Journal of Surgery
Neeraj Chauhdhary, et al. J Surg 11: 11663
www.doi.org/10.29011/2575-9760.11663
www.gavinpublishers.com
Case Report

Hepatobiliary and Pancreatic Ascariasis: A Case Series from North India

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Citation: Neeraj Chaudhary, Nitin Rustogi, Anmol Saini , Vipin Kumar , Vivek Jangra, et al. (2026) Hepatobiliary and Pancreatic Ascariasis: A Case Series from North India. J Surg 11: 11663 DOI: 10.29011/2575-9760.011663

Received Date: 06 July 2026; **Accepted Date:** 31 July 2026; **Published Date:** 03 August 2026

Abstract

Ascariasis a parasitic infection that mainly involves the gastrointestinal tract caused by parasite Ascaris lumbricoides. Extraintestinal manifestations of the parasite including hepatobiliary and pancreatic systems is uncommon but can result in significant morbidity. These extraintestinal manifestations are collectively referred to as hepatobiliary and pancreatic ascariasis. This case series describes the clinical presentation, management, and outcomes of hepatobiliary and pancreatic ascariasis. We report four cases of Ascaris lumbricoides infestation complicated by hepatobiliary and pancreatic involvement, admitted to the Department of Gastroenterology at ABVIMS and Dr. RML Hospital, New Delhi. All patients underwent detailed clinical assessment, laboratory evaluation, and radiological imaging to establish the diagnosis of ascariasis. Management included supportive therapy,anthelminthic therapy, and endoscopic intervention with Endoscopic Retrograde Cholangiopancreatography (ERCP) when indicated. Although ascariasis is more commonly present in the pediatric population and typically presents as an intestinal manifestation, this case series includes both pediatric and adult patients with extraintestinal manifestation involving the hepatobiliary and pancreatic systems. All patients were successfully managed with appropriate medical therapy and endoscopic treatment. Further studies are warranted to enhance understanding of this rare presentation and to improve patient outcomes.

Keywords: Ascaris Lumbricoides; Cholangitis; Cholecystitis; Hepatobiliary and Pancreatic (HBP) Ascariasis; Pancreatitis

Introduction

Globally, Ascariasis is among the most common soil transmitted helminthic infection, which predominantly include tropical and subtropical regions of the world. Recent data suggest that approximately 720 million people affected from ascariasis in 2021, representing 11% of global population. India accounts for nearly 220-280 million cases of ascariasis. The high-burden states of India include Karnataka and Andhra Pradesh. Transmission of disease mainly occurs through ingestion of contaminated food or water. The infection is mainly involving overcrowded areas, poor sanitation and lower socioeconomic class. Children are more commonly affected that adult population [1,2]. Extraintestinal ascariasis occurs when Ascaris lumbricoides migrates from the intestinal tract to extraintestinal site like biliary tract or pancreatic duct. This migration of ascaris from intestinal tract to biliary tract and pancreatic duct can produce a wide variety of clinical manifestations, including biliary colic, obstructive jaundice, acute cholangitis, and pancreatitis . Repeated entry of the parasite into the biliary duct may result in entrapment, and subsequent death of the worm that promote the formation of biliary sludge and pigment calculi in biliary system. Over time, these changes may lead to recurrent infections such as pyogenic cholangitis and other hepatobiliary complications [3]. In this case series, we present pediatric and adult patients with hepatobiliary and pancreatic ascariasis, highlighting their clinical characteristics, diagnostic evaluation, and management strategies.

