

Enterobius Vermicularis in a Suppurating Cyst of the Female Breast.

By

G. H. COORAY, MANGAYARKARASI YOGANATHAN AND
A. S. DISSANAIKE

(Department of Pathology, University of Ceylon)

Although the adult *Enterobius vermicularis* has been reported to occur in unusual situations such as the soft tissues around the anus and rectum (Fitzwilliams, 1934), the kidneys and ureters (Symmers, 1950), the liver (Dieckmann, 1924, cited by Symmers), the spleen (Nathan, 1928, cited by Symmers), the female genital tract, the ovaries (Gill and Smith, 1952, Klee, 1920, Chiari, 1928, cited by Symmers, and Chomets, 1942), the nasal and oral mucosa (Proskauer, 1891, Chiari, 1889, and Pomper, 1877, cited by Symmers) the oesophagus and stomach (Brumpt, 1949) and beneath the mucous membrane of the intestines and rectum (Bijlmer, 1946), there has been no record of this parasite inhabiting the female breast. We describe such a case where an adult female was found in a suppurating cyst of the breast.

Case Report

A female, aged 42 years, was admitted to a provincial hospital in Ceylon, with a history of a lump in the right breast of five days' duration. The lump was about the size of a pea when first noticed and grew much larger within the five days. There was no history of pain, itching or ulceration of the skin.

On examination, there was a cystic lump one inch in diameter in the lower and inner quadrant of the right breast. It was not connected with the nipple. The skin was slightly adherent to the lump and there was a distinct punctum. There was no tenderness over the lump, and no discharge from it or from the nipple. It resembled a sebaceous cyst. The lump was removed and sent to us for microscopic examination specially with regard to malignancy. For one month after the operation the wound which had broken down was discharging, and the tissue around the wound was indurated. The patient ran a swinging temperature for about two weeks after the operation.

The stools tested on three consecutive days showed no amoebae, cysts or helminth ova. There was no eosinophilia in the peripheral blood, the total leucocyte count being 7,200 \wedge cu. mm. with a differential count of 69 per cent. Polymorphs and 31 per cent. Lymphocytes.

Histology. Beneath the epidermis which appeared normal there was a small abscess surrounded by cellular granulation tissue (Fig. 1). In this tissue there were numerous strands of keratin (Fig. 2) and adherent to the deep aspect of the granulation tissue mass there was a recent haemorrhage embedded in which were parts

of a nematode (Fig. 3). Several ova, both inside and outside the worm were also seen (Fig. 4). Closer examination of the worm proved that it was a mature female *Enterobius vermicularis* for the following reasons :—

1. The somatic musculature was of the Meromyarian type (Fig. 5).
2. The cuticle at one spot showed a characteristic lateral crest (Fig. 6).
3. The eggs had a double wall, were planoconvex in shape and on an average measured 52.9 by 20.6.

Discussion

In a recent review of the pathology of oxyuriasis, Symmers (1950) mentions a large number of atypical sites in which *Enterobius vermicularis* had been reported and he discusses the pathological changes in the tissues evoked by the presence of the parasite. The present case where the parasite was found in a female breast is rather exceptional.

We have already given reasons for considering this worm to be a mature female *Enterobius vermicularis*. We also made serial sections of a mature female *Enterobius* obtained from the stools of a child and compared these with the parasite seen in the present case, and we have no doubt as to the identification of the nematode. It remains now to discuss the mode of entry of the worm, and the changes produced by it in the tissues.

Fulleborn (1929) claims that nematode larvae arriving in the lungs by the blood-stream may also pass by way of the pulmonary veins, left ventricle and the arteries, directly to the intestines and other organs of the body, but as threadworms do not undertake a lung journey, we can assume that the parasite in this case reached the present site from without. It may be assumed also that either an ovum, or larva or an adult worm had entered the breast tissue in this way. As it is unlikely that either of these would have penetrated intact skin, we consider that the most likely mode of entry was through the punctum which was observed clinically.

As threadworm ova and larvae are commonly found on the fingers of infected individuals, it is easy to imagine how one of these could have entered through this punctum; but it is difficult to understand how they could have developed into a fully mature worm in this situation. Since there were mature ova, within the section of the worm, and scattered amongst the adjacent tissues, it is reasonable to assume that the parasite was already a mature female when it entered through the punctum.

The absence of degenerative changes in the parasite which usually follow its death and of a granulomatous reaction around it, and the presence of viable ova scattered in the adjacent tissues, suggest that the nematode was alive at the time of the operation.

