

Case Report

Fasciolopsis buski infection in a Vietnamese pregnant woman with systemic lupus erythematosus

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Abstract

A clinical case of infection caused by *Fasciolopsis buski* in a 24 weeks pregnant woman from Vietnam affected by systemic lupus erythematosus (SLE) is reported here. On 22 February 2012 the patient was admitted to Hue Hospital in Hue, Vietnam, with a diagnosis of general illness and suspected acute anaemia. Laboratory analysis indicated possible SLE syndrome and coprological tests demonstrated the presence of *F. buski* eggs. During hospitalization the patient naturally eliminated the adult form in faeces suggesting the infection had already progressed at least for three months. One month after hospitalization due to the high severity of both SLE and fasciolopsiasis, a medical abortion was carried out and the following day the patient died. Even though infection due to *Fasciolopsis buski* is rare, this case highlights the importance of an accurate and prompt diagnosis of this infectious agent, which may have saved the foetus and mother's lives.

Key words: *Fasciolopsis buski*; Vietnam; systemic lupus erythematosus; pregnancy.

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Introduction

Food-borne trematodiasis are prevalently zoonosis, however humans may also accidentally become hosts through ingestion of raw water-plants contaminated by helminths larvae known as metacercariae [1]. Human trematodiasis are currently considered neglected diseases and represent an emerging health problem especially in developing countries [2]. Trematode infections are endemic in East Asian countries, especially in China, Thailand, Taiwan, Indonesia, Malaysia and Borneo [3]. In tropical developing countries the increasing incidence of parasitic diseases is correlated with inadequate and unhealthy sanitation systems, contamination of water supplies, lower social and economic income and indeed with malnutrition [3]. Furthermore, in these countries more than one parasitic disease is endemic, thus co-infections are quite common with consequent reduction of the adequate response by the host immune system [3].

Trematodes belonging to the Fasciolidae family include: *Fasciola hepatica* (*F. hepatica*), *Fasciola gigantica* and *Fasciolopsis buski*. The life cycle of

these three trematodes are very similar involving a snail as intermediate host [3]. They differ by affecting different target organs in the definitive host: *F. hepatica* and *F. gigantica* localize in the liver while *F. buski* in the small intestine [5] where the parasite exerts a cytotoxic and damaging effect in the attachment site [4]. Damage and expulsion are different despite the fact that general symptoms are quite similar [6]. Consequently, diagnosis and treatment have to be specific, especially in the case of *F. buski* for which the effective drug to be administered is praziquantel (PZQ) in a single dose of 25mg/Kg [6].

Fasciolidae infections are endemic in Vietnam and represent an important health problem [2,7]. Since the first report of two cases of fascioliasis in 1978, in the three-year period between 1997 and 2000 five hundred cases of fascioliasis were reported; all cases were clinically diagnosed as *F. gigantica* [8], although no test to classify the parasite was reported. Only few cases of fascioliasis have been reported in migrants from Vietnam. One case in 2000 involving a Vietnamese patient of 53 years of age resident in

Portugal who travelled every year for a period of 2 months to his country of origin [9]; other two cases were diagnosed in 2004 in Norway in a male patient of 24 years of age and female patient of 51 years of age [10]; all cases were identified as infected by *F. hepatica*.

Based on the increasing prevalence of *Fasciola* spp. infections in Vietnamese population and on the massive presence of a hybrid between the two species of *Fasciola* [11], in 2006 the Vietnamese Ministry of Health (MoH) started control activities through a decentralized and passive case-finding approach ensuring in this way the availability of drugs for patients [7]. Although cases of infection due by *F. buski* in humans have been reported previously in Vietnam, only one unusual case of fasciolopsiasis is available in literature, describing a child of 30 months who vomited eight live trematodes [12]. *F. buski* is not a very well reported infection, thus the number of infections and the risk to contract the disease are overlooked and misidentified as *Echinostoma* spp. or Heterophyidae [6].

Due to the negligence and cases of misdiagnosis of this infection, fasciolopsiasis has considerable impacts on health as well as on economic and social life, indeed it should be considered more seriously.