Case 1

55-year-old male, a known case of hypertension and type 2 diabetes mellitus, presented with abdominal pain and yellowish discoloration of the skin and sclera for 15 days, fever for 7 days, loose stools for 6

days, and altered mental status for 5 days. On general examination, the patient was febrile with a temperature of 101.3°F, pulse rate of 105 beats per minute, blood pressure of 130/90 mmHg, and oxygen saturation of 95% on room air. Pallor and severe icterus were noted. On abdominal examination, diffuse abdominal tenderness was noted, maximal in the right upper abdomen, along with mild hepatomegaly. There was no splenomegaly. Guarding and rigidity were present, Murphy's sign was positive, and percussion revealed slight dullness in the right upper abdomen. Laboratory investigations showed hemoglobin of 8.9 g/dL, total leukocyte count of 22,280 cells/mm³, platelet count of 134,000 cells/mm³. Liver function tests revealed total and direct bilirubin levels of 9.69 mg/dL and 6.46 mg/dL, respectively, with elevated aspartate aminotransferase (184 U/L), alanine aminotransferase (64 U/L), and alkaline phosphatase (610 U/L). Renal function tests showed urea of 21 mg/dL and creatinine of 0.57 mg/dL. Coagulation profile revealed prolonged prothrombin time with PT/INR of 28.2 seconds/2.34. Overall, the biochemical profile was suggestive of cholestatic jaundice, with direct bilirubin accounting for more than 50% of total bilirubin and a markedly elevated alkaline phosphatase. Ultrasonography (Figure 1) of the abdomen revealed hepatomegaly with a liver span of 17 cm and multiple linear tubular echogenic structures within the intrahepatic biliary radicals, suggestive of worm infestation.

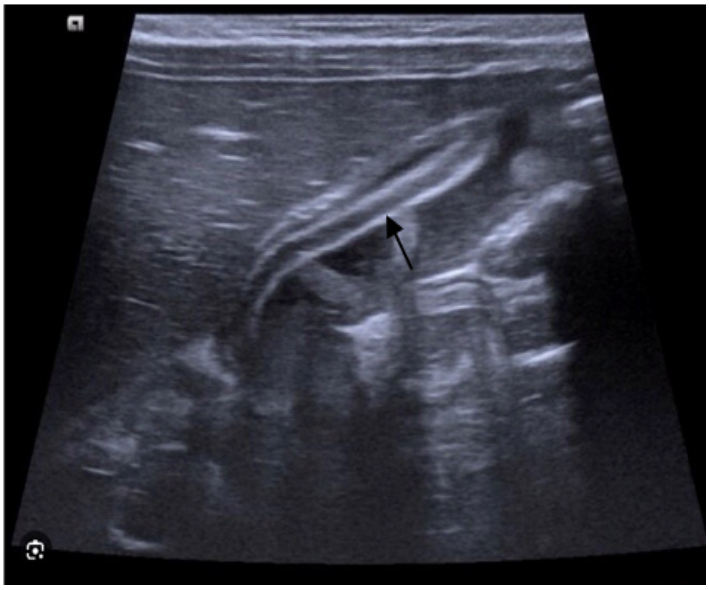


Figure 1: Abdominal ultrasound showing linear tubular echogenic structures within the intrahepatic biliary radical.

The common bile duct was obscured due to acoustic shadowing from calculi, and the gallbladder contained multiple calculi measuring approximately 6-8 mm in diameter. Stool routine microscopy was positive for Ascaris lumbricoides. Endoscopic Retrograde Cholangiopancreatography (ERCP) (Figure 2) was performed, which revealed a live worm emerging from the papilla; the worm was extracted, and common bile duct stenting was done. Post-procedure, the patient was treated with oral albendazole 400 mg once daily for 3 days and intravenous vitamin K 10 mg once daily for 3 days. During the hospital stay, the patient also expelled an Ascaris worm through vomiting. Over the course of hospitalization, the patient showed significant clinical improvement, with a gradual reduction in total leukocyte count and normalization of liver function parameters.

