

ECTOPIC ENTEROBIASIS: A case report and review of literature

Md. Abul Quasem¹, Md. Abdus Salam²

SUMMARY

A case of ectopic pinworm abscess detected in the right inguinoscrotal swelling is described. A male aged 55 years presented with occasional pain at his right inguinal area for three months followed by accentuation of pain associated with fever and gradual swelling of that area for two weeks. Fine needle aspiration of the swelling revealed frank thick pus. Papanicolaou-stained smear for cytological examination showed frequent ova of *Enterobius vermicularis* along with fibrinopurulent exudates. A brief review of literature for ectopic enterobiasis is given.

KEY WORDS: Enterobius vermicularis, Ectopic enterobiasis, Pinworm abscess, Fine needle aspiration cytology, Inguinoscrotal swelling.

Pak J Med Sci October - December 2007 (Part-I) Vol. 23 No. 5 785-787

INTRODUCTION

Enterobiasis is a helminthic infestation caused by a large intestinal nematode, *Enterobius vermicularis* which is commonly called pinworm or thread worm. It is considered as the most common intestinal parasite of man with the widest geographical distribution especially in the primary care setting regardless of race, socioeconomic or cultural circumstances.¹ Although enterobiasis is frequently found among young children aged 5 to 10 years but adults may also be affected.² The parasite normally abodes in the large intestine usually in the caecum but gravid female parasite oviposits in the perianal regions. Common clinical presentations of enterobiasis include perianal and perineal pruritis due to mechanical irritation and allergic reactions caused by the migration

of gravid female worms. Ectopic infections result from spread of larvae from the anal margin to a variety of ectopic sites. The local inflammatory response or secondary bacterial infections cause symptoms and clinical presentation in enterobiasis. Although infrequent but enterobiasis in different ectopic sites has been encountered by many investigators.³

We report a case of very unusual presentation of ectopic enterobiasis found in association of right inguinoscrotal swelling in an elderly male patient.

CASE REPORT

A 55 years old farmer was admitted in the Rajshahi Medical College Hospital, the tertiary care teaching hospital situated in the Northern part of Bangladesh with right sided inguinoscrotal swelling. History revealed that he had been suffering from occasional tolerable pain in the right inguinal region for three months followed by gradual swelling of right inguinoscrotal area associated with fever and increased pain for about two weeks. Physical examination of the affected part revealed a tender reddish swelling involving the right inguinoscrotal region with a doughy feeling. The patient was diagnosed provisionally as a

-
1. Dr. Md. Abul Quasem, M.Phil.
Professor of Pathology,
 2. Dr. Md. Abdus Salam, M. Phil. M.Sc.
Assistant Professor of Microbiology,
- 1,2: Rajshahi Medical College,
Rajshahi - Bangladesh.

Correspondence

Dr. Md. Abdus Salam,
E-mail: badrul@hotmail.com

- * Received for Publication: April 27, 2007
* Accepted: August 12, 2007

case of right sided inguinoscrotal hernia and was prepared for elective surgery.

Complete blood count showed neutrophilic leukocytosis with moderately high ESR. Urine routine & microscopical examination revealed trace albumin with occasional pus cells/HPF. Microscopical examination of stool was negative for helminthic ova. His random blood glucose level was 5.0mmol/L and X-ray chest showed features of chronic bronchitis. Ultrasonography of the swollen area revealed pathological right testies with bilateral hydrocele and right inguinal lymphadenopathy, which could be due to inflammatory or neoplastic process. Human chorionic gonadotrophin (Beta hcg) level was measured by ELISA and was found within normal limit. Fine needle aspirated material of the swollen area revealed frank thick pus. Microscopic examination of aspirated materials showed frequent ova of *Enterobius vermicularis* along with fibrinopurulent exudates in Papanicolaou-stained smears (Fig-1). Unfortunately, we did not follow up the case after the diagnosis.

DISCUSSION

Despite its high prevalence, enterobiasis is not usually considered to be a serious disease, although ectopic infestations, seen most commonly in females can cause significant morbidity. It is likely that ectopic enterobiasis associated with abscess in the right inguinoscrotal region in our patient could be due to migra-

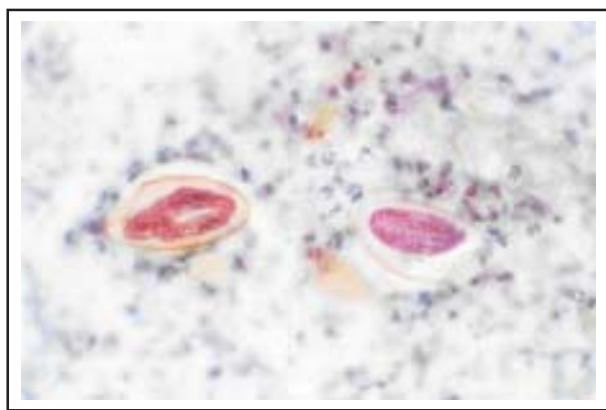


Figure-1: Microscopic view showing ova of *Enterobius vermicularis* in the fibrinopurulent exudates aspirated from right inguinoscrotal abscess.

tion of the larvae through lymphatic route. Finding of right inguinal lymphadenopathy detected in ultrasonography can be correlated with lymphatic spread. Chandrasoma and Mendis reported that pinworms are able to penetrate actively through the intact bowel wall.⁴ Considering the possibility of such rare route of transmission, it can also be speculated that our case of ectopic presentation could be possible because of penetration of bowel wall associated with the swelling. A similar case was also reported by another investigator, who described an extra-intestinal pinworm abscess associated with an inguinal hernia in an adult.⁵

