

Original Research Article

Gastrointestinal manifestations of *Fasciolopsis buski* associated polyparasitism in patients of an endemic area: a hospital based study

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ABSTRACT

Background: The objective of the study was to describe the gastrointestinal manifestations of *Fasciolopsis buski* associated polyparasitism.

Methods: A retrospective study in the form of chart review of twenty patients was done who passed either adult *F. buski* or ova per stool and their stool samples were also positive for other intestinal parasites. This study was done in a tertiary care centre of north Bihar during the time period of January 2016 to December 2016. Gastrointestinal manifestations of the patients were evaluated and treatment outcome was seen.

Results: School age children were the most affected population. Diarrhoea either acute or persistent was the most common presentation. Some and severe dehydration was present in 50% cases. Pain abdomen (60%) was the common finding in children whereas adults having abdominal distension (40%) as a major complain. Anaemia was present in almost all cases. 30% cases even required blood transfusion. *H. nana* was the most common associated parasite followed by *Ascaris*. One patient had evidence of five different parasites in his stool sample. Patients were treated with Praziquantal, Albendazole and Metronidazole with complete recovery.

Conclusions: *F. buski* associated with polyparasitism presents with a more severe form of disease than Fasciolopsiasis itself. Aggressive treatment is required.

Keywords: Polyparasitism, Diarrhoea, *F. buski*

INTRODUCTION

Fasciolopsis buski (*F. buski*), a giant intestinal fluke, is a trematode of a Fasciolidae family. It is supposed to be endemic in South East Asia region, including India.¹ Eastern part of India is known to be endemic and most of the cases have been reported from Assam, Bihar, Bengal and UP.^{2,3} This infestation is directly related to poverty, illiteracy, poor hygiene and agricultural areas which are mainly dependent on rain.

F. buski infestation is endemic in areas where inhabitants consumes contaminated water, uncooked aquatic plants and snails. Snail acts as an intermediate host whereas pigs

and human are definitive hosts. Pigs are mainly the reservoir of infection.^{1,4} Aquatic plants like lotus tubors, water chestnuts and water bamboos are common sources of food in lower socioeconomic agricultural group of northern Bihar.

In low income countries of tropical areas, intestinal polyparasitism is the rule rather than exception. In south east Asia, especially in India, intestinal helminthes, protozoa and nematodes polyparasitism is well known.^{5,6}

Fasciolopsiasis is a very good example of ice-berg phenomena, where a few cases present with some apparent form of illnesses whereas most of the cases remain asymptomatic. Whenever they present with some

form of illness, then symptoms are nonspecific, like loose stool, dull aching abdominal pain, anorexia, nausea and vomiting. Thus identifying fasciolopsiasis on clinical ground possess a challenge to clinicians and community health workers. Definitive diagnosis can be made after examining the adult worm because ova of *F. buski* and *F. hepatica* are similar in morphology.

Unfortunately no much study regarding fasciolopsiasis is done in these areas. This study is unique of its kind where we evaluated *F. buski* associated polyparasitism.

METHODS

A retrospective chart review from January 2016 to December 2016 was done in a medical college of northern Bihar for polyparasitism. Only those cases were included in the study that passed adult worm or ova of *F. buski* in their stools, and their stool samples were also positive for other intestinal parasites. Cases that passed only ova or adult worm of *F. buski* without any evidence of other parasites in their stool were excluded from the study.

A total number of 62 cases of *F. buski* were admitted during this period. In which only 20 cases have evidence of *F. buski* associated polyparasitism in their stool samples. Stool of all cases were examined microscopically for ova of *F. buski* and eggs of other intestinal parasites. Ova of *F. buski* were seen as large oval, unsegmented, bile stained with presence of operculum at one end. An adult worm of *F. buski* was identified by open eyed as dorso-ventrally flattened, nonsegmented structure and reddish brown in colour with prominent ventral sucker. Adult worms of *F. buski* was distinguished by *F. hepatica* as there was absence of cephalic cone.⁴ A detailed history and examination was done and clinical signs of associated morbidities were noted. Blood tests were done to evaluate anaemia and electrolyte abnormalities.

All diagnosed cases were treated with praziquantal along with other anti-helminthic and anti- protozoal drugs depending upon the other parasites involved.⁷ Albendazole and Metronidazole were other drugs used in the study. Wherever required intravenous fluid and blood transfusion were given.