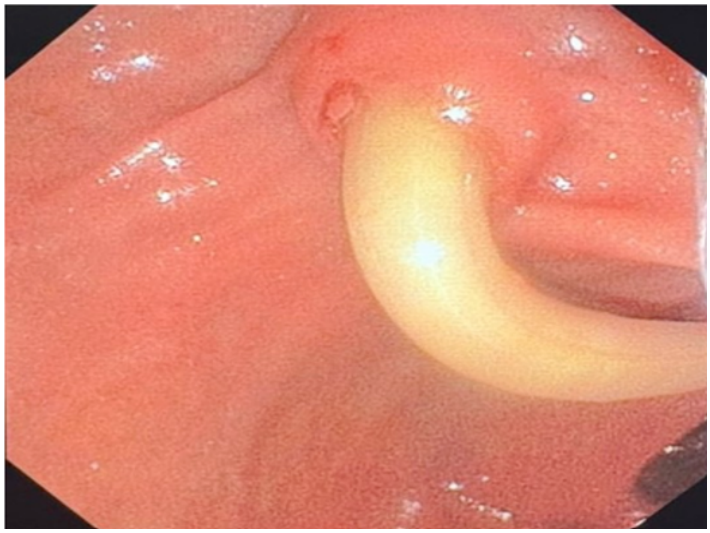


Figure 2: ERCP showing a live ascaris emerging from the papilla.

Case 2

A 13-year-old male child presented with complaints of abdominal pain and fever for 15 days. On general examination, the pulse rate was 90 beats per minute, blood pressure 116/74 mmHg, respiratory rate 24 breaths per minute, oxygen saturation 99% on room air, and temperature 101.5°F. On abdominal examination, mild tenderness was noted in the epigastric and right upper quadrant regions. The liver and spleen were not palpable. Guarding was present. Laboratory investigations showed a hemoglobin level of 12.3 g/dL, total leukocyte count of 21,860 cells/mm³, platelet count of 219,000 cells/mm³, and absolute eosinophil count of 1000 cells/mm³. Liver function tests revealed total and direct bilirubin levels of 0.35 mg/dL and 0.05 mg/dL, respectively, with aspartate aminotransferase of 32 U/L, alanine aminotransferase of 18 U/L, and alkaline phosphatase of 320 U/L. Renal function tests showed urea of 12 mg/dL and creatinine of 0.53 mg/dL. Overall, the biochemical profile was suggestive of sepsis with eosinophilia. Ultrasonography (Figure 3) of the abdomen revealed multiple elongated tubular structures with hyperechoic walls within the common bile duct and left hepatic duct, consistent with hepatobiliary ascariasis.

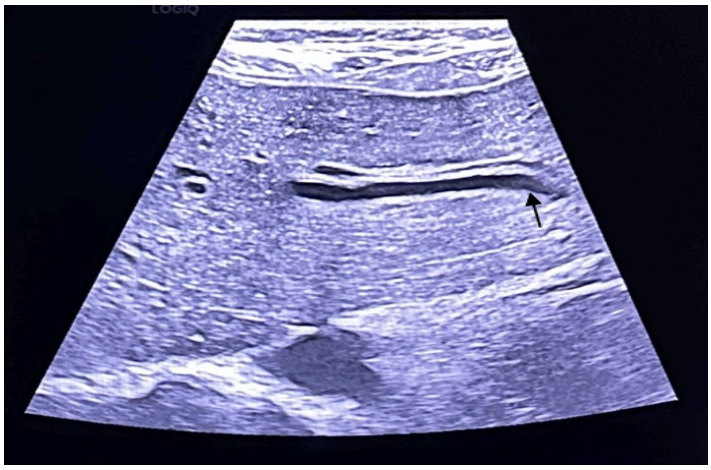


Figure 3: Abdominal ultrasound showing elongated tubular structure with hyperechoic walls within left hepatic duct.

Magnetic Resonance Cholangiopancreatography (MRCP) (Figure 4) demonstrated a few coiled tubular structures within the common bile duct, bilateral hepatic ducts, and left intrahepatic biliary radicles, suggestive of ascariasis, along with dilatation of the common bile duct, bilateral hepatic ducts, and intrahepatic biliary radicles.