The 2-4 weeks life cycle of *E. vermicularis* occurs normally in the lumen of the human gastrointestinal tract. Transmission is faecal-oral as a result of self contamination of hands or ingestion of contaminated foods. The outer proteinaceous layer of the egg dissolves on exposure to digestive secretions, releasing larvae into the duodenum; the adult worms inhabit the distal small and proximal large bowel, where mating occurs. At night, the gravid female migrates to the anal verge to deposit as many as 10,000 eggs. The eggs embryonate within hours and remain viable for 20 days. The eggs may then infect the same or new susceptible host through anal-oral transmission, or via *retroinfection*. In the latter instance, the larvae migrate from the anal verge back into the gastrointestinal tract where they mature, mate and continue their life cycle.¹

In the past many cases of extra-intestinal localization of *E. vermicularis* have been reported. Direct inoculation of larvae may result in infection of distant sites such as the external auditory meatus or conjunctiva, but occasionally the parasites can reach internal ectopic sites. Ascent of larvae from the perineum into the female genital tract is the most common occurrence. Invasion of peritoneal cavity via the female reproductive system may result in the formation of abscess or granuloma around eggs or worms.^{6,7} Adult worms of *E. vermicularis* or ova have been seen in vaginal smears,⁸ in urine⁹ and even in macerated human embryo.¹⁰ Cases of dysuria, nocturnal

enuresis, epididymitis due to *E. vermicularis* have been reported.^{11,12} Granuloma formation around pinworm egg in the liver was reported in 1973 by Little et al.¹³ Maraghi reported a case of pinworm in the cerebrospinal fluid.¹⁴ Invasion of vermiform appendix may be expected to be the common occurrence, but relationship between this invasion and appendicitis remain unresolved.¹⁵⁻¹⁷

Fine needle aspiration cytology carried out from the abscess of our case revealed fibrinopurulent exudates with frequent eggs consistent typically of *E. vermicularis*. Classically, the ova are 25 x 50µm in size, are covered in a thick shell and have an asymmetric configuration with one flattened side. The eggs are much more resistant to degradation than the adult worms.^{2,18} As a consequence, the worms are difficult to demonstrate in pathological specimens and granuloma may contain only eggs. The possible reason for survival of eggs only in the tissue is that the worms are more susceptible than the eggs to be destroyed by the host immune system.

REFERENCES

1. Russell IJ. The pinworm, *Enterobius vermicularis*. *Prim Care* 1991;18:13-24.
2. Sun T, Schwartz NS, Sewell C. *Enterobius* egg granuloma of the vulva and perineum: review of the literature. *Am J Trop Med Hyg* 1991;45:249-53.
3. McDonald GS, Hourthane DO. Ectopic *Enterobius vermicularis*. *Gut* 1972;13:621-6.
4. Chandrasoma PT, Mendis KN. *Enterobius vermicularis* in ectopic site. *Am J Trop Med Hyg* 1977;26:644-9.
5. Tornieporth NG, Disko R, Brandis A, Bartuzki D. Ectopic enterobiasis: a case report and review. *J Infect* 1992;24(1):87-90.
6. Mattia AR. Perianal mass and recurrent cellulitis due to *Enterobius vermicularis*. *Am J Trop Med Hyg* 1992;47:811-5.
7. Vafai M, Mohit P. Granuloma of the anal canal due to *Enterobius vermicularis*, Report of a case. *Dis Colon Rectum* 1983;26:349-50.
8. Demirezen S, Karayazgan Y. Eggs of *Enterobius vermicularis* in vaginal smears. *Microbiol. Bull* 1986;20:290-4.
9. Adungo NI, Ondigo SO, Pamba HO. Observation of *Enterobius vermicularis* ova in urine, 3 cases reports. *East Afr Med J* 1989;63:676-8.
10. Mendoza B, Jorda M, Rafel E, Simon A, Andrada E. Invasion of human embryo by *Enterobius vermicularis*. *Arch Pathol Lab Med* 1987;111:761-2.
11. Gokalp A, Gultkin EY, Kirisci MF, Ozdamar S. Relation between *Enterobius vermicularis* infestation and dysuria, nocturia, enuresis, Nocturia and bacteriuria in primary school girl. *Indian Pediatr* 1991;18:948-50.
12. Kollias G, Kyriakopoulos M, Tiniakos G. Epididymitis from *Enterobius vermicularis*: Case Report. *J Urol* 1992;147:1114-6.
13. Little MD, Cuello CJ, D'Alessandro A. Granuloma of the liver due to *Enterobius vermicularis*: Report of a case. *Am J Trop Med Hyg* 1973;22:567-9.
14. Maraghi S. *Enterobius vermicularis* in cerebrospinal fluid. *Iranian Biomed J* 1997;1:49-51.
15. Wiebe K. Appendicitis and *Enterobius vermicularis*. *Scand J Gastroenterol.* 1991;26:336-8.
16. Baharkaran CS, Devi ES, Rao KV. *Enterobius vermicularis* of vermiform appendix. *J India Med Assoc* 1975;64:334-46.
17. Sarmast MH, Maraghi S, Elahi A, Mostofi NE. Appendicitis and *Enterobius vermicularis*. *Pak J Med Sci* 2005;21(2):202-5.
18. Pearson RD, Irons RP Sr, Irons RP Jr. Chronic pelvic peritonitis due to the pinworm *Enterobius vermicularis*. *JAMA* 1981;245:1340-1.