

Original Research Article

Surgical manifestations and management of gastrointestinal and hepato-pancreato-biliary ascariasis: an observational study

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ABSTRACT

Background: *Ascaris lumbricoides* is the largest intestinal nematode parasite of humans. This study describes different presentations and management patterns of gastrointestinal and hepato-pancreato-biliary ascariasis presenting to a tertiary centre of North-eastern India.

Methods: This was a prospective observational study aimed to study the presentations and management patterns of *Ascaris* related surgical diseases including intestinal obstruction, pancreatitis and cholangitis in a tertiary centre of Northeast India. All consenting cases of gastrointestinal and hepato-pancreato-biliary ascariasis admitted in our hospital were included.

Results: Ninety patients with *Ascaris sequeale* were included, which included biliary ascariasis without cholangitis: 36, pancreatitis: 30, cholangitis: 18 and sub-acute intestinal obstruction: 6. Ultrasound was the most useful diagnostic investigation followed by stool examination and endoscopy. Hepato-pancreato-biliary ascariasis was managed conservatively and the progress monitored with sonography. The surgical management choledcho-duodenostomy was done for three patients having biliary ascariasis with unresolving obstructive jaundice and recurrent cholangitis on conservative management and 6 patients underwent therapeutic endoscopic worm removal. There were no deaths. No patient needed ICU care.

Conclusions: Sonography can be helpful in diagnosing the presence of worms, its complications and in evaluating response to treatment. Hepato-pancreato-biliary ascariasis can be managed conservatively for majority of the patients.

Keywords: Ascariasis, Biliary, Cholangitis, Pancreatic

INTRODUCTION

Ascariasis is a common occurrence with a worldwide prevalence of 25%. Approximately 1.4 billion people are infected worldwide with the majority of cases reported from the Indian subcontinent, China, African continent and Latin America.¹ Patients may be asymptomatic or present with biliary colic, cholangitis, cholecystitis, liver abscess, pancreatitis, intestinal obstruction and even perforation.² The objective of this study was to record the various clinical profiles and management protocols being

followed for patients with gastrointestinal and hepatobiliary ascariasis admitted in a tertiary care centre of North East India.

METHODS

This observational study was conducted at NEIGRIHMS Hospital, Shillong from January 2015 till December of 2019. Patients presented to the hospital with hepatopancreatobiliary and gastrointestinal ascariasis during the study period was included after taking due

informed consent. Unwilling patients were not included in the study. Ethical clearance was obtained from Institute Ethics Committee. A total of 90 adult patients were enrolled in the study. A detailed clinical history was taken from all the patients. Routine laboratory workup included blood counts, coagulation profile, liver function tests, serum amylase, lipase and stool for ova and cyst of parasites. Ultrasonography of whole abdomen was done in all patients. X-ray abdomen in erect and/or supine posture was done in patients presenting with features of intestinal obstruction. Upper gastrointestinal endoscopy was done in some patients. Patients were managed conservatively initially and surgical intervention was done in those patients who did not respond after 48-72 hours of conservative management. Descriptive statistics were expressed as percentages.

RESULTS

A total of 90 patients were included in the study- 72 females and 18 males. 10 patients were pregnant. Age of the patients ranged from 18 years to 70 years with a mean of 33.47 years and majority of patients below 30 years age. The patterns of diseases could be classified into 4 broad categories namely: biliary colic, acute pancreatitis, acute cholangitis and intestinal obstruction. The symptomatology is summarised in Table 1 and frequency of various diagnoses in study population is summarised in Table 2. The yield of various investigative modalities is summarised in Table 3.

Table 1: Clinical features of the study population.

Clinical feature	Present	% (n=90)
Pain abdomen	90	100
Vomiting	66	73.33
Fever	24	26.67
Jaundice	24	26.67
Altered bowel habits (constipation)	15	16.67
History of passing worms in stool	9	10
History of vomiting worms	6	6.67

Table 2: Diagnosis with frequency in the study population.

Diagnosis	Frequency (%)
Biliary colic	36 (40)
Worm induced acute pancreatitis	30 (33.33)
Cholangitis	18 (20)
Sub-acute intestinal obstruction	6 (6.67)

No patient had undergone any biliary tract intervention prior to current admission. Ninety percent of patients (81/90) could be managed successfully conservatively. Endoscopic removal of worms from biliary tract was done successfully in 6 patients. 3 patients underwent surgery for unrelenting cholangitis due to dead worms in the common bile duct. None of the patients presenting

with sub-acute intestinal obstruction needed surgical intervention and were managed successfully with conservative management.

Table 3: Diagnostic and ancillary investigations with the yield from each investigation.

Investigations	No. of patients (n=90)	Suggestive of ascariasis	Percentage (%)
Ultrasonography	90	87	96.67
Stool ova-cyst	90	81	90
Upper GI endoscopy	9	6	66.67
Raised serum amylase/lipase	90	30	33.3
X-ray abdomen	15	3	20

DISCUSSION

The most common presentation in the present study was pain abdomen and vomiting similar to the findings by Baba et al and Mukhopadhyay.^{3,4} A high incidence of pancreatitis (33.33%) was noted in the present study similar to the findings by Khuroo et al.^{5,6} However Mukhopadhyay and Khuroo et al reported a very low incidence of acute pancreatitis in their patients in other parts of Indian subcontinent.^{4,7}

A female predominance was seen in the present study (80%), similar to findings by Mukhopadhyay (73.80%).⁴ A high sensitivity has been observed for ultrasonography in diagnosing biliary tree ascariasis 98.84% (95% CI- 93.69% to 99.97%) in the present study similar to the findings by Das.⁸

Conservative management was successful in 90% of patients similar to previous studies.^{6,7,9} Conservative treatment included antispasmodics, antibiotics and anti-helminthics.

A significant reduction in morbidity and mortality of hepatobiliary ascariasis has been noted since the introduction of endoscopic intervention.¹⁰⁻¹⁵ Worms were removed from ampulla of Vater using endoscopic snares in 6 patients in the present series which hastened the recoveries of the patients. ERCP has been used successfully in removing worms especially dead worms from the biliary tree.¹⁶ In the present series ERCP was not done as the facility was not available in the Hospital, and the dead worms had to be removed surgically. Less than 1% of patients require surgical interventions, especially when endoscopic interventions were not able to extract dead worms.^{10,17}

CONCLUSION

Gastrointestinal and hepatopancreatobiliary ascariasis has a high disease burden in North Eastern part of India. The

disease reflects sanitation habits of the population and has a wide spectrum of manifestations. The diagnosis is based on clinical suspicion and imaging. Stool examination is of corroborative value in diagnosis. Management is predominantly conservative and the prognosis good. Sanitary habits should be advised and the family dewormed if an index case of ascariasis is found in the population. Particularly the primary care physicians can play a big role in this endeavour.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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