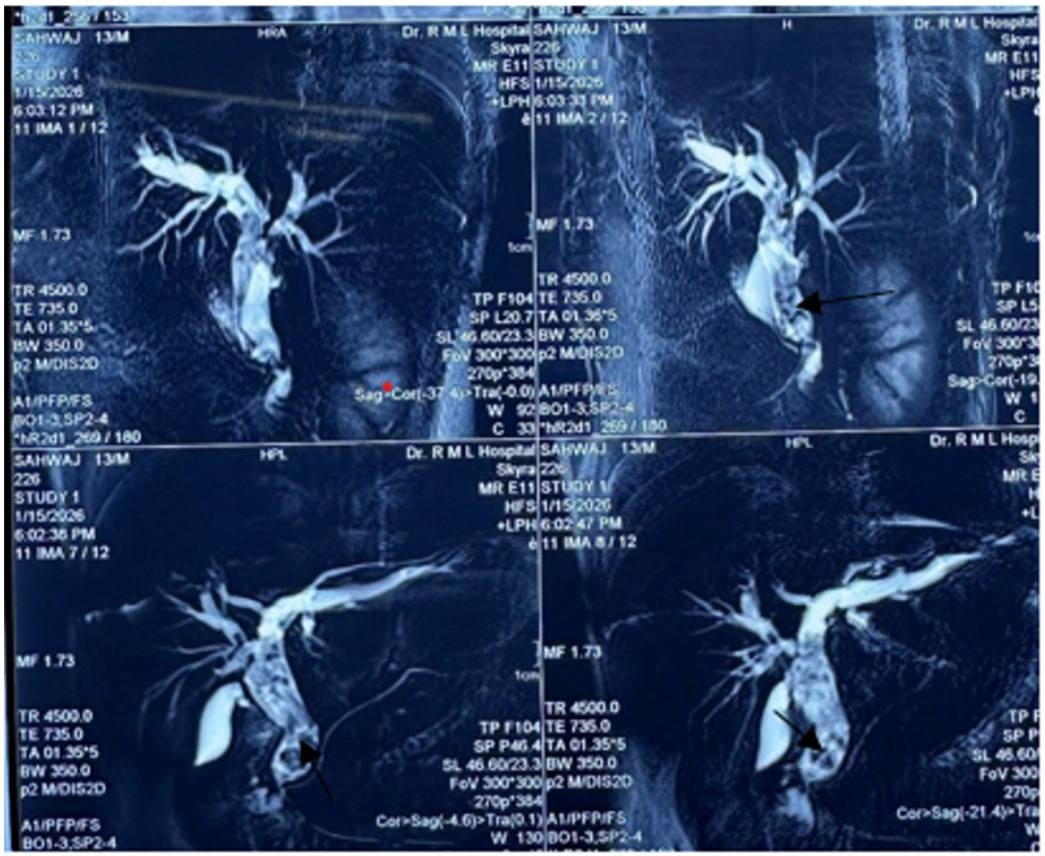


Figure 4: Magnetic Resonance cholangiopancreatography (MRCP) showing few coiled tubular structures within the common bile duct, bilateral hepatic ducts, and left intrahepatic biliary radicles.

Endoscopic Retrograde Cholangiopancreatography (ERCP) (Figure 5) was subsequently planned. Selective cannulation of the common bile duct was achieved, and a Double-Pigtail (DPT) stent was placed. One worm was extracted during the procedure. The patient was treated with oral albendazole for 5 days following ERCP. Over the course of hospitalization, the patient showed significant clinical improvement with a gradual decline in total leukocyte counts.

