Inguinal hernia with incidental parasitic infection: A case report and literature review

Cheng-Che Wu*, Wen-Shan Liao, Min-Shin Kao, Shih-Chieh Huang, Biing-Yir Shen

Division of Urology, Department of Surgery, Landseed Hospital, Taoyuan, Taiwan

**Abstract**

Inguinal hernia repair is a common and straightforward surgical procedure. Case reports of postsurgical incidental parasitic infections are very rare. A 72-year-old male presented at our hospital with a swollen mass in the right groin area and underwent right inguinal hernia repair. Unexpectedly, parasitic ova were discovered in the hernial sac. This report describes this rare case, in addition to a review of the literature.

1. Introduction

Inguinal hernias are common, but it is very rare to have infectious parasitic ova present together with a hernia. Based on the report of this case and the subsequent review of the literature, parasitic infection should be considered when diagnosing patients with an inguinal hernia who have traveled to endemic regions.

2. Case report

A 72-year-old Asian male presented with a right inguinal swollen mass that had been presented for several years. A diagnosis of a possible right inguinal hernia was made after physical examination, and the patient was hospitalized for conventional inguinal hernia repair. During surgery, a large inguinal hernial sac was found with intestinal and omental adhesions (Fig. 1). The adhesions to the intestine and omentum were carefully separated and relocated back into the abdomen. High ligation and resectioning of the hernial sac were performed, and the patient was discharged from the hospital after 2 days with no complications.

The postsurgical pathology report indicated the presence of parasitic ova in the hernial sac. After consulting the Department of Parasitology at Taipei Medical University (Taipei, Taiwan), Schistosoma japonicum was identified based on the shape and size of the ova present in the specimen (Fig. 2). When the patient returned to the hospital for a follow-up examination, regular parasitic exams, including determination of fecal parasites and blood eosinophil and immunoglobulin E (IgE) levels, were performed. In addition to biochemical tests, abdominal ultrasound (US) and computed tomography (CT) imaging were completed at the Department of Gastroenterology for further confirmation. All of the results obtained in these follow-up examinations were normal without significant abnormal foci. However, the patient was still treated with antischistosomals following regular procedures as a preventive measure. The patient’s course of treatment proceeded smoothly during follow-up.

3. Discussion

Inguinal hernias are common, and the postsurgical discovery of anomalies in the hernial sac, such as female genitalia, have been previously reported. The presence of a parasitic infection in the hernial sac, however, is very rare. It is unclear if parasitic infection is a predisposing factor to the development of adult inguinal hernias because there are no studies in the literature that report a higher prevalence of inguinal hernias in areas with high rates of infections with endemic parasites or S japonicum. Interestingly, from a pathophysiological perspective, a parasitic infection could induce immunopathological, allergic, granulomatous, or muscular pathological reactions in the host. These reactions might further induce the degeneration of collagen in the infected tissues, resulting in a higher risk of inguinal hernia.
Because the pathology report indicated a potential parasitic infection in the hernial sac, the patient’s dietary and travel histories were required for further analysis and follow-up. Other related departments, such as parasitology, should be consulted for further evaluation if necessary. Also, additional fecal, blood, and imaging examinations must be performed to confirm parasitic infection. In this case, for example, the species of parasite was identified with the assistance of the Department of Parasitology at Taipei Medical University. In general, the diagnosis of S. japonicum is based on the histological identification of ova in the tissue or feces and the patient’s lifestyle, dietary, and travel histories. In this case, the patient was a retired senior citizen who relocated to Taiwan about 60 years prior from China when he was a teenager. He grew up in Jiangsu Province, China, which is close to the downstream area of the Yangtze River and region that is known to be endemic to schistosomal parasites. Based on the data collected, it is highly possible that this patient became infected with the parasite after contact with infected water at an early age.

According to the life cycle of S. japonicum, during the free-swimming ciliated stage, larvae (miracidium) seek a proper intermediate snail vector. After 1–2 months, the miracidium develops into a sporocyst that, after further development, begins to release cercariae into the surrounding water. Hosts can be infected by contact with the cercariae-contaminated water, which can penetrate the skin and develop into the schistosomal form. After 2–3 days, the schistosomules can migrate through the lungs to the portal vein, where the mature male and female schistosomes can pair. Eggs may be deposited in the venules of the mesentery and either remain in tissues at the site of deposition or be released into the lumen of the intestine when they mature. The mature ova hatch after contact with water and are then released as miracidia. In the present case, parasitic eggs were deposited in the intestines and omentum, which herniated and developed and adhered to the inguinal hernial sac.

Fortunately, the patient presented with no illness or discomfort due to infection with this parasite, and no associated symptoms developed after surgery. At surgery, the hernial sac was large without a significantly abnormal appearance due to the parasitic infection (Fig. 1). Without a pathological examination, the parasitic ova could have been overlooked. Based on this case, clinicians should check the pathology report when the hernial sac is unusually sized or if intestinal or omental adhesions are found in the hernial sac.

In this case, according to the clinical manifestations and examinations, the patient was diagnosed with a chronic asymptomatic schistosomiasis infection instead of acute schistosomiasis infection because of the following conditions: (1) there were no specific lesions or symptoms in the liver, lung, portal vein, intestines, central nervous system, brain, or skin; (2) the eosinophil and IgE levels were within normal ranges; and (3) the patient had a long history of an inguinal hernia. The standard strategy for treating patients with a potential infection, but when the risk of systemic infection cannot be confirmed, is to treat the infection using currently available and safe antischistosomal drugs. This was the strategy used to treat the patient in this study.

4. Conclusion

The case presented here, of a parasite residing in an inguinal hernial sac, is a very rare occurrence. In such circumstances, consultations with pathologists and gastroenterologists are necessary for further examination, diagnosis, and treatment.

Conflicts of interest statement

The authors declare that they have no financial or non-financial conflicts of interest related to the subject matter or materials discussed in the manuscript.

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