A Case of Mixed Infection with *Schistosoma haematobium* and *Trichinella* sp..

Yasuhiro KUSUHARA¹, Yoshimasa MAENO¹, Keizo NAGASE², Koki TANIGUCHI¹, Katsutaka TORIKAI³ and Yuzo TAKAHASHI⁴

¹Department of Virology and Parasitology and ²Department of Internal Medicine, Fujita Health University, School of Medicine ³Department of Medical Zoology, Fujita Health University, College ⁴Department of Parasitology, Gifu University, School of Medicine

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Introduction

Schistosomiasis haematobia is a parasitic disease caused by the infection with *Schistosoma haematobium* (S. haematobium) prevalent mainly in Africa and western Asia¹, and is characterized by dysuria, pol-lakisuria, and terminal hematuria with an insidious onset. Schistosomiasis haematobia is not endemic to Japan. However, with increasing number of Japanese traveling or staying in tropical and subtropical areas where S. haematobium is endemic, a few Japanese patients have been reported in the 1990's².

Trichinellosis is a disease caused by parasites of the genus *Trichinella* that humans acquire from eating the muscles of several kinds of wild animal or domestic pigs. Trichinellosis is one of the most common parasitic zoonoses in the world, and may be found in the USA, Canada, and eastern Europe³. In Japan, there have been some reports of outbreaks of trichinellosis associated with the ingestion of raw bear meat⁴ and there is a case report of a patient infected with *Trichinella* from eating raw pork in Thailand⁵. The disease is characterized by fever, myositis, gastrointestinal symptoms, eosinophilia, and swollen eyelids. We report here the first Japanese case to be coinfected with S. haematobium and *Trichinella* sp..

Case report

A 33-year-old Japanese man traveled in South America, Egypt, South Africa, Malawi, Kenya, and Poland from February 1993 to July 1996. The patient had suffered from pain on micturition since April 1995 after traveling in Egypt by motorcycle. Although the acute severe pain improved within a week, the pain on micturition persisted. Furthermore, the patient developed diarrhea after ingestion of a half-cooked sausage in Poland in November 1995, but afterwards diarrhea subsided spontaneously without treatment. After returning to Japan, the patient underwent some medical examinations at a local hospital and was found to have eosinophilia, and was later hospitalized in Fujita Health University Hospital for further close examination on April 22, 1997.

Correspondence to: Yasuhiro KUSUHARA, Ph. D.
Department of Virology and Parasitology, Fujita Health University School of Medicine, Toyoake, Aichi, 470–1192, Japan
On admission, he complained of myalgia from the scapular region to gluteal region and pain on micturition. *S. haematobium* eggs were detected in stool and urine after centrifugation (Fig. 1). But no other parasite eggs or larvae were detected. We suspected trichinellosis from his chief complaint and history of eating insufficiently cooked sausage in Poland, and examined the reactivity of his serum with *Trichinella spiralis* in experimentally infected mouse muscle by indirect fluorescent antibody technique. The fluorescent antibody assay showed a strong positivity for trichinellosis (Fig. 2). His blood counts and biochemical examination results including LDH and CK levels were normal, except for eosinophil count 4,060/µl (normal 70~400/µl) and IgE level 2,449 IU/ml (normal<400 IU/ml). Thus, he was diagnosed as having a mixed infection with *S. haematobium* and *Trichinella* sp.. The patient was treated first with praziquantel 600 mg × 6 for two days (Fig. 3). Twenty-three days later, no schistosoma eggs were seen in his urine and the pain on micturition disappeared. He was then treated with mebendazole 100mg three times daily for 11 days.
Fig. 3 Changes in the number of *S. haematobium* eggs, anti-*T. spiralis* antibody titers, eosinophil count, and IgE levels during the clinical course of patient. Anti *T. spiralis* antibody content was expressed as + (weak), 2+ (intermediate), or 3+ (strong) depending on the fluorescence strength.

four consecutive days. This treatment was repeated three times. Finally, the muscle pain from scapular region to gluteal region was improved, and he was discharged from hospital on July 5, 1997. He was well at the last medical examination on December 4, 1997 and his blood eosinophil count and IgE level were found to have decreased to almost normal levels (eosinophil count 490/µl and IgE level 657 IU/ml).

**Discussion**

Schistosomiasis haematobia arises from cutaneous infection with cercaria in fresh water⁶. In this case, the patient appeared to be infected with *S. haematobium* during bathing in the Nile River, Egypt, an endemic area of *S. haematobium*. We recognized *S. haematobium* 60,000 eggs in his 24-hour specimen of urine on admission, suggesting the presence of a lot of mature *S. haematobium* in this patient. In addition, the detection of eggs in both stool and urine implied that female worms might have produced eggs not only in the vessels of the lower part of the colon but also in the urogenital system.

Although detection of the larvae of *Trichinella* sp. is required for definitive diagnosis, it is generally difficult to find larvae of *Trichinella* sp. in the muscle of the patients. Therefore, the clinical manifestations, laboratory examinations and history of eating raw or insufficiently cooked meat of pigs or wild animals often provide clues for the diagnosis of trichinellosis. In this case, the fluorescent antibody assay, eosinophilia, high IgE value and history of the ingestion of a half-cooked sausage in Poland were sufficient evidence for the diagnosis. The patient was thought to probably be infected with *Trichinella britovi*, which is the prevalent *Trichinella* species in Poland⁷.

As the infection progresses, the penetration of larvae into a variety of tissues gives rise to symptoms and signs mimicking different diseases such as polymyositis. This should alert the physician to consider a diagnosis of trichinellosis⁸. In this case, successive examinations of the number of *S. haematobium* eggs in urine, and antibody detection by the fluorescent antibody technique, eosinophil count, and IgE value were
good indexes in the follow-up of schistosomiasis and trichinellosis, respectively.

In recent years, the number of cases of parasitic infection have been increasing, as increasing numbers of Japanese visit or reside in tropical countries which are endemic for various parasites. Japanese physicians and medical technologists should be aware of parasitic diseases when they encounter patients who have returned from such areas. In particular, complicated cases with multiple parasitic infections as reported here require careful diagnosis and relevant treatment.

References


ビルハルツ住血吸虫と旋毛虫に重複感染した１症例

藤田保健衛生大学医学部ウイルス・寄生虫学教室，同 内科学教室
藤田保健衛生大学短期大学医動物学教室，岐阜大学医学部寄生虫学教室

楠原 康弘1) 前野 芳正1) 長瀬 啓三2)3) 谷口 孝喜1) 鳥飼 勝隆1) 高橋 優三1)4)

要 旨
今回は我々は世界一周期間にビルハルツ住血吸虫と旋毛虫に重複感染した日本人の症例を経験したので報告する。患者は33歳男性。入院時検査で顕著な好酸球增多および著明なIgE値の上昇を認めたため、寄生虫学的検査を行い、ビルハルツ住血吸虫症ならびに旋毛虫症と診断された。

Praziquantel 6錠/日，2日間の投与により尿中虫卵と排尿痛が消失し，さらにmebendazole 3錠/日，4日間服用/3クールにて入院時強陽性を示した抗旋毛虫抗体価が弱陽性となり，好酸球数とIgE価はほぼ正常値まで減少した。

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