Methodology

On the 22nd of February 2012, a Vietnamese journalist of 28 years of age, *primigravida* at 24 weeks gestation, was admitted to the Department of Internal medicine at Hue Hospital, Vietnam. Symptoms included fever, cough and general illness. The patient declared that the symptoms onset was the day before admission. The woman was also diagnosed with anaemia, which is recurrent during pregnancy, and presented on her face the typical butterfly rash found in systemic lupus erythematosus (SLE). She had previously visited the Hospital a few times for routine gynaecological examinations. Results from laboratory tests at admission showed a red blood cell (RBC) count of 2.48 million cells/ μ l, haemoglobin (Hb) 6.9 g/l, white blood cell (WBC) count 7.6 cells/ mm^3 and platelets 221 cells/ mm^3 . The patient presented normal renal and liver functions and the abdominal ultrasonography was negative.

As symptoms worsened, both parasitological (plasmodium assay) and microbiological tests (blood and urine cultures) were performed resulting negative. Thus, she was treated with broad spectrum antibiotics and packed red blood cells (PRBC) for anaemia; however, her condition rapidly became more severe.

Figure 1. Microscopic identification of *Fasciolopsis buski* eggs in feces.

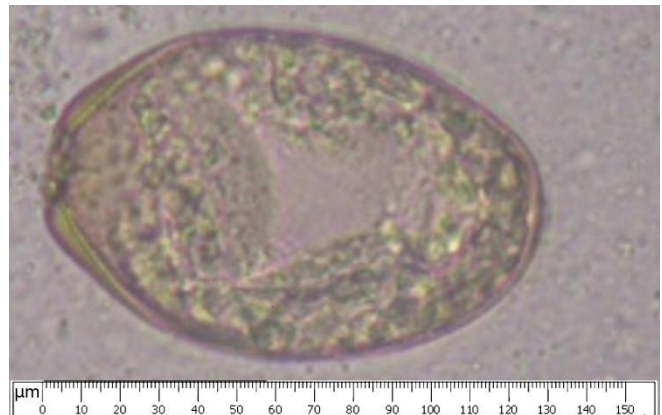
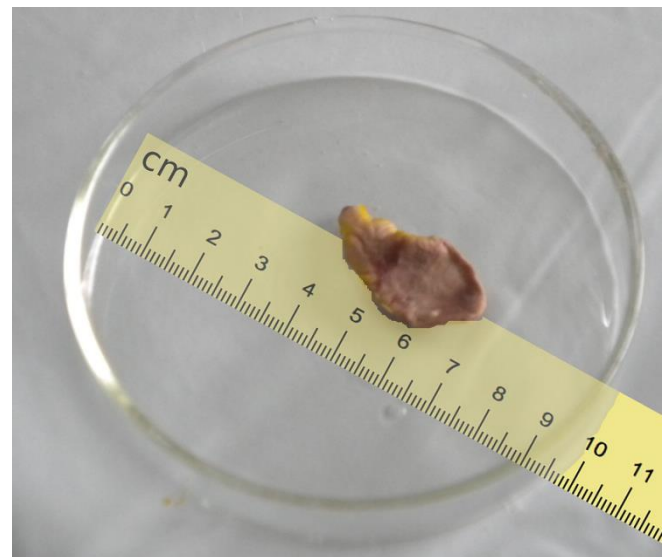


Figure 2. Adult fluke of *Fasciolopsis buski* trematode expelled in feces.



The persistent fever and severe anaemia induced clinicians to perform additional immunological lab tests as anti-nuclear antibody (ANA) and anti-double-stranded DNA antibody. The strongly positive results obtained suggested a diagnosis of SLE, thus the patient was treated with a high dose of corticosteroids and underwent a transfusion of fresh whole blood and apheresis platelets. Despite these treatments the patient worsened as showed in alterations of serum protein through electrophoresis (58g/L), albumine (7.9g/L), lactate dehydrogenase (LDH), renal and hepatic functions, WBC and platelets (quickly decreased until about 20cells/ mm^3), leading to pancytopenia, abdominal ascites and pleural effusion. Then a coprological test was carried out three times giving positive results for helminth eggs (Figure 1) and during the last days of hospitalization the woman

expelled an adult fluke identified *in loco* as *Fasciolopsis buski* (Figure 2).