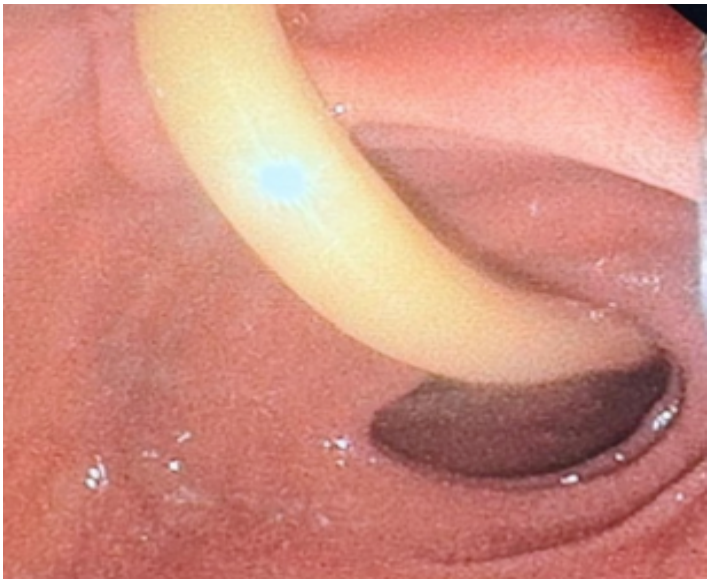


Figure 5: Endoscopic retrograde cholangiopancreatography (ERCP) showing Ascaris in the duodenum.

Case 3

A 35-year-old female, a known case of hypertension, presented with diffuse abdominal pain of one-day duration. The pain was severe and progressive in intensity. On general examination, her pulse rate was 87 beats per minute, blood pressure was 140/100 mmHg, and oxygen saturation was 99% on room air. On abdominal examination, diffuse tenderness with guarding was noted. The liver and spleen were not palpable. Laboratory investigations showed a hemoglobin level of 8.1 g/dL, total leukocyte count of 10,050 cells/mm³, and platelet count of 311,000 cells/mm³. The differential leukocyte count was 80% neutrophils, 12% lymphocytes, 6% monocytes, 2% eosinophils, and 0% basophils. Liver function tests revealed total bilirubin of 0.83 mg/dL and direct bilirubin of 0.17 mg/dL. Serum aspartate aminotransferase was 75 U/L, alanine aminotransferase was 77 U/L, and alkaline phosphatase was 85 U/L. Renal function tests showed blood urea of 20 mg/dL and serum creatinine of 0.57 mg/dL. In view of suspected pancreatitis, serum amylase was measured and found to be markedly elevated at 2689 U/L. Ultrasonography (Figure 6) of the abdomen revealed a Common Bile Duct (CBD) measuring 8 mm at the porta hepatis.



Figure 6: Abdominal ultrasound showing CBD lumen an elongated, linear, echogenic tubular structure without acoustic shadowing and with a central anechoic line (strip sign).

The lumen showed an elongated, linear, echogenic tubular structure without acoustic shadowing and with a central anechoic line (strip sign), suggestive of a CBD worm. Visualized small bowel loops also demonstrated linear echogenic tubular structures consistent with intestinal worms. The head and body of the pancreas were visualized, while the remaining portion was obscured. The patient was managed along the lines of acute pancreatitis. Contrast-Enhanced Computed Tomography (CECT) of the abdomen was suggestive of acute interstitial edematous pancreatitis with a CT Severity Index (CTSI) score of 4. Additionally, ascariasis was noted in the jejunal loops on the left side. Endoscopic Retrograde Cholangiopancreatography (ERCP) (Figures 7 and 8) was subsequently planned. Selective cannulation of the common bile duct was achieved, and a double-pigtail stent was placed. One worm was successfully extracted during the procedure. Following ERCP, the patient was treated with oral albendazole for three days. During hospitalization, she showed significant clinical improvement, accompanied by a gradual decline in serum amylase levels.

