

*LETTER TO THE EDITOR*

**BILIARY STONES AND ASCARIASIS – OUR EXPERIENCE**

Sir,

( Received on September 3, 2001 )

*Ascaris Luumbricoides* infests more than quarter of world population and is particularly common in Asia, Africa and Central America. Although Ascariasis is predominantly a disease of developing countries, clinician elsewhere should be familiar with the clinical presentation of Hepatobiliary and Pancreatic Ascariasis as well in view of world travel and population migration.

In endemic areas, over 90% of the inhabitants harbor the worms. Poor socio-economic conditions, notably inadequate or absent facilities for disposing human excreta, lead to heavy fecal contamination of the soil around dwellings; furthermore the ecological factors in tropical and subtropical zones favor maturation of the excreted ova.

Ascariasis of intestinal tract is one of the commonest infestations in our part of the world. Most infected individuals have low worm burdens and are generally asymptomatic. Large bolus of entangled worms can cause small bowel obstruction and at times may also lead to perforation, intussusception or the volvulus.

The pathological effects of Ascariasis are of three folds. First is Spoliative or nutritional effect, which are seen only when the worm burden is heavy. Worms occupy a large part of the intestinal tract and interfere with proper digestion and absorption of food, thus contribute to Protein Energy Malnutrition and the Vitamin deficiencies.

The second, Toxic effects, are due to hypersensitivity to worm antigen and maybe manifested as fever, urticaria, angio-neurotic oedema, wheezing and conjunctivitis. Whereas the third, Mechanical effects, are mainly due to masses of worms causing luminal occlusion and at times the worms infiltrate into the vital areas.

The biliary infestation by Ascariasis is also not uncommon. These adult worms do migrate through sphincter of oddi into the bile duct causing spasm of the sphincter resulting in biliary colic and partial biliary obstruction with jaundice. Some drugs, anaesthetic agents, anti-helminthics, fever or spicy food generally triggers the worm migration. Prolonged biliary infestation with secondary infection may also result in suppurative cholangitis and multiple small liver abscesses.

The cholestrol gall stones are caused because of bile super saturation, and the nucleation of cholestrol mono hydrate with subsequent crystal retention and the abnormal gall bladder motor function with delayed emptying and astasis. But the pigment stones which are mainly composed of calcium bilirubinate are found to be associated with chronic biliary tract infection and the parasitic infestation. The Ascariasis in biliary tree is responsible for increased activity of enzyme beta-glucuronidase, which inturn leads to deconjugation of the soluble bilirubin mono and diglucuronide, causing pigment stone formation.

The fifteen cases of Biliary Ascariasis have been observed in the surgical unit of our hospital in the last two years from Jan. 1999 to Dec. 2000. All cases presented with sign and symptoms suggestive of biliary obstructive diseases. Recurrent Colics and Jaundice were the common presenting symptoms in all of them. Six patients had features of cholangitis having high fever, colics and jaundice. The history of worm passage was only noted in three out of the fifteen cases. Dyspepsia in eight and history of vomiting in four patients. Right Hypochondrium tenderness, on examination, was found in eight patients. Rigidity of right upper abdomen in five patients and Hepatomegaly in two patients. Serum Alkaline Phosphatase was raised above 200 international units in all the fifteen patients and serum bilirubin varied from 7 to 15 mg./dl. in these cases. Pre operative ultrasound was non specific apart from suggesting the dilatation ranging from 1.2 to 3 cms., and stone in common bile duct with features of inflammatory changes in gall bladder suggestive of cholecystitis. None could be diagnosed preoperatively as a case of Biliary Ascariasis.

All fifteen cases having diagnostic finding of obstructive jaundice were subjected to surgery. Gall bladder was found to be scarred and thickened in five patients. Twelve out of fifteen patients had features of acalculous cholecystitis. Live worms were found in gall bladder in three patients. The common bile duct dilatation was seen in thirteen patients. On exploration the live and dead worms, 2 to 6 in number, were found in the common bile duct in all cases. Common bile duct stones were soft and crumbled easily on manipulation. These brown colored

pigment stones were seen in twelve cases, while the mild hepatomegaly was noticed only in two patients.

Post operatively, all patients had uneventful recovery. All patients were dewormed postoperatively with Albendazole and were followed six monthly after their discharge from the hospital. None showed any kind of complication during the follow up.

*Ascaris Lumbricoides* is the largest intestinal nematode parasite of humans. It is widely distributed in tropical and subtropical regions. Biliary Ascariasis constitute a good proportion of biliary diseases in our setup. Biliary tract gets involved by intra ductal migration of adult worms from the duodenum through the Ampulla of Vater. Since the length of the extra hepatic tree is 4 to 10 centimetre, at times on migration the part of the worm do remain in duodenum. The impacted worm may thus lead to spasm of sphincter of Oddi resulting in partial biliary obstruction, colicky pain and then jaundice. Prolonged infestation do cause cholecystitis, cholangitis, pancreatitis and at times intra hepatic abscesses. The Ascariasis and associated bacterial infection mostly by *E.coli* and *Klebsiella* containing increased level of enzyme beta-glucuronidase are responsible for causing enzymatic hydrolysis of soluble conjugated bilirubin glucuronide to form free bilirubin, which then precipitate with the calcium to produce pigment biliary stone. Dead worms also form nidus for formation of mixed gall stones. The cells of fertilized *Ascaris* eggs and also the albuminoid membrane which covers the *Ascaris* eggs get stained with bilirubin and act as nucleus for the growth of biliary pigment stones.

A high proportion of patients with hepatobiliary and pancreatic ascariasis have frequent worm invasion, which is mostly due to worm reinfection on account of unhygienic living condition, poor sanitation and unsafe water consumption. The pancreatobiliary worms can be detected only by realtime ultrasound scanning. The simple ultrasound can only demonstrate the dilated bileducts and at times the linear round areas of increased ecogenicity. The Endoscopic Retrograde Cholangio Pancreatography is not only an excellent tool for detecting the worms but has major therapeutic role also in extracting the biliary ascariasis worms. The ascariasis should always be treated to prevent potentially serious complication. Mebendazole and Albendazole are effective drugs in the treatment of ascariasis but are considered to be contraindicated in pregnancy and in heavy infection where they may provoke the ectopic migration. Pyrantel

pamoate and piperazine citrate are safe drugs in pregnancy. It is now believed that the anti-helmenthic drugs which would act at the larval stage and also on the adult worm will only help in reducing the worm reinfection, but no such deworming pharmaceutical agent is currently available. The periodic deworming at the interval of the two to three months should always be undertaken to prevent, worm reinfection and worm reinvasion. Sanitation improvement has also to be combined along with drug treatment. The level of personal hygiene has to be increased and adequate toilet facilities to be provided. We conclude with our experience that in view of such a high incidence of Biliary Ascariasis in our setup it is always advisable to deworm these patients to prevent the biliary complication including the pigment stone formation and the development of obstructive jaundice.

U. K. SHRIVASTAVA\* AND NAVEEN JAIN

*Department of Surgery,  
University College of Medical Sciences,  
and G.T.B. Hospital, Delhi - 110 095*

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\*Corresponding Author