Intestinal Infestation with *Fasciolopsis buski* Leading to Acute Kidney Injury


**Abstract**

*Fasciolopsis buski* is the largest intestinal fluke infecting human beings. This trematode is endemic in certain parts of the country. Migration poses the risk of spread of the worm to other parts of the country. We report *fasciolopsis buski* in a migrant from Bihar working in Coimbatore, Tamil Nadu. Acute kidney injury following intestinal obstruction occurred in this case which was never described before.

**Introduction**

*Fasciolopsis buski* is one of the largest intestinal parasite infecting human beings. This trematode was described for the first time by George Busk in 1843 following autopsy of an Indian sailor in London.1 This worm is found mainly in Asia and the Indian subcontinent, occurring in Taiwan, Thailand, Laos, Bangladesh, India, and Vietnam. This worm is endemic in Bihar, Maharashtra, Assam and Uttar Pradesh.2,3 We report *fasciolopsis buski* in a migrant from Bihar working in Coimbatore, Tamil Nadu which is not an endemic zone for this worm. He presented with sub acute intestinal obstruction and acute kidney injury, as a consequence of symptomatology which would dispose for the same.

**Case Presentation**

20 year old Mr. Naseerath from Bihar migrated to Coimbatore 2 months back and was employed as a waiter in a hotel. He was admitted with complaints of abdominal pain, abdominal distension, loss of appetite, constipation and vomiting for the last 2 months. He had lost significant weight. He complained of decreased urine output for last 3 days. On admission he vomited live worms, about 40 mm long and 15 mm wide, flat, leaf-shaped and red colour (Figure 1). He was dehydrated and anaemic. His abdomen was distended and bowel movements were sluggish suggesting sub acute intestinal obstruction.

On investigation blood urea was 65 mg/dl, serum creatinine 2.4 mg/dl, sodium 140 meq/l and potassium 3.5 meq/l. X-ray abdomen in erect posture revealed minimally dilated bowel loops. Ultrasonogram showed live worms in the intestine (Figure 2). Both kidneys were normal in size and echogenicity. Peripheral smear revealed microcytic hypochromic anaemia and eosinophilia. The worms were identified as *Fasciolopsis buski* and confirmed by microbiologists based on morphological characters like poorly-developed oral and ventral suckers, lack of cephalic cone and the unbranched ceca. Egg of the worm was seen under microscope to be ellipsoidal, thin shell, operculated, filled with yolk cells (Figure 3).

He was treated with intravenous fluids and tablet Praziquantel 200 mg, 3 doses for one day. Around 50 dead worms were expelled in stool the next day. His symptoms were relieved and appetite improved. The blood urea and serum creatinine levels...
on discharge were 30 mg/dl and 0.9 mg/dl. He was advised to boil water before drinking and not to eat water plants raw.

**Discussion**

Heavy parasite load of similar magnitude have been reported previously. To the best of our knowledge, acute kidney injury following F. buski has not been reported yet.

Clinical symptoms and signs are related to parasite load and include poor appetite, mild abdominal colic, nausea, vomiting, fever, severe epigastric and abdominal pain, diarrhoea or bowel obstruction, acute ileus, anasarca, allergic symptoms, marked eosinophilia and leucocytosis, malnutrition, vitamin B12 deficiency and generalised toxic symptoms. It causes considerable morbidity and rarely mortality in the host.

Fasciolopsis buski is one of the largest digeneans infecting humans, with a body of 2–10/0.8–3 cm and eggs of 130–140/80–85 µm. It inhabits duodenum and jejunum, and can also be found in much of the intestinal tract, including the stomach, in moderate and heavy infections.

Fasciolopsis buski produces a great number of eggs in humans (mean 16,000/worm per day) whereas it produces fewer eggs in pigs yet they are the important reservoir host maintaining endemicity. Eggs, after reaching the freshwater, continue the cycle in the snail where sporocyst, mother and daughter rediae and cercariae develop. Cercariae swim in water until encystment on aquatic plants such as water caltrop, water chestnut (Echiocharis tuberosa), water hyacinth (Eichhornia sp.), water bamboo (Zizania sp.), water lotus (Nymphaea lotus), water lily (Nymphaea sp.), watercress, gankola (Otelia sp.), and water morning glory (Ipomoea aquatic).

Humans and pigs acquire metacercarial cysts through consumption of raw or undercooked aquatic plants, drinking or using untreated water and handling or processing water-derived plants. Metacercariae excyst in the duodenum and attach to the intestine wall to grow to mature flukes within 3 months. The adult worms feed on blood and mucus in the intestine of the host.

Our patient is from Bihar, which is an endemic zone for F. buski. Tamil Nadu is not an endemic zone for this worm whereas the other factors favouring transmission of the worm such as pigs, water plants and snails are widely available all over the state. Nowadays interstate migration for occupation has become a common phenomenon in India, which places non endemic zones at risk for transmission of infection.

The most significant migration flows are from Bihar, Uttar Pradesh, Kerala, Madhya Pradesh and Karnataka. Key destination sites are Delhi, Haryana, Tamil Nadu, Kerala, UP and Bihar. The migration is going to be on the rise, which will promote spread of infectious diseases especially among the poor and underprivileged sections of the society. All migrants cannot be screened at the point of entry. But there is an urgent need to develop strong surveillance system to contain the spread of diseases by early identification and treatment.

The control measures in endemic areas should include thorough cooking or steeping of aquatic plants in boiling water, restraining pigs from having access to ponds and canals, eliminating the intermediate snail hosts and prohibiting the use of aquatic green
Fodder to feed pigs and unsterilised “night soil” as a fertiliser. 5

Conclusion

Fasciolopsis buski leads to various complications in the host, even acute kidney injury as in our case. This worm is endemic in certain parts of India and there is every chance for the worm to expand its territory because of growing rate of migration. Overall, India is at risk of migration related health issues which needs attention of policy makers and health officials to develop active intervention strategy to contain the spread of infectious diseases.

Acknowledgement

We sincerely thank Prof. Dr. Rajendran, MD, Head of the Department and Dr. Bharathi Santhosh MD Assistant Professor, Department of Microbiology, Coimbatore Medical College Hospital for giving earnest help in diagnosis.

References


Fig. 3: Microscopic picture of the egg from the stool