From the histological study it would appear that this patient had an epidermoid cyst of the breast, her attention being directed to it by the recent onset of suppuration. The parasite probably entered the sub-epidermal tissue through the punctum in the skin and its subsequent passage in the tissues caused a traumatic haemorrhage. Accidental contamination of the skin either by the patient's own infected fingers or from the peri anal skin of an infected child whom she may have carried most probably caused the nematode to be conveyed to this unusual site. Such a mode



Fig. 1

Entire section (very low magnification) showing
abscess (A), and position of nematode in
blood clot indicated by arrow.

H & E $\times 6$.

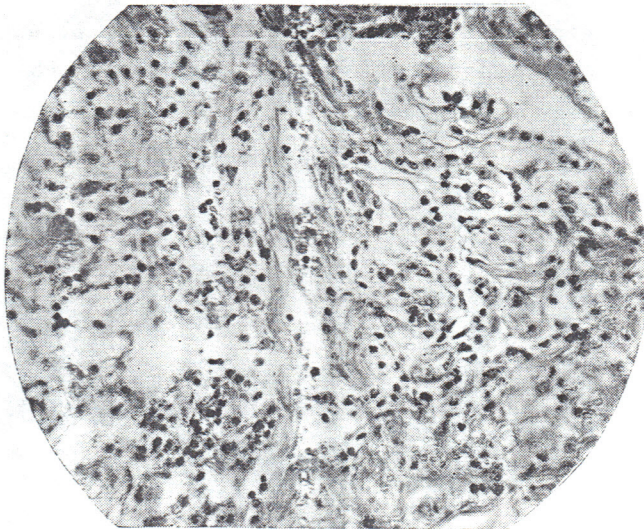


Fig. 2

Granulation tissue showing strands of keratin.

H & E $\times 250$.

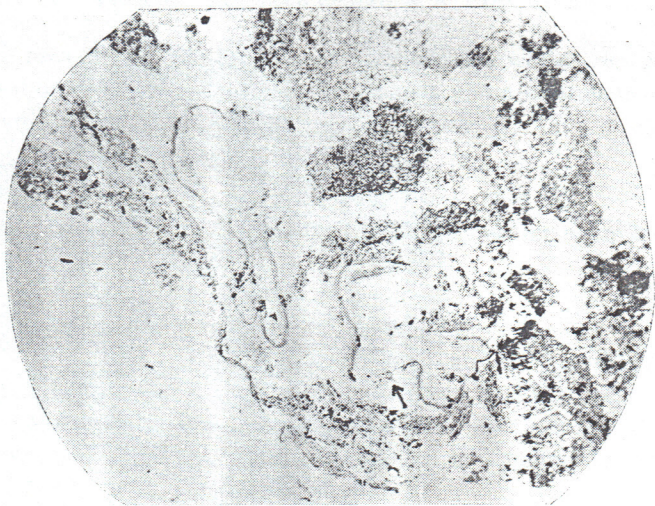


Fig. 3

Bloodclot (higher magnification) showing parts of the nematode. Arrow points to position of lateral crest. H & E $\times 60$.

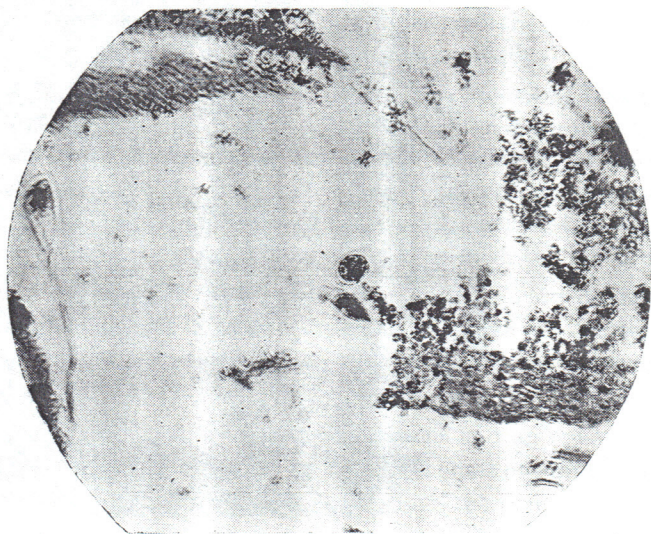


Fig. 4

Two *Enterobius* ova. H & E $\times 250$.

