



A RARE CASE REPORT OF ASCARIS LUMBRICOIDES AND TRICHURIS TRICHIURA DOUBLE PARASITIC INFECTION IN 10 YEARS OLD TUBERCULOUS PATIENT FROM MUMBAI.

Medical Microbiology

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ABSTRACT

Nematodes belong to phylum Nematelminths. They are the most abundant, widespread, free-living organisms. We have isolated 2 nematodes in a single Tuberculosis (TB) infected patient which are *Ascaris lumbricoides* & *Trichuris trichiura* respectively. They both are soil transmitted helminth (STH) infection causing. We are reporting a case of a 10-year-old female child complaining of on and off fever for 2 months, 1 episode of vomiting with worms & undigested food particles. Gross Stool examination showed formed stool with intermittently black blood tinged. She is a known case of pulmonary tuberculosis on drug sensitive TB regimen.

KEYWORDS

Tuberculosis, *Trichuris trichiura* and *Ascaris lumbricoides*.

INTRODUCTION

Nematodes belong to phylum Nematelminths. They are the most abundant, widespread, free-living organism. They are elongated, cylindrical, bilaterally symmetrical, unsegmented worms with tapering ends. The body is covered with a tough cuticle which may be smooth, striated, bossed or spiny. We isolated two nematodes in a single tuberculous patient *Ascaris lumbricoides* & *Trichuris trichiura* both causing soil transmitted helminth (STH) infections. STH refer to intestinal worms infecting humans transmitted through contaminated soil. STH infections have worldwide distribution, being especially prevalent in tropics, such as India, China, & Southeast Asia affecting approximately 1.5 billion people (i.e. 24% of world's population) globally. Occurs in all age groups but highest prevalence in malnourished preschool children with environmental and socioeconomic risk factors. Helminthic and TB infections have largely shown overlapping in poor socioeconomic population and both shows higher prevalence in presence of each other.^{2,3}

Case History

We are reporting a case of a 10-year-old female child complaining of on and off fever for 2 months, 1 episode of vomiting with worms & undigested food particles. She is a known case of pulmonary tuberculosis on Drug sensitive TB regimen with effect from 05/02/2024. No history of Immunization till now. Developmental history showed all milestones normal. Her height 112 Cm, weight 12 kgs and Body Mass Index (BMI) is 9.57 Kg/ m². On physical examination she had pallor and appeared poorly nourished. Respiratory examination revealed decreased bilateral air entry on left upper zone and right middle zone with occasional wheeze but slight respiratory effort. Cardiovascular examination revealed normal S1S2 with gallop, and central nervous system examination revealed no neurological deficits. Abdominal examination revealed abdominal tenderness in right hypochondrium, liver was 2cm palpable & tender with no splenomegaly. Auscultation revealed minimal peristalsis. At the time of admission, laboratory investigations were done. The red blood cell count was $2.2 \times 10^3/\mu\text{L}$, and haemoglobin level was 4.3 g/dL. The total leukocyte count was raised ($11.5 \times 10^3/\mu\text{L}$), and eosinophils were increased (12%). She received one-unit whole packed RBC. Abdominal ultrasonography & Contrast Enhanced Computerised Tomography (CECT) demonstrated symmetrical paired lines like "railway tracks" in the small intestinal lumen showing worm infestation. Symmetrical wall thickening of large bowel sigmoid and

rectum secondary to underlying infective aetiology was seen. Liver appeared hypo attenuated suggestive of fatty infiltration. Lungs showed ground glass opacities in left upper lobe with areas of consolidation & air bronchogram in apico-posterior segment of left upper lobe suggestive of active infection. The girl came from a very low socioeconomic status. Her father was a construction worker. They gave history of directly eating raw vegetables. Her elder sister was also diagnosed with pulmonary tuberculosis and is on treatment. The girl had a history of pica. Patient's mother gave a history of expulsion of one big worm from her mouth shortly before coming to the hospital. Moreover, there were repeated attacks of vague abdominal colicky pain with diarrhoea.

MATERIAL AND METHOD

The study was done in the department of Microbiology in a Tertiary care hospital, Mumbai

Sample:

- Vomitus specimen having a double worm in sterile container with normal saline
- Formed Stool was received in the department of microbiology for routine examination.

Macroscopic finding:

- **Adult worms-** Approx. 10-15 cm long with curved posterior end and blunt pointed tail
- **Stool specimen-** Yellow, formed, intermittently black blood tinged with no segments seen.

Microscopic finding:

- Wet mounts were prepared using normal saline and Lugol's iodine and examined under 10x and 40x objective lens under microscope.
- It showed the presence of bile-stained corticated (thick shell) fertilized oval eggs with clear crescentic area at each pole and barrel shaped oval eggs with protruding mucus plug at each end.
- Saturated salt flotation technique was done by mixing 1g of formed stool with 4-5 ml of saturated salt solution. Thorough mixing was done. More salt was added till the upper brim of container was touched and sterile glass slide was placed over the top and kept for 30 mins.
- The glass slide was turned over and scanned for *Ascaris* & *Trichuris* ova using 10x & 40x objective lenses.

- Based on the above-mentioned characteristics, the specimen was reported to contain the ova's of *Ascaris lumbricoides* & *Trichuris trichiura*.



Gross Appearance Of Adult Ascaris From Vomitus



Wet Mount Of Stool Sample Showed Fertilized Egg Of Ascaris Lumbricoides 40x



Wet Mount Of Stool Sample Showed Fertilized Egg Of Trichuris Trichiura 40x

DISCUSSION

Ascariasis & Trichuriasis are world-widely distributed parasitic infections, caused by the gastrointestinal dwelling nematodes *Trichuris trichiura* and *Ascaris lumbricoides* respectively. They both are responsible for causing soil transmitted helminthic (STH) infections. In both cases, infection is initiated by ingestion of infective eggs. However, the similarity ends here: *Trichuris* spp. larvae goes through a succession of moults within the intestinal epithelial cells, with adult worms partially staying intracellularly in the large intestine. By contrast, *Ascaris* spp. larvae leave the gut, penetrates mucosa and migrate round the body through liver and lungs before arriving in the intestine to become a luminal dwelling small intestinal adult worm. The diagnosis, screening and prevention strategies for *Trichuris* spp.

and *Ascaris* spp. share many commonalities, both are managed by oral albendazole or mebendazole.⁴ Patients with TB have been shown to harbour co-infection with one or more intestinal helminth than immunocompetent patients.⁵

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