

A Case Series on Intestinal Tapeworms Infections from Eastern Part of India

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Abstract

Introduction: Intestinal worm infestations are widely prevalent in tropical and subtropical countries and occur where there is poverty and poor sanitation. Gastrointestinal helminths cause significant disease in both humans, soil transmitted helminths, blood and food borne liver flukes affect more than 1.5 billion people globally, most of whom live on disadvantaged and neglected communities.

Case Series: We report here 3 cases of abnormal passage of long segments in stool during various times of day for a prolonged period with various comorbidities. The worms were identified in our parasitology department and then required treatment given and patients were cured.

Conclusion: *T. saginata* infestation has got a global distribution and is endemic in this part of world and a study conducted by even et al in rural areas of Kashmir, shows prevalence of the helminths reported to be 7.69% possibly due to consumption of undercooked beef. Beef contains the larval forms of this helminth known as cysticercosis and after activation in the upper intestine the cysticercosis attaches to the wall of the small intestine by means of solices and becomes a mature tapeworm and this takes 10-12 weeks. Treatment with praziquantel is beneficial.

Keywords: *T. Saginata*, Tapeworm

1. Introduction

Intestinal worm infestations are widely prevalent in tropical and subtropical countries and occur where there is poverty and poor sanitation [1]. Gastrointestinal helminth causes significant disease in both humans, soil transmitted helminths, blood and food borne liver flukes affect more than 1.5 billion people globally, most of whom live on disadvantaged and neglected communities [2]. Helminths contribute to a tangible reduction in quality of life, equating to more than 5 million disability adjusted life years (DALY) for soil transmitted helminthic infected persons [3]. Intestinal worms broadly contain flat worm (tapeworm and flukes) and round worms [4]. The mode of transmission includes ingestion of undercooked animal products, consuming infected water, absorption through skin and feco-oral routes [5]. *Tenia* species belong to the family taeniae and order cyclophyllid and they are called cestodes or tape-worms which are hermaphrodites

and the worms are segmented and dorsoventrally compressed without having a body cavity [6]. Two species from the genus taenia are common parasites of humans- the pork tapeworm or *T. solium* and the beef tapeworm or *T. saginata* and infection is acquired by taking improperly cooked beef or pork [7]. Most cases of *tenias* are asymptomatic and usually complain of passage of proglottids with stools but however may present with pruritis ani (77%), nausea (46%), abdominal pain (43%), dizziness (42%) and other mild gastrointestinal symptoms [8].

2. Case series:**Case 1**

A 52-year male patient undergoing chemotherapy for acute myeloid leukemia (AML) and known diabetic and hypertensive came with chief complaint of passage of whitish worm like structures from stool for 5-10 days associated with intermittent

perianal itching and pain abdomen, not associated with fever. On examination patient was stable with no systemic findings and laboratory examination of the passed worm showed a worm of 2 meters on macroscopic examination and uterine segments were branched on microscopy [Figure 1, 2 and 3] and stool examination was negative; hence taking into the account the examination findings were suggestive of *T. saginata*. History was taken about beef consumption and patient gave history of consumption in the past 30 years. Patient was initiated on praziquantel and was relieved of symptoms. On follow-up after 3,6,12 months patient was asymptomatic.



Figure 1: Microscopy of Uterine Segments Showing branching



Figure 2: Passed Worm



Figure 3: Passed Worm in Bottle

Case 2

A 32-year male patient with no comorbidities came with chief complaint of passage of large mobile whitish worm like structures from stool for 10 years associated with intermittent perianal itching and pain abdomen, significant weight loss, psychosocial disturbance, not associated with fever. Patient had history of consumption of beef for 10 years; On examination he was stable with no systemic findings. Laboratory examination of the passed worm was done which was 4 meters on macroscopic examination [Figure 4 and 5] and uterine segments were branched on microscopy [Figure 6] and stool examination was negative; hence taking into the account the examination findings were suggestive of *T. saginata*. Patient was initiated on praziquantel and was relieved of symptoms. On follow-up after 3,6,12 months patient was asymptomatic.

