Invasion of the Fallopian Tube by *Enterobius vermicularis*

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**ABSTRACT**

A solitary granuloma containing a gravid female pinworm was incidentally found in the fallopian tube of a 27 year old woman. On rare occasions, pinworms have been found outside the gastrointestinal tract, most frequently in the peritoneal cavity. The reported cases have been found at all levels of the female reproductive tract from the introitus to the fallopian tube. Thus, the hypothesis is supported that the worms reach the pelvic cavity via the genital tract. In addition, pinworm granulomas have also been found in the liver, lung, prostate and the renal pelvis. Awareness that such lesions may occur is important since the lesions may be interpreted as being malignant with subsequent unnecessary surgical intervention.

The mature pinworm (*Enterobius vermicularis*) inhabits the lumen of the intestine in the region of the lower most part of the ileum, cecum, the proximal part of the ascending colon and the appendix. The gravid females migrate down the colon to the anogenital region where they lay eggs.

Pinworm eggs have been found in routine vaginal smears, endocervical aspiration, uterus, ovary and the peritoneal cavity in women. These reports leave little doubt that the adult gravid females can find their way into the genital tract during their nocturnal wandering over the perineum and gain access to the peritoneal cavity by crawling up the vagina, uterus and fallopian tubes. A survey of the literature reveals few instances of pinworm infestation of the fallopian tube. It is the purpose of this report to describe an additional patient and to review the topic of "ectopic *Enterobius vermicularis*.”

**Case History**

A 27-year-old Mexican-American woman, gravida 3, para 2, was admitted to the Methodist Hospital of Gary on June 23, 1978, for voluntary sterilization. Past history revealed that the patient’s health had been good. She was asymptomatic. The values of the laboratory data measurements were within normal limits. The patient underwent bilateral salpingectomy. The resected specimen consisted of an essentially normal segment of the left fallopian tube and a segment of the right fallopian tube that contained a nodular area measuring 1.0 x 0.8 x 0.5 cm. Section through this area revealed complete obliteration of the lumen with a thickened wall. Microscopic sections of this nodular area revealed...
one gravid female worm which possessed the characteristics of the pinworm, with the thornlike crest projecting on each side from the cuticle (figure 1). The ova inside the worm also had the morphologic features resembling those of pinworm egg. Immediately around the worm was a layer of necrotic tissue which was surrounded by a thin band of loose connective tissue infiltrated by lymphocytes, occasional eosinophils and occasional giant cells.

A stool examination on a concentrated smear was negative for the parasites and their ova. Scotch tape touch preparation from the perineum also was negative. The patient stated that her two children were under treatment for pinworm infection.

Discussion

The pinworm or the egg remaining after disintegration and resorption of other parts of the worm has been identified in several extraintestinal locations. These were comprehensively reviewed by Symmers in 1950 and by Sjövall and Ackerman in 1968. Since then, few case studies have been published. In the majority of cases, the Enterobius vermicularis was found in the peritoneal cavity. Some cases of Enterobius vermicularis were recorded as being found in the female genital tract. It is interesting to note that all recorded cases of peritoneal involvement have been in women. Brandt recorded one case of pinworm granuloma in the lung of a 50-year-old woman.

Ectopic lesions in male have been only reported five times. Symmers reported finding a granuloma owing to pinworm in the renal pelvis of a boy and in the prostate gland of a man. Slais found a pinworm granuloma in the liver of a 57-year-old man and Beaver et al described the case of granuloma owing to pinworm in the lung of a 23-year-old man.

Although inflammation of the reproductive system was found to be associated with the presence of the pinworm, it is difficult to decide whether pinworm infestation of that system can give rise to inflammation or whether the worms have settled in a previously inflammed area. There are two possible routes for the spread of pinworm to the abdominal cavity,—tissue penetration of the intestinal wall or migration through the female genital tract. That all cases of peritoneal involvement are in women lends support to the migration theory. The transport of pinworms through the uterus and the tubes can be explained by its own activity which, however, may be enhanced by retrograde movements of the uterine tubal muscular tissue. Such movements do oc-
cur. Well known to any pelvic surgeon is the phenomenon of retrograde bleeding from fimbriated ends of the tubes into the abdominal cavity during menstruation.

In a few cases, the presence of parasites or their ova in the peritoneal cavity appear to have caused sufficient reaction to produce symptoms and lead to surgical intervention, but in the great majority the lesions have been incidental findings which cannot be correlated with any event in the patient’s history.

Grossly, the granulomatous lesions can simulate leiomyoma, fibroma, endometrioma or tuberculous lesion. Moreover, awareness that such lesions may occur is important since the lesions may be interpreted as being malignant with subsequent unnecessary surgical intervention.

References