CASE REPORT

ECTOPIC *ENTEROBIUS VERMICULARIS* INFESTATION; AN EXTREMELY RARE CAUSE OF MESENTERIC LYMPHADENOPATHY MIMICKING TUBERCULOUS LYMPHADENITIS

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Enterobius vermicularis (EV) is a pinworm which commonly resides in the lumen of the intestinal tract and lays eggs on the perianal skin. However, rarely the worm can infest various other sites in the body and cases with infestation of such ectopic sites have been reported in literature. Rare cases of mesenteric lymph node involvement have also been reported. We report a case in a young male who presented with signs and symptoms of acute appendicitis. During surgery, enlarged mesenteric lymph nodes were identified. Histological examination revealed adult worm in the appendiceal lumen. Histological examination of mesenteric lymph node revealed degenerated worm surrounded by caseating chronic granulomatous inflammation. We conclude that EV infestation should be considered in the differential diagnosis of enlarged mesenteric lymph node with chronic granulomatous inflammation, especially in young patients and when accompanying bowel tissue also reveal the helminth.

Keywords: *Enterobius vermicularis*; Mesenteric Lymphadenopathy; Acute Appendicitis; Ectopic

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INTRODUCTION

Enterobiasis is the most common helminthic infection in humans worldwide.[1] It is more commonly seen in young children in whom it presents with pruritis in perianal region. It can give rise to acute appendicitis and even intestinal perforation presenting as an acute abdomen.[2] The worms typically reside in the caecum, appendix and distal ileum, where they adhere to the mucosa. Although infrequent, enterobiasis in different ectopic sites has been reported in the literature.[3] Female genital tract is the most common ectopic site.[4-6] Other reported sites include omentum, peritoneum, liver, kidneys, lungs, spleen, conjunctiva, etc.[7–9] Involvement of the mesenteric lymph nodes by enterobiasis is an extremely rare phenomenon and to the best of our knowledge has been reported only twice before in literature.[10,11] We herein describe a very rare case of ectopic enterobiasis involving mesenteric lymph nodes.

CASE PRESENTATION

A 20-year-old male patient presented to the surgical clinic with history of abdominal pain for 1 week. On examination, there was right iliac fossa tenderness. A clinical diagnosis of acute appendicitis was made and patient underwent appendectomy the very next day. During appendectomy, a number of mesenteric lymph nodes were found to be enlarged. These enlarged lymph nodes were removed along with appendix.

The specimen was received in the Section of Histopathology, Department of Pathology and Laboratory Medicine, Aga Khan University Hospital (AKUH), Karachi. It consisted of an appendix measuring 8×1 cm and two separate lymph nodes each measuring 1.4×0.8 cm. Appendiceal lumen was patent and filled with fecal material. Cut surface of one of the lymph nodes showed a yellow focus of necrosis.

Histopathological examination of the appendix showed cross section of gravid female worm in the lumen. Lateral spikes were also evident (Figure-1). Appendiceal mucosa was partly ulcerated. Submosa showed reactive lymphoid follicles with prominent germinal centres. Mild chronic inflammation was seen in the appendiceal wall comprising of lymphocytes and eosinophils. Few neutrophils were also observed and the histological diagnosis of acute appendicitis was confirmed. Histological examination of lymph nodes showed necrotizing chronic granulomatous inflammation around degenerated adult worm in one of the nodes. The disintegrated chitinous outer wall of the nematode was seen against a necrotic background. Focal hyalinization was also seen around palisading rim of epithelioid histiocytes (Figure-2 and 3).