At the end of March following hemodynamic complications the clinicians decided to carry out a medical abortion with the aim to save the patient's life and then she was transferred to the intensive care unit.

On the 29th of March the patient was diagnosed as terminally ill and discharged to let her die at home according to Vietnamese traditions for people approaching death.

Discussion

In the present study we reported a case of *F. buski* infection diagnosis in a Vietnamese woman at 24 weeks pregnant which to our knowledge has not previously been reported.

Several studies confirmed that vegetables are good vectors for the transmission of some parasitic diseases in different countries due to the use of contaminated water to irrigate or more often to clean the vegetables [13,14]. Indeed water-plants, particularly water-spinaches that are consumed daily by the whole Vietnamese population, are a huge source of infections. High prevalence of trematode eggs in vegetables has been reported in many south-eastern Asian countries [15], especially in Vietnam [16].

In a study carried out on water-spinaches samples harvested in a lake located at 5-7 km from the Cambodian capital of Phnom Penh the presence of 0.1 helminth eggs per gram of vegetables was demonstrated [17].

In our case report it has been hypothesized that the patient got infected eating raw vegetables during a business travel and not from a home-made meal, as it is likely that the patient knew how to clean properly the vegetables due to her high level of education. In fact, the patient used to travel often due to her job as journalist through all the central area of Vietnam, in rural as well as in industrialized districts. There is a strong correlation between infection and her travelling even if it has been demonstrated that contaminated vegetables reach also the big city markets [18].

The date of infection can be estimated at least three months before the expulsion of the adult fluke in stools, based on to the average period of incubation and maturation of the parasite.

Despite the infection started few months before, the symptoms in acute and chronic stages of fasciolopsiasis were anaemia, diarrhea, nausea and general illness [6], symptoms that can be overlooked because are usually common during early pregnancy. After her admission to hospital on the 22nd February,

the results from the laboratory tests led to the diagnosis of SLE. This syndrome could also have been previously underestimated for the same reason explained above.

Infections may also mimic the exacerbations of SLE, leading to a delayed diagnosis and adoption of an appropriate treatment. Despite the increased awareness about this problem, infections remain a major cause of morbidity and mortality in SLE affected patients [19].

Here we reported the description of the sequence of events resulted in the patient's death which might have been avoided with an early diagnosis of parasitosis and SLE and an appropriate treatment with a high dosage of PZQ and corticosteroids.

Despite the fact that corticosteroids may increase the risk of infections, especially opportunistic infections, they are relatively safe drugs for pregnant women and are used for foetal lung development in cases of preterm birth [20]. On the other hand, even if it has not been demonstrated yet that PZQ is completely safe for pregnant women, few data on animals and humans showed that parasitological infections are devastating for both mother and foetus [21]. For this reason, parasitological tests for helminths should be mandatory in endemic countries, thus a treatment with PZQ might be carried out promptly. Morbidity in endemic areas is high and the disease can be fatal if helminths cause extensive intestinal and duodenal ulceration, haemorrhage, abscesses and inflammation [5].

Furthermore, parasitic intrinsic factors such as parasitemia and toxins produced during the growth and the reproduction of the parasite, coupled with several host factors such as malnutrition, lifestyle, comorbidities and immunosuppression or other conditions like pregnancy, are important clues to predict the outcome of infection [22].

Conclusions

This report highlights the importance of food-borne trematode infections with a focus on those caused by *F. buski* and highlights the importance of this potential fatal infection to all clinicians from south-eastern Asian countries, especially Vietnam. Clinicians should be aware about fasciolopsiasis and consider this when diagnosing patients.

This case recommends the need for epidemiological studies in order to define the prevalence of fasciolopsiasis in this country with the aim to avoid needless deaths.

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