Pattern of clinical findings in adult patients having ascaris lumbricoides infestation: 10 year experience from Kashmir valley, an endemic area of north India

1Khurshid Ahmad Ganaie, 2Suraya Kounser, 3Yawar Zahoor
1,2,3 MBBS MS
1Consultant Surgeon health services Kashmir
2Senior Resident, department of ophthalmology SKIMS Medical College Bemina
3Consultant surgeon MAMC Delhi

*Corresponding Author:
Dr Suraya Kounser
House No-29, Jamia Lane Gouripora Sanatnagar, 190005, J&K, India

Type of Publication: Original Research Paper
Conflicts of Interest: Nil

ABSTRACT
The presentation of ascaris infection is characterized by variable symptomatology as it is generally asymptomatic in the adult patients, and it is in children where we see the most florid clinical presentation and the complications of this illness. Our objective of this study was to analyze the pattern of clinical findings of ascaris infection in adult patients of the Indian Kashmir, one of the endemic regions from the whole India.

Methods. In this study we analyzed the clinical findings of the adult patients who presented to our hospital with different complaints associated with ascariasis lumbricoides. A total of 246 adult patients irrespective of their gender, having any abdominal complaint related to ascaris lumbricoides infestation were included prospectively. Results. The mean age of our patients was 28.3 years with SD of 10.2 years. The age ranged from 18-78 years. Out of total 246 patients, 160 (65%) were females and 86 (35%) were males (male : female ratio was 1:2). In this study the maximum number of patients, 158 (64%) were in the age group of 20-30 years. The maximum number of patients presented with biliary colic, 130 (53%) out of 246 patients. Frouty (16%) cases out of 246 cases presented with acute pancreatitis, and seventeen (7%) patients had sub-acute intestinal obstruction on admission. Out of 246 cases 6 (2.5%) cases presented with peritonitis. Conclusion. Ascaris lumbricoides in adult patients can present with varied symptomatology. This disease is endemic in areas lacking in basic sanitary infrastructure, with precarious housing, ignorance and poverty.

Keywords: Ascariasis, Biliary colic, Pancreatitis, Cholangitis, Intestinal obstruction, Peritonitis.

INTRODUCTION
Being an obligate parasite of humans, ascaris lumbricoides can be theoretically found wherever humans are present 1. Affecting the humans, it is considered to be the most common helminth, and causes some important medical and social problems in the third world countries because of their poor sanitation, lack of proper housing and hygiene 2-3. Ascariasis is almost endemic in north India, as the climate is favorable for their growth and proliferation. In addition to this open defecation is common in India which is encouraging the spread of ascaris lumbricoides infestation. Ascaris infestation occurs in all age groups but it is more common in children of preschool age 4. It has been reported that >150 countries across the globe are infected with ascaris lumbricoides (AL) parasite, particularly in temperate, tropic and subtropic regions. The presentation of ascaris infection is characterized by variable symptomatology as it is generally asymptomatic in the adult patients, and it is in
children where we see the most florid clinical presentation and the complications of this illness. For ascaris lumbricoides when the intestinal environment becomes intolerable for their living, they tend to migrate to more appropriate areas of intestinal tract and can cause serious problems due to this migration including acute pancreatitis, acute cholecystitis, liver involvement, intestinal obstruction and even perforation peritonitis. In adults the most common presentation is hepato-biliary and pancreatic diseases. Symptoms related to adult worms in the biliary tree can be, abdominal pain, biliary colic, cholecystitis, ascending cholangitis, obstructive jaundice, hepatic abscess, strictures of the biliary tree etc. In some cases retained worm fragments in hepatobiliary tract serve as a nidus for recurrent pyogenic cholangitis. In intestine they can present as obstruction, mostly sub-acute type and in very few cases as acute obstruction. Appendicitis can occur when ascaris obstructs its lumen and similarly the meckle’s diverticulitis. Certain factors like, spicy foods, high fever, anesthesia, diarrhea, and other stresses have been associated with an increased chances of worm migration. Clinical disease is largely restricted to individuals with a high worm load. Our objective of this study was to analyze the pattern of clinical findings of ascarsis infection in adult patients of the Indian Kashmir, one of the endemic regions from the whole India.

**MATERIAL AND METHODS**

In this study we analyzed the clinical findings of the adult patients who presented to our hospital with different complaints associated with ascariasis lumbricoides. The study was conducted in the postgraduate department of general surgery SMHS hospital, the first apex tertiary care center of Kashmir valley from 2008 to 2018. In this study a total of 246 adult patients irrespective of their gender, having any abdominal complaint related to ascaris lumbricoides infestation were included for analyses. The study was conducted prospectively, and was duely approved by the ethical committee of our institution. Only adult patients were included in the study whose age was more than 18 years. All these patients were received in the emergency department with the suspicious of ascarsis infestation. Demographic data regarding age, sex, socioeconomic and educational status, residence and occupation was collected and analyzed. After this complete information of all the patients was recorded about their variable clinical presentations (like-intestinal, hepato-biliary and pancrease related signs and symptoms) with which they presented to our hospital in the first contact. The diagnosis was made after taking proper history, clinical examination and by some diagnostic tests. In the majority of these cases the diagnosis was made by conventional ultrasonography (Figure-1). The other diagnostic modalities used were, stool examination for ascari ova, X-Ray abdomen and endoscopic retrograde cholangio-pancreatography (ERCP). Few cases were even diagnosed intra-operatively (peritonitis cases)-Figure-2. The majority of these cases were managed conservatively. All patients of suspected intestinal obstruction were initially subjected to conservative treatment depending upon the clinical condition and severity of obstruction. Patients were considered for surgical intervention if there was any deterioration on clinical parameters like features of peritonitis. Similarly most of the patients with hepato-biliary-pancreatic disease were treated initially with conservative method. But some patients needed ERCP for clearance of biliary tree. Few cases required even surgical exploration.

**STATISTICAL ANALYSIS**

Descriptive statistics like mean and percentages were used for the analysis.

**RESULTS**

In this prospective study we analyzed the clinical findings of 246 adult patients who presented to our hospital with complaints due to ascarsis infection from 2008-2018. The mean age of our patients was 28.3 years with SD of 10.2 years. The age ranged from 18-78 years. Out of total 246 patients, 160 (65%) were females and 86 (35%) were males (male : female ratio was 1:2). In this study the maximum number of patients, 158 (64%) were in the age group of 20-30 years. The complete spectrum of clinical findings of all these patients on presentation to the hospital is given in Table-1. The maximum number of patients presented with biliary colic, 130 (53%) out of 246 patients. Fourty (16%) cