

Extraintestinal oxyuriasis – report of three cases and review of literature

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SUMMARY

Extraintestinal oxyuriasis, in our experience with three affected women of fertile age, presented itself as a solitary fibrotic nodular lesion, with a varying location. The sites of location were: parietal peritoneum, serous surface of the uterus and wall of the uterine tube. The size of the nodules was 5 to 10 mm. Histologically, the lesions were hypocellular fibrotic nodules with a variable amount of neutrophils and amorphous eosinophilic material in the center, harbouring eggs of the parasite and remnants of pinworm cuticle. All three lesions were asymptomatic, only being discovered incidentally during the operations for unrelated conditions. Their peroperative recovery by a surgeon did not alter the course of surgery. These findings document the ability of pinworms to migrate into the abdominal cavity via the female genital tract.

Keywords: oxyuriasis – enterobiasis – pinworm – extraintestinal – abdominal – *Enterobius vermicularis*

Extraintestinálna oxyuriáza – popis troch prípadov a prehľad literatúry.

SÚHRN

V našom pozorovaní sa extraintestinálna oxyuriáza prezentovala u troch žien vo fertilnom veku ako solitárny fibrotický uzlík parietálneho peritonea, serózy maternice a v stene vajcovodu. Veľkosť uzlíkov bola 5 až 10 mm. Histologicky išlo o hypocelulárny fibrotický uzlík v centre s vajčkami parazita, s variabilným množstvom hnisu, jedenkrát i so zbytkami kutikuly tela parazita. Klinicky išlo vždy o náhodné vedľajšie nálezy pri operáciách z inej indikácie, bez ovplyvnenia operačného postupu. Tieto nálezy potvrdzujú schopnosť samičiek parazita ascendentne migrovať ženským genitálnym traktom až do brušnej dutiny.

Kľúčové slová: oxyuriáza – enterobiáza – extraintestinálny – abdominálny – *Enterobius vermicularis*

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Enterobius vermicularis (earlier *Oxyuris vermicularis*, synonyms: pinworm, threadworm) is an intestinal parasitic nematode. It is probably the most common helminthic infection in humans. It normally resides in the terminal ileum, appendix and colon. Fertilized female pinworms descend into the rectum and lay their eggs in the anal folds and surrounding areas including clothing and bed linen. The infection is then transmitted orally by the means of contaminated hands to the mouth. The eggs mature in the small intestine and larvae are born. Male worms die after mating with the females. Fertilized female pinworms descend as described earlier and lay eggs once again, continuing the cycle. Possibly due to some navigation error, they may enter the genital tract of women via the vagina. From there they are able to migrate further into the uterus, fallopian tubes and the peritoneal cavity. That is how extraintestinal oxyuriasis may come into being.

The presence of a pinworm or its eggs in the abdominal cavity is asymptomatic in most of the cases. In the largest study conducted, involving 259 cases of oxyuriasis, extraintestinal infection was only identified in 11 patients, which would be 4.2 % (1). All discovered cases were incidental findings during autopsy or

surgery. In the surgical cases, surgeons were not able to differentiate such lesions from peritoneal carcinomatosis, tuberculosis or schistosomiasis. The diagnosis of extraintestinal oxyuriasis came as a surprise.

The symptoms of intestinal oxyuriasis are non-specific. They include pain in hypogastrium, fever, nausea and vomiting. Genital oxyuriasis may cause dyspareunia and bloody vaginal discharge. It presents itself as an inflammatory or granulomatous lesion of the female genital tract or parietal peritoneum situated in the vicinity of the uterus, ovary or fallopian tube. Histopathologically oxyuriasis presents itself as a fibrotic nodule or chronic abscess with a thick fibrotic wall. Dystrophic and sometimes calcified eggs of the parasite can be found in the center of the lesion (Fig. 2, 3). The female pinworm cuticle is usually poorly preserved due to the lytic activity of the neutrophilic leucocytes. Only the small undulated fragments of cuticle can be observed (Fig. 3, 4).

CASE REPORTS

Extraintestinal oxyuriasis was observed by the authors (L.N., B.S.) in three fertile women in the mixed setting of the pathology department of a regional hospital and private pathology laboratory. The specimens were recovered over a period of 21 years. The infection presented itself as a fibrotic nodule. It was localized in the parietal peritoneum, serosal surface of the uterus (macroscopically reminiscent of subserosal leiomyoma) and in the wall of the fallopian tube (Tab. 1). In all instances, a solitary nodule measuring from 5 to 10 mm was incidentally recovered during the course of surgery for other non-related causes.

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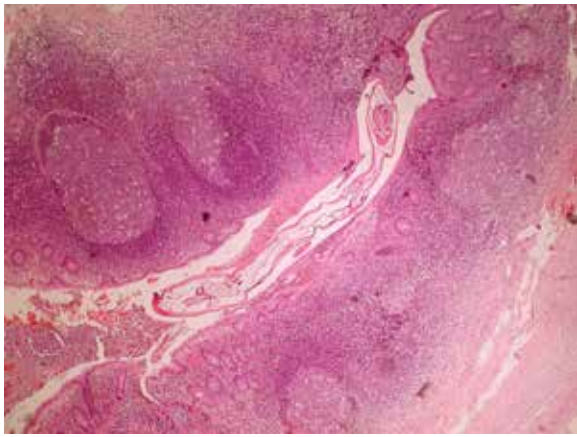


Fig. 1. The body with well-visualized intestine of the pinworm in the lumen of appendix (hematoxylin-eosin, 40x).

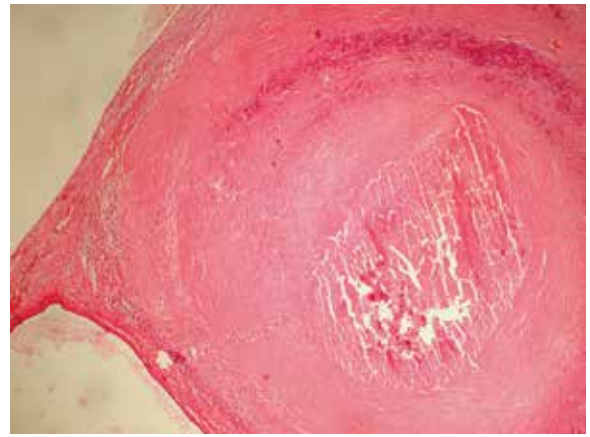


Fig. 2. Nodule in the wall of fallopian tube (case No. 3) comprising amorphous eosinophilic debris and the eggs of the parasite in the center of the lesion. The wall of the nodule is fibrotic and hypocellular (hematoxylin-eosin, 40x).

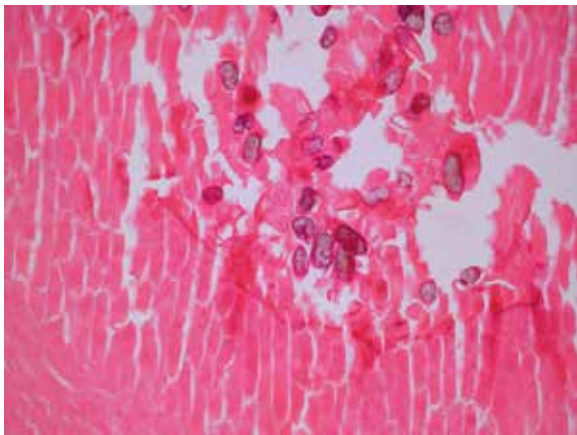


Fig. 3. The center of the nodule from the figure 2. Some eggs harbour central dystrophic calcification, still others present an intact inner structure. A thin strip of brightly eosinophilic cuticle separates the eggs from the surrounding amorphous material in the lower part of the picture (hematoxylin-eosin, 400x).

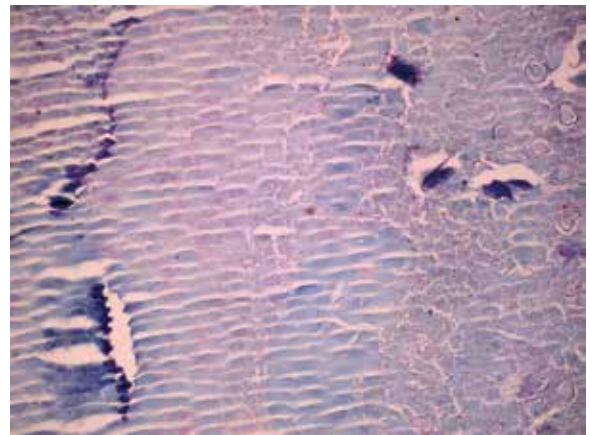


Fig. 4. The pinworm cuticle is well visible when stained by Giemsa. Vertically oriented and slightly undulated strips of the cuticle are present on the left and the collection of eggs can be seen on the right side of the picture (Giemsa, 400x).

Table 1. The clinical characterization of the cases of extraintestinal oxyuriasis.

