

Case Report



A Case Report of *Taenia saginata* Infection in a 23-Year-Old Man Living in Parsabad Moghan Area in Ardabil Province, Iran

Yagoob Garedaghi^{1*}

¹Department of Parasitology, Faculty of Veterinary Medicine, Tabriz Medical Sciences, Islamic Azad University, Tabriz, Iran

Abstract

Introduction: *Taenia saginata* is one of the species of cestodes infecting humans. Humans become infected with this parasite by eating raw or undercooked beef. Infection is more prevalent in areas where cattle breeding is common and beef is eaten raw or undercooked. There are no exact statistics on the prevalence of this infection in Iran. However, based on fecal testing, it seems that its prevalence in the north of the country is high. The aim of this study was to report a case of *T. Saginata* infection in a 23-year-old man living in Parsabad Moghan area in Ardabil province, Iran.

Case Report: A fecal sample was obtained from a patient referred to a medical center with relatively severe abdominal pain, weakness, paleness, and nervousness. Moving white proglottids of *T. saginata* were seen upon opening the container containing the patient's stool sample. The slide was prepared by the wet mount method, and *T. saginata* eggs were seen in the patient's fecal sample.

Conclusion: Considering the lack of history of pork consumption in the patient and the number of uterine branches in the isolated proglottids, the diagnosis of *T. saginata* was confirmed. After diagnosis, the patient was referred for treatment. Although the prevalence of *T. saginata* in our country's medical centers is usually low, the report of this case of *T. saginata* in Ardabil province shows that in some parts of the country there is still infection with *Taenia saginata*. For this reason, it seems that with more accuracy in reporting and diagnosing this infection, it is possible to determine the prevalence of infection with this parasite in any region of the country. Therefore, by informing people about the risks of consuming raw or undercooked beef, this infection can be eradicated from the country.

Keywords: *Taenia saginata*, Parsabad Moghan, Iran

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Introduction

Taenia saginata is a species of cestodes that belongs to the order Cyclophyllidea and the *Taeniidae* family (1). *Taenia saginata* is the nicknamed cow pumpkin worm. The reason for this naming is that humans are infected by eating contaminated raw or undercooked beef (2). Its final host is only humans. *Hymenolepis nana* is the most common cestode in humans. This worm can live in the human small intestine for up to 30 years or more. In fact, it can be said that the most common member of the family is *Taeniidae*, which causes disease in humans (3, 4). Infection with *T. saginata* is a worldwide health problem. It is epidemic in countries like India, Italy, and France because the meat is eaten raw or undercooked in these areas. The infection is transmitted by the *Cysticercus bovis*, the larval stage, found in the muscles of the affected cattle. Additionally, it will be killed when the meat is left at -18°C for 15 days or cooked for a few minutes at 75°C (5). In Iran, Mazandaran (17%) and Gilan (14%) had the

highest rate of infection with this parasite. In other words, the prevalence of *T. saginata* has been reported to be lower in other areas. These worms are white or milky in color. Their length is 4-12 m, which sometimes reaches 25 m. Adult worms contain 1000-2000 proglottids. They have a spherical scolex with 4 suckers (6). Most cases of *T. saginata* infection are asymptomatic. Achlorhydria (decreased stomach acid) and itching of the anus are symptoms seen in some patients. The anal itching is caused due to the spontaneous movement of proglottids and their exit from the anus. Other symptoms of *T. saginata* infection include abdominal pain, nausea, vomiting, and weight loss. Some patients develop appendicitis due to the accidental entry of proglottids into the appendix. Other symptoms include cholangitis (inflammation of the bile ducts), intestinal obstruction, and mild eosinophilia (7). A stool test is used for diagnosis which is based on the presence of eggs or gravid proglottids of *T. saginata* in the stool. In the Scotch test, scotch tape (Graham) is stuck around the human



*Corresponding Author: Yagoob Garedaghi, Email: Yagoob.garedaghi@gmail.com, Y_garedaghi@iaut.ac.ir

anus, and it is then studied under a microscope (8). Note that *T. saginata* must be distinguished from *Taenia solium*. *T. saginata* has 15-30 uterine branches while *T. solium* has 7-13 uterine branches.

Case Presentation

The patient was a 23-year-old man living in Parsabad Moghan area in Ardabil province, Iran. He referred to an emergency medical center with various symptoms such as severe abdominal pain, feeling of an object moving inside the stomach, and anal itching. The man had a history of intermittent abdominal pain over the past 4 years, nausea, vomiting, and excretion of *Taenia* proglottids in the stool, as well as a history of eating beef. In the past year, he had referred to different doctors and received various medications due to severe stomach and abdominal pain.

This patient had the following paraclinical test results on the day of admission: white blood cell (WBC) = 7200 cells/mm³ (neutrophil = 47.1%, lymphocyte = 42.5%, monocyte = 1.9%, and eosinophil = 1.9%), red blood cell (RBC) = 5 800 000 cells/mm³, and hemoglobin (HB) = 14.9 gr/dL. The results of other biochemical tests were normal except for the level of alanine aminotransferase (ALT) which was 58 IU/L (normal range: up to 40 IU/L).

Additionally, in ultrasound examinations of liver tissue, bile ducts, and urinary system of this patient, a series of mild inflammations were seen in the bile duct wall. In this study, we report a case infected with the adult tapeworm *T. saginata* treated with an antiparasitic drug. The diagnosis of *T. saginata* in this patient was performed using standard parasitological tests. Detection and confirmation of tapeworm eggs were performed by the experiment under a light microscope (Figure 1). Eight chains of the gravid proglottids of *T. saginata* were found in the fecal sample of this patient (Figure 2).

Gravid proglottides of *T. saginata* were placed between 2 laboratory glass slides and pressed. By counting the number of uterine branches, the diagnosis of *T. saginata* was confirmed given that the number of uterine branches was more than 25. Finally, the patient was treated with the antiparasitic drug niclosamide (2 g). At the next visit, 2 months after drug treatment, the symptoms disappeared. Additionally, the patient's appetite improved and no eggs or proglottids of *T. saginata* were seen in the patient's stool sample.

Conclusion

Taeniasis is considered one of the most neglected parasitic diseases by the World Health Organization (WHO). Taeniasis can also be mentioned as one of the general health problems and intestinal infections in developing countries (9, 10). Interventions are recommended by the WHO for the control of taeniasis, including public health education, health improvement, improvement of meat inspection in slaughterhouses, provision of appropriate diagnosis and treatment, and follow-up of the

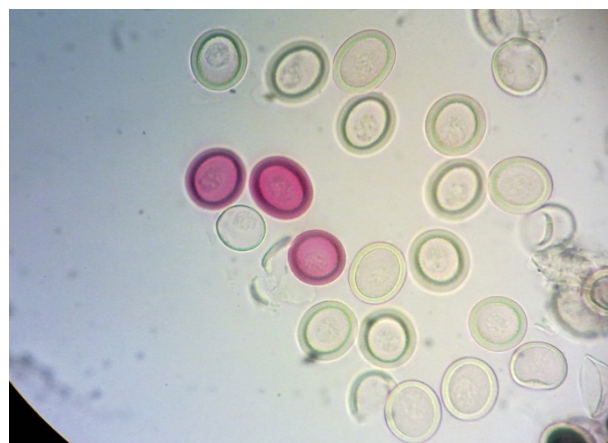


Figure 1. *Taenia saginata* Eggs Excreted in the Feces of the Patient.



Figure 2. Gravid Proglottids of *Taenia saginata* Excreted in the Feces of the Patient.

cases of taeniasis.

Ethical Approval

Written informed consent was obtained from the patient for publication of this report.

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