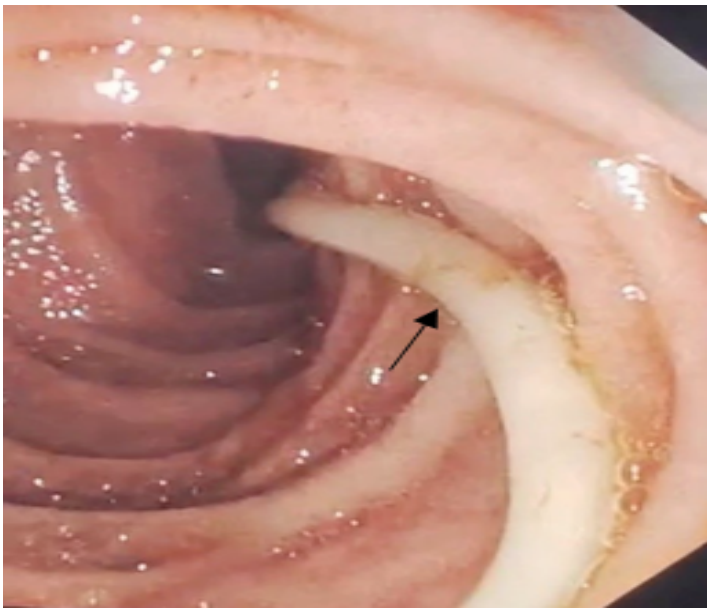


Figure 7: Endoscopic Retrograde Cholangiopancreatography (ERCP) showing live worm in lumen of duodenum.

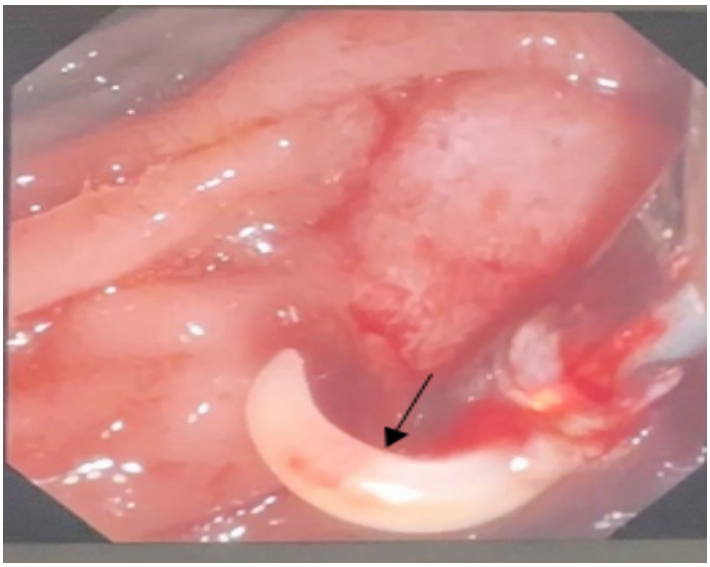


Figure 8: Endoscopic retrograde cholangiopancreatography (ERCP) showing extraction of live Ascaris worm from the papilla.

Case 4

A 40-year-old female, a known case of chronic atrophic pancreatitis with endocrine (Diabetes mellitus) and exocrine insufficiency, presented with right upper abdominal pain since-7 days and yellowish discoloration of eyes since-7 days. No history fever, vomiting, bleeding, itching and clay colored stool. No history worm in stool. On general examination, her pulse rate was 88 beats per minute, blood pressure was 120/80 mmHg, and oxygen saturation was 98% on room air and icterus was present. On abdominal examination-soft, non-tender, bowel sound normal, liver and spleen were not palpable. Laboratory investigations showed a hemoglobin level of 13.1 g/dL, total leukocyte count of 6,600 cells/mm³, and platelet count of 220,000 cells/mm³. Liver function tests revealed total bilirubin of 5.8 mg/dL and direct bilirubin of 4.1 mg/dL. Serum aspartate aminotransferase was 33 U/L, alanine aminotransferase was 26 U/L, and alkaline phosphatase was 473 U/L. Renal function tests showed blood urea of 24 mg/dL and serum creatinine of 0.3 mg/dL. Magnetic resonance cholangiopancreatography done suggestive of dilated common bile duct and common hepatic duct with multiple linear tubular hypointense intraductal filling defect in right hepatic duct causing partial luminal obstruction with additional intrahepatic ductal involvement suggestive of biliary ascariasis, atrophic pancreatic body and tail with preserved head and normal main pancreatic duct. On Endoscopic Retrograde Cholangiopancreatography (ERCP) (Figure 9) A long worm seen, selective common bile duct cannulation done, position confirmed with bile aspiration, worm removed with forceps and double pigtail stent placed. After ERCP the patient was treated with oral albendazole for three days. Patient improved during hospital stay with clinical and improvement in liver function test.