RESULTS

In this study it was observed that fasciolopsiasis mainly affected school going children and adolescents, combined around 65% as shown in Table 1. Regarding gastrointestinal manifestation acute diarrhoea (70%) was the most common presentation followed by pain abdomen (60%). Anaemia was the most common sign in 90% of cases at the time of presentation. Due to associate other illnesses, anaemia was so severe that urgently required blood transfusion in 30% cases (Table 2). The main observation of the study was polyparasitism, where

along with *F. buski* infestation, patients were also harbouring *H. nana* (60%). *A. lumbricoides* was also present in majority with 45% cases (Table 3).

Table 1: Age distribution of fasciolopsiasis.

Age group (in years)	Number [n=20 (100%)]
5-10	8 (40%)
10-15	5 (25%)
15-20	2 (10%)
20-25	2 (10%)
25-30	2 (10%)
30-40	1 (5%)

Table 2: Gastrointestinal manifestation of polyparasitism.

Clinical features	Number [N=20 (100%)]
Acute diarrhoea	14 (70%)
No dehydration	04 (20%)
Some dehydration	06 (30%)
Severe dehydration	04 (20%)
Persistent diarrhoea	06 (30%)
Nausea	12 (60%)
Vomiting	08 (40%)
Abdominal pain	12 (60%)
Abdominal distension	08 (40%)
Anaemia	18 (90%)
Anaemia requiring blood transfusion	06 (30%)

Table 3: Distribution of intestinal parasitic infestation.

Intestinal parasites	Number [N=20 (100%)]
<i>H. nana</i>	12 (60%)
<i>Ascaris lumbricoides</i>	9 (45%)
Hook worm	06 (30%)
<i>E. histolytica</i>	05 (25%)
<i>Giardia</i>	05 (25%)
<i>Trichuris trichiura</i>	03 (15%)
<i>Strongyloides stercoralis</i>	03 (15%)

DISCUSSION

Humans acquire Fasciolopsiasis by ingestion of uncooked aquatic plant, uncooked or partially cooked snail, on which *F. buski* metacercariae has encysted. As the metacercariae are unable to replicate inside the human gut, so the parasite load depends upon the number of cysts ingested.^{1,4} Inhabitants of this area are well aware of this parasite and they themselves bring these parasites along with them. As a rule, Fasciolopsiasis remains asymptomatic in most circumstances but when associated with other parasites infestation, can cause serious illnesses. This study shows a higher rate of morbidity in affected cases probably due to higher load of parasite and

associated polyparasitism.⁸ In this study acute diarrhoea was the most common presentation in which some and severe dehydration was quite common. Although dehydration is rare in Fasciolopciasis. Anaemia is a common finding in intestinal parasitosis, but that seldom requires blood transfusion. In this study anaemia was so severe that 30% cases required blood transfusion. This study shows that school age children and adolescent groups are mainly affected. This is similar to previous study^{5,6}. Pain abdomen was more common symptom in children whereas abdominal distension was commoner in adults. Oedema and urticarial were seen in a few cases.

It has been seen that co-infection with helmenthes can immunomodulate and alter the host immune system and further predisposes to other infections like, tuberculosis, malaria and HIV.^{9,10} *H. nana* was the most common parasite found to be associated with *F. buski*, followed by hook worm. One case had evidence of 5 parasites in one stool sample.

F. buski can present with atypical forms like, acute intestinal obstruction, perforation, acute renal failure and even death. Pathogenesis of *F. buski* depends upon worm load, local intestinal mucosal changes and alteration in host immune response.¹¹ Surprisingly 3 adult patients presented with fasciolopciasis were known diabetes too. Adults remain asymptomatic generally but in this study these adults presented with same signs and symptoms like children most probably due to immunosuppression (diabetes).

All patients treated with Praziquantal in recommended dose. Patients were also treated with either Albendazole, Metronidazole or Nitazoxanide depending upon the co-parasite isolated in the stool with complete recovery.

Limitations of this study are that it is retrospective and involves smaller number of patients. Absence of epidemiological data to identify the real pockets of infestation was another limitation.

CONCLUSION

F. buski associated polyparasitosis possess a greater threat to the health of children than isolated Fasciolopciosis. So this condition should be treated aggressively and early.

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