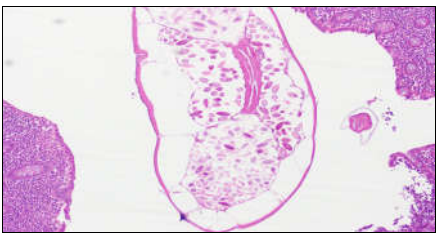

Figure-1: Gravid worm (*Enterobius vermicularis*) in the appendiceal lumen, containing multiple eggs. A lateral spine is also visible. (H&E; 100x)

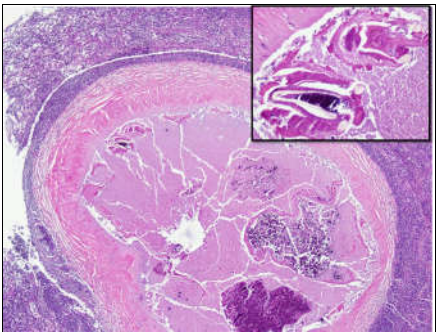

Figure-2: Low power view of lymph node exhibiting caseating chronic granulomatous inflammation around degenerated worms. (H&E; 20x).

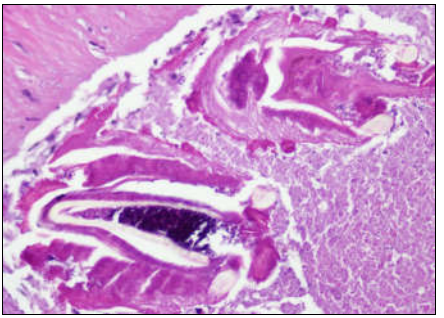

Figure-3: High power view exhibiting degenerated body parts of worm against necrotic background. Chitinous outer layer is also appreciable. (H&E; 400x)

DISCUSSION

Enterobius vermicularis (EV) usually resides within the intestinal lumen. The most common symptoms are perianal and perineal pruritis. However, it can cause acute appendicitis and ileocolitis and thus also present with abdominal pain, diarrhoea, nausea, vomiting, etc. EV can cause severe morbidity and can even prove fatal when it involves extra-intestinal sites. At ectopic sites, it can then present with enterocutaneous fistula (following bowel wall perforation), peritonitis, urinary tract infection, salpingo-oophoritis, extraintestinal abscess formation, etc as well as various other symptoms depending on the site of involvement.[2,5,7] The female worm can gain access to the entire female genital tract and the peritoneum as it travels from anus to vagina.[4] Peritoneal and omental involvement can also be seen secondary to intestinal perforation caused by the worm.[3] Two theories have been proposed to explain the involvement of ectopic sites. According to one theory, the worm enters the ectopic site directly by penetrating the tissue. The second theory postulates that the involvement of ectopic site occurs by hematogenous and/or lymphatic spread of the worms.[8] The second theory can explain the involvement of internal organs which are not in direct contact with the intestinal wall. This theory is further supported by the presence of the worms in the liver and pulmonary vessels as well as by involvement of mesenteric lymphatics and lymph nodes.[10]

Lymphatics were not involved in the case of EV infestation of mesenteric lymph nodes reported by Ismail *et al*.[11] Similarly, involvement of lymphatics was not seen in our case despite of involvement of mesenteric lymph nodes. However, we still consider hematogenous/lymphatic spread to be a major transmission route since the bowel wall was neither significantly inflamed nor perforated. On histological examination, the lateral spines seen in cross sections of the adult worms are diagnostic for EV. The ova are 50×20 microns in size, covered with a thick shell and have an asymmetric configuration with one flattened side.

The eggs are considerably more resistant to degradation than the adult worms which are more susceptible to destruction by the immune system.[4] When present within the intestinal lumen, EV usually does not cause significant inflammation of the bowel wall. When the worms penetrate the bowel wall or other tissues, an acute and chronic inflammatory response is mounted with necrotizing and non-necrotizing granulomatous reaction around eggs or degenerated worms.[7,11] The worms may form a mass and mimic malignancy.[6,8,9]

CONCLUSION

Ectopic enterobiasis in extremely rare cases can be a cause of mesenteric lymphadenopathy. Histological evaluation of these lymph nodes reveals chronic granulomatous inflammation. EV should be included in the differential diagnosis of cases with mesenteric lymphadenopathy especially in this region of the world where EV infestation is common. Thus, careful histologic examination of mesenteric lymph nodes EV body parts is suggested, especially if accompanying bowel tissue/lumen also demonstrates helminthic infestation.

Compliance with ethical standards:

- All authors disclose that there are no conflicts of interests
- This study has not been funded
- Informed consent has been obtained from the patient

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