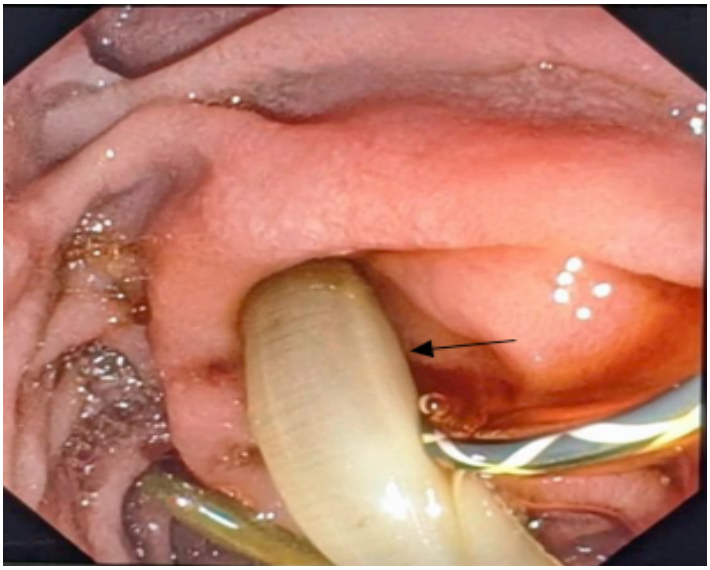


Figure 9: Endoscopic retrograde cholangiopancreatography (ERCP) showing ascaris coming out of the papilla.

Summary

Serial No.	Age/sex	Symptoms	Signs	Diagnosis
1	55/Male	Abdominal pain, yellowish discoloration of eyes and skin, fever, loose stools, altered mental status	Febrile, icterus, diffuse abdominal tenderness with Murphy's sign positive	Acute cholecystitis secondary to ascariasis
2	13/Male	Abdominal pain, fever	Mild tenderness in epigastric and RUQ region	Acute cholangitis secondary to ascariasis
3	35/Female	Abdominal pain	Diffuse tenderness with guarding	Acute pancreatitis secondary to ascariasis
4	40/Female	Abdominal pain and yellowish discoloration of eyes	Soft and non-tender	Biliary ascariasis

Table 1: Demographic and clinical characteristics of patients.

Laboratory parameters

Laboratory parameters	Case 1	Case 2	Case 3	Case 4
Hemoglobin(g/dl) (13.5-17.5g/dl)	8.9	12.3	8.1	13.1
Total Leukocyte Count(cells/mm3) (4000-10000cells/mm3)	22280	21860	10050	6600
Platelet count(cells/mm3) (150000-300000cells/mm3)	134000	219000	311000	220000
Total bilirubin(mg/dl) (0.30-1.20 mg/dl)	9.69	0.35	0.83	5.8
Direct bilirubin(mg/dl) (0-0.40 mg/dl)	6.4	0.05	0.17	4.1
Aspartate aminotransferase(U/L) (0-35 U/L)	184	32	75	33
Alanine aminotransferase(U/L) (0-45 U/L)	64	18	77	26
Alkaline phosphatase(U/L) (53-129 U/L)	610	320	85	473
Blood urea(mg/dl) (7-20 mg/dl)	21	12	20	24
Serum creatinine(mg/dl) (0.7-1.3 mg/dl)	0.57	0.53	0.57	0.3

Table 2: Laboratory parameters of patients.