Case No.	Age	Clinical description	Location	Size
1	35	Suspicion for GEU. Incidental laparoscopic finding in 2013.	Parietal peritoneum	8 mm
2	39	Hysterectomy due to the uterus myomatosus in 1999	Serosa of the uterine fundus	10 mm
3	?*	Unspecified surgery in 1992	Nodule in the wall of the fallopian tube	5 mm

GEU – extrauterine pregnancy.

* – Clinical data was lost during the major refurbishment of the regional hospital in the year 2000, in which the archives were decommissioned.

Histologically, the presence of pinworm eggs in the middle of the lesion was always diagnostic. The lesion itself could be described as a chronic abscess in one case and as a fibrotic nodule or granuloma in the two other cases. The remnants of the female pinworm cuticle were observed only in one case (case number 3). Its visualization was enhanced by Giemsa stain (Fig. 4).

DISCUSSION

Our findings are to be added to other reports of extraintestinal oxyuriasis. Eggs of the pinworm are sporadically encoun-

tered in PAP smears. Their presence, or the presence of the body of the parasite itself, was described also in the uterus (2), fallopian tube (3-5), ovary (6-8) and in granulomas of the parietal peritoneum (9). All above-mentioned findings document the ability of the female pinworm to migrate from the perianal region, via the female genital tract up to the peritoneal cavity. This also elucidates the predominant occurrence of the extraintestinal oxyuriasis in women. As mentioned by Pampiglione (10), oxyuriasis was sporadically observed in other atypical locations including spleen, liver, lung, prostate, epididymis, urinary bladder, ureter and conjunctival sac. To sum up, extraintestinal oxyuriasis is a rare finding. It documents the ability of pinworms to migrate into the

peritoneal cavity. Some of the published observations (3,10,11) point to the possibility that some of the tuboovarian abscesses are caused by extraintestinal oxyuriasis, although this type of infection presents itself more often in the form of a fibrotic nodule. It is possible to demonstrate the eggs or the fragments

of the pinworm cuticle in the center of those nodules (Fig. 3, 4). In macroscopic differential diagnosis, carcinomatosis and tuberculoma come into consideration. Microscopically it is necessary to rule out desmoplastic melanoma, leiomyoma, fibroma and foreign body granuloma.

REFERENCES

1. **Sinniah B, Leopairut J, Neafie RC, Connor DH, Voge M.** Enterobiasis: a histopathological study of 259 patients. *Ann Trop Med Parasitol* 1991; 85(6): 625-635.
2. **McMahon JN, Connolly CE, Long SV, Meehan FP.** Enterobius granulomas of the uterus, ovary and pelvic peritoneum. Two case reports. *Br J Obstet Gynaecol* 1984; 91(3): 289-290.
3. **Kogan J, Alter M, Price H.** Bilateral enterobius vermicularis salpingo-oophoritis. *Postgrad Med* 1983; 73(1): 305, 309-310.
4. **Schnell VL, Yandell R, Van Zandt S, Dinh TV.** Enterobius vermicularis salpingitis: a distant episode from precipitating appendicitis. *Obstet Gynecol* 1992; 80(3 Pt 2): 553-555.
5. **Young C, Tataryn I, Kowalewska-Grochowska KT, Balachandra B.** Enterobius vermicularis infection of the fallopian tube in an infertile female. *Pathol Res Pract* 2010; 206(6): 405-407.
6. **Beckman EN, Holland JB.** Ovarian enterobiasis--a proposed pathogenesis. *Am J Trop Med Hyg* 1981; 30(1): 74-76.
7. **Hong ST, Choi MH, Chai JY, Kim YT, Kim MK, Kim KR.** A case of ovarian enterobiasis. *Korean J Parasitol* 2002; 40(3): 149-151.
8. **McCabe K, Nahn PA, Sahin AA, Mitchell MF.** Enterobiasis of the ovary in a patient with cervical carcinoma in situ. *Infect Dis Obstet Gynecol* 1995; 2(5): 231-234.
9. **Dalrymple JC, Hunter JC, Ferrier A, Payne W.** Disseminated intraperitoneal oxyuris granulomas. *Aust NZ J Obstet Gynaecol* 1986; 26(1): 90-91.
10. **Pampiglione S, Rivasi F.** Enterobiasis in ectopic locations mimicking tumor-like lesions. *Int J Microbiol* 2009; 642481. doi: 10.1155/2009/642481. Epub 2009 Jun 14.
11. **Craggs B, De Waele E, De Vogelaere K, et al.** Enterobius vermicularis infection with tuboovarian abscess and peritonitis occurring during pregnancy. *Surg Infect (Larchmt)* 2009; 10(6): 545-547.

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