

## Pancreatic ascariasis with periampullary carcinoma

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*Ascaris lumbricoides* infestation is endemic in tropical countries. Most infections are asymptomatic, but it can produce a wide spectrum of manifestations including hepatobiliary and pancreatic complications. There are reports of association of biliary ascariasis with biliary malignancies in the past, but same is not known for pancreatic ascariasis. We report a case of association of periampullary malignancy with pancreatic ascariasis.

## INTRODUCTION

Ascariasis is one of the most common helminthic infestation with worldwide distribution, and an estimated 25% of the total population is infected. Most of the cases occur in the developing world. <sup>[1],[2]</sup> In India, it is endemic in few areas of North India (e.g. Kashmir), where it is known to cause considerable morbidity and mortality. Bilio-pancreatic ascariasis is rare outside endemic regions. <sup>[1]</sup> Though there have been scattered reports of malignancies associated with ascariasis, the exact role of *Ascaris lumbricoides* in malignancies of the hepato-bilio-pancreatic system is unknown. We report a case of pancreatic ascariasis being associated with peri-ampullary malignancy and present the related review of the literature.

## CASE REPORT

A 43-year-old woman, presented with recurrent upper abdominal pain for last 3 years. There was an increase in the frequency of pain for the last 1 year. She did not have significant co-morbidities. Physical examination was unremarkable, while laboratory tests showed a normal leucocyte count, elevated serum alanine transaminase, aspartate transaminase and serum alkaline phosphatase (289, 328 and 468 IU/L) levels. There was a mild elevation of pancreatic tumor marker Ca: 19-9 level (47.3 U/ml). The trans-abdominal ultrasonography (USG), done prior to presentation at our hospital revealed a peri-ampullary lesion. Magnetic resonance cholangiopancreatography (MRCP) demonstrated a similar finding ill-defined heterogeneous mass (10 x 14 mm) in the peri-ampullary region. Duodenoscopy revealed a bulky ampulla with a small area of the overlying friable nodular mucosa. Histopathological examination suggested a tubulovillous adenomatous polyp with foci suspicious of adenocarcinoma. Endoscopic ultrasound (EUS) was done to assess feasibility of ampullectomy, showed infiltration of the duodenal wall and terminal common bile duct and a long, linear, nonshadowing echogenic strips in a dilated pancreatic duct (PD) suggestive of an adult *A. lumbricoides* worm inside the main PD [Figure 1] and [Figure 2]. Patient underwent endoscopic retrograde cholangiopancreatography [Figure 3] for extraction of the dead worm and deworming was done subsequently. Following which, she underwent an uneventful Whipple's procedure. Histopathological examination of the surgical specimen confirmed tubulovillous adenomatous polyp with high-grade dysplasia and focal invasion with desmoplasia (peri-ampullary region) with metastasis in inferior peripancreatic lymph nodes. She was then discharged in a healthy condition and is on regular follow-up. {Figure 1}{Figure 2}{Figure 3}

## CONCLUSIONS

As the life span of adult *A. lumbricoides* is around 1 year and as they do-not multiply in the host, constant re-exposure is required to reach a high burden of worms in an individual patient. <sup>[2]</sup> Thus, ascariasis related clinical disease is usually limited to patients from high-endemicity areas and high-worm loads. Hepato-bilio-pancreatic ascariasis, therefore, is rarely reported from other regions.

Biliary ascariasis is a common occurrence in endemic regions and is causally associated with - biliary colic, acute cholangitis, acute pancreatitis and its complications, recurrent pyogenic cholangitis, acute cholecystitis, liver abscess <sup>[2]</sup> due to smaller duct diameter, migration of *A. lumbricoides* into the PD is uncommon. Even in highly endemic area as Kashmir, India, pancreatic ascariasis was rare and represented only 1.4% of all hepato-bilio-pancreatic ascariasis. <sup>[1]</sup>

Sandouk et al . reviewed 300 patients with bilio-pancreatic ascariasis in Syria and found that USG, together with clinical findings, are the mainstay of diagnosis. <sup>[3]</sup> In other series, USG has a sensitivity of 50-86% for worms in the biliary tree, but the sensitivity for detecting worms in PD is not known. <sup>[4],[5]</sup> EUS has been utilized in reaching a diagnosis of ascariasis in a single report recently. <sup>[6]</sup> In our case also the diagnosis was reached only with EUS, while USG and MRCP did not reveal the worm.

There have been reports of biliary ascariasis co-existing or predating the diagnosis of peri-ampullary malignancy, <sup>[7]</sup> adenoma <sup>[8]</sup> or cholangiocarcinoma. <sup>[9]</sup> Similar association has not been shown with the pancreatic ascariasis. This is the first such report of the pancreatic ascariasis with peri-ampullary neoplastic adenoma. The exact relationship between ascariasis and peri-ampullary malignancy is unclear, though a causal relationship is less likely, as large series of patients from areas of high endemicity, have failed to pick up such an association. <sup>[3],[10]</sup>

To conclude, endoscopy ultrasound is a useful modality in diagnosing patients with the pancreatic ascariasis, and whether presence of ascariasis predisposes to neoplastic transformation in rare patient is essentially unknown.

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**Figure 1**

Endoscopic ultrasound image of a linear filling defect inside pancreatic duct

**Figure 2**

Endoscopic ultrasound image showing infiltration of ampullary lesion to duodenal wall and terminal common bile duct

**Figure 3**

Endoscopic retrograde cholangiopancreatography image of a linear filling defect inside dilated pancreatic duct

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