Discussion

Hepatobiliary and pancreatic ascariasis represents an uncommon but important complication of Ascaris lumbricoides infection, particularly in regions where ascariasis remains endemic. The manifestation of disease occurs when the adult worm migrates from duodenum through ampulla of Vater into the hepatobiliary tract, leading to various clinical manifestation of disease. The present case series highlights this diverse clinical spectrum across both pediatric and adult populations, with patients presenting with cholangitis, obstructive jaundice, and acute pancreatitis. Despite improvements in sanitation, hepatobiliary ascariasis remains a problem in developing countries and should remain an important differential diagnosis in patients presenting with unexplained hepatobiliary or pancreatic symptoms, especially in endemic region. Early recognition of disease is essential, as prompt diagnosis using imaging modalities such as ultrasonography and Magnetic resonance cholangiopancreatography, followed by appropriate endoscopic intervention and anthelminthic therapy, can prevent significant morbidity and ensure favorable outcomes. Six clinical manifestations of hepatobiliary and pancreatic ascariasis have been described by MS Khuroo et al [3]. The clinical manifestations include biliary colic, acute cholangitis, acute pancreatitis, acalculous cholecystitis, and hepatic abscess, with hepatolithiasis occurring less frequently. Owing to their high motility, the worms are often not detected within the biliary tree, as they can intermittently migrate in and out through the ampulla. When retained within the

biliary or pancreatic ducts, the parasites may die and subsequently serve as a nidus for infection or stone formation. Obstruction of these ducts can lead to various complications, including biliary colic, cholecystitis, pancreatitis, or intrahepatic stone disease, depending on the location involved. In the case report by Lee CF et al [4], intrahepatic duct calculi have been reported to contain Ascaris ova, indicating that parasitic debris may serve as a nidus for stone development. Degenerated worms or retained eggs can induce chronic inflammation, promote bacterial colonization, and cause bile stasis, all of which contribute to pigment deposition and the eventual formation of hepatolithiasis. Leung et al [5]. described that the initial management of ascariasis is primarily medical in patients with mild symptoms or isolated intestinal involvement. In cases involving extraintestinal migration, anthelminthic therapy may demonstrate reduced efficacy due to inadequate drug levels within the biliary system. Furthermore, treatment-induced death of the parasite can lead to its retention within the ducts, thereby exacerbating obstruction. In clinically stable patients with mild biliary involvement, a period of conservative management with serial ultrasonographic monitoring over 1-2 weeks may facilitate spontaneous migration of the worm out of the ducts. Conversely, patients presenting with severe symptoms or complications require prompt endoscopic intervention, most commonly performed via endoscopic retrograde cholangiopancreatography, using retrieval instruments such as forceps or baskets.

Conclusion

Hepatobiliary and pancreatic ascariasis, though uncommon, remains an important differential diagnosis in endemic regions such as India. Prompt recognition using ultrasonography and timely endoscopic intervention are critical to preventing morbidity. A combined strategy of ERCP and anthelminthic therapy yields excellent outcomes, as demonstrated in this series. Continued vigilance and strengthened public health measures are essential to reduce the burden of this preventable yet potentially severe disease.

References

1. Holland C, Sepidarkish M, Deslyper G, Abdollahi A, Valizadeh S, et al. (2022) Global prevalence of Ascaris infection in humans (2010- 2021): a systematic review and meta-analysis. Infectious Diseases of Poverty 11: 113.
2. Parija SC, Chidambaram M, Mandal J (2017) Epidemiology and clinical features of soil-transmitted helminths. Tropical parasitology 7: 81-85.
3. Khuroo MS, Rather AA, Khuroo NS, Khuroo MS (2016) Hepatobiliary and pancreatic ascariasis. World journal of gastroenterology 22: 7507.
4. Lee CF, Lee WC, Wu RC, Chen TC (2016) Intrahepatic duct stones harboring ascariasis ova: a case report. Medicine 95: e3139.
5. Leung JW, Andy SY (1997) Hepatolithiasis and biliary parasites. Baillière's clinical gastroenterology 11: 681-706.