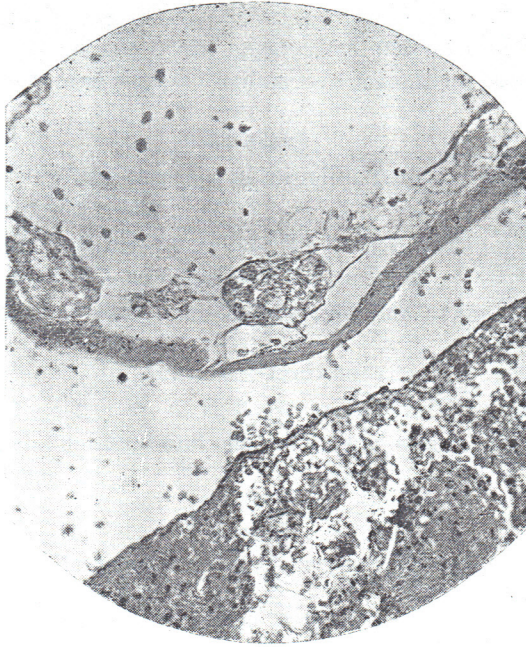


Fig. 5

Body wall of nematode showing simple Meromyarian musculature. H & E $\times 250$.

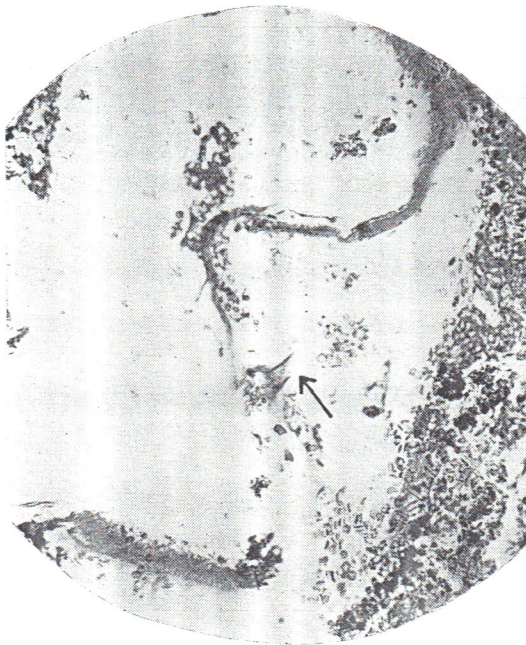


Fig. 6

Higher magnification of Fig. 3 showing lateral crest. H & E $\times 250$.

of entry through the skin is one of the suggestions put forward by Symmers (loc. cit.) to explain the presence of a gravid female *enterobius* in his case 3.

Summary

1. A case is reported of the presence of an adult female *Enterobius vermicularis* in a suppurating cyst of the breast.
2. The typical granulomatous reaction of the tissues to the presence of this worm was not observed as the infection in this case was probably of very short duration.
3. The possible mode of entry and the identification of the worm are discussed.

Acknowledgements

We are thankful to Professor W. A. E. Karunaratne for facilities, to Dr. F. Lutersz for providing us with the material and clinical details, and to Mr. K. M. M. Michael for the photomicrographs.

References

1. BIJLMER, J., (1946) 'An exceptional case of oxyuriasis of the intestinal wall'. J. Parasit. 32, p. 359.
2. BRUMPT, E., (1949) 'Precis de Parasitologie' Ed. 6. 851-853.
3. CHOMET, B., (1942) 'Oxyuris vermicularis infection of the wall of a fallopian tube'. Arch. Path. 34. 742.
4. FITZWILLIAMS, D. C. L., (1934) 'Fistula in ano, caused by ova of an oxyuris vermicularis'. Proc. Roy. Soc. Med. 27, part II. 932.
5. FULLEBORN, J., (1929) 'On the larval migration of some parasitic nematodes in the body of the host and its biological significance'. J. Helminth. 7. No. 1. 15-26.
6. GILL, A. J. and SMITH, A. C., (1952) 'Presence of Enterobius (Oxyuris) vermicularis in the ovary', Amer. J. Clinical Path. 22. No. 9. 879.
7. LANE, C., (1944) 'Threadworm infections, prevalence, pathogenicity and prevention'. 2. 511.
8. SYMMERS, W. ST. C., (1950) 'Pathology of Oxyuriasis with special reference to granulomas due to presence of Oxyuris vermicularis and its ova in Tissues'. A. M. A. Archives of Path. 50. No. 4. 475.