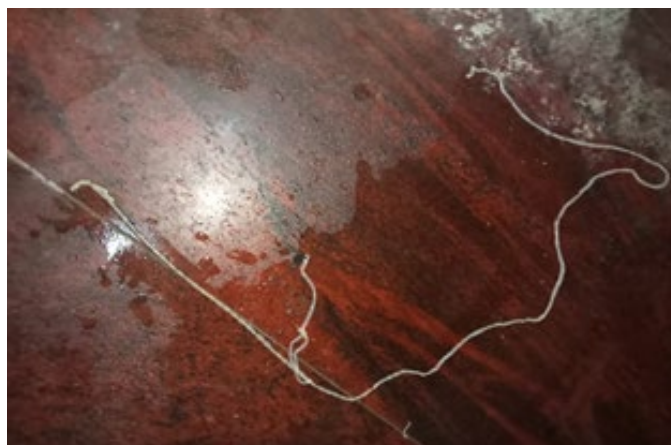


Figure 4: Freshly Passed Worm



Figure 5: Tapeworm in Bottle



Figure 6: Microscopy of Uterine Segments Showing branching

A 22-year female patient on antipsychotic drugs came with chief complaints of passage of large mobile whitish worm like structures from stool for 10 days associated with pain abdomen, significant weight loss, intermittent loose stools, not associated with fever. Patient denied any history of consumption beef. On examination patient was stable with no systemic findings and laboratory examination of the passed worm was done which was 4 meters [Figure 7] on macroscopic examination and uterine segments were unbranched on microscopy [Figure 8 and 9] and stool examination was negative; hence taking into the account the examination findings were suggestive of *T. saginata*. Patient was initiated on praziquantel and was relieved of symptoms. On follow-up after 3,6,12 months patient was asymptomatic.



Figure 7: Freshly passed worm in stool



Figure 8: Microscopy of Tapeworms



Figure 9: Microscopy Showing branching

3. Discussion

T. saginata infestation has got a global distribution and is endemic in this part of world and a study conducted by Even et al in rural areas of Kashmir, shows prevalence of the helminths reported to be 7.69% possibly due to consumption of undercooked beef [9]. Beef contains the larval forms of this helminth known as cysticercosis and after activation in the upper intestine the cysticercosis attaches to the wall of the small intestine by means of solices and becomes a mature tapeworm and this takes 10-12 weeks [10]. *T. saginata* tapeworms are usually 4-12 meter in length, but can grow to be 25 meters, the adult tapeworms produce 1000-2000 proglottids and may produce up to 100000 eggs per worm. *T. solium* are smaller, 2-8 meter in length, produce an average of 1000 proglottid per worm and may produce 50000 eggs/worm and *T. asiatica* worms are 4-8 meter and produce 700 proglottids/worm and may produce 80000 eggs/proglottid [11]. *T. saginata* and *T. solium* eggs can be identified but not differentiated by microscopic fecal examinations and the species may be distinguished by a passed proglottid based on the number of uterine branches. Stool examination may be less effective in the case of *T. saginata* since gravid proglottids often emerge spontaneously through the anus, depositing eggs on the perianal region [12]. Copra antigen testing has been shown to achieve a sensitivity of 98% and specificity of 38% with direct microscopy but species identification is not possible [13]. For species specific diagnosis polymerase chain reaction of *T. solium* achieves 100% specificity and 97-100% sensitivity and serum testing include an immunoblot assay for antibody detection for *T. solium* [14]. Adult taenia tapeworms are responsive to common antihelminthic drugs like niclosamide, praziquantel, dibenzimidazole, albendazole. Praziquantel and albendazole have been the treatment of choice; however, praziquantel is the most cost-effective treatment [15]. Side effects of praziquantel are minimal and do not require treatment which includes malaise, headache, dizziness, abdominal discomfort, nausea, fever and rarely urticaria [16].

4. Conclusion

Taenia is an intestinal infection caused by taenia species. Most infections remain undiagnosed owing to mild symptoms including abdominal discomfort and perianal itching caused by motile worms. In some the infection can stay asymptomatic, routine stool examination may be negative for parasitic eggs due to im-

mature parasite forms. However, the parasite may cause complications like intestinal obstruction, perforation and long-term persistence can predispose people to auto-infection, malnutrition, parasite dissemination. Hence, early diagnosis and parasite elimination may contribute to lowering long-term complications impairing the quality of life.

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