-4.
4. McCabe K, Nahn PAK, Sahin AA, Mitchell MF. Enterobiasis of the ovary in a patient with cervical carcinoma in situ. *Infect Dis Obstet Gynecol.* 1995;2(5):231-4.
5. Hong ST, Choi MH, Chai JY, Kim YT, Kim MK, Kim KR. A case of ovarian enterobiasis. *Korean J Parasitology.* 2002;40:149-51.
6. Pampiglione S, Rivasi F. Enterobiasis in ectopic locations mimicking tumor-like lesions. *International J microbiology.* 2009 Jun 14;2009.
7. Tandan T, Pollard AJ, Money DM, Scheifele DW. Pelvic inflammatory disease associated with *Enterobius vermicularis*. *Archives of disease in childhood.* 2002;86(6):439-40.
8. McMahon JN, Connolly CE, Long SV, Meehan FP. *Enterobius granulomas* of the uterus, ovary and pelvic peritoneum. Two case reports. *BJOG: An Inter J Obstetrics Gynaecol.* 1984;91(3):289-90.
9. Zahariou A, Karamouti M, Papaioannou P. *Enterobius vermicularis* in the male urinary tract: a case report. *J Med Case Reports.* 2007;1:137.
10. Cateau E, Yacoub M, Tavilien C, Becq-Giraudon B, Rodier MH. *Enterobius vermicularis* in the kidney: an unusual location. *J Med Microbiol.* 2010;59(7):860-1.

**Cite this article as:** Nair GG, Balan P. Ovarian enterobiasis-a case report. *Int J Res Med Sci* 2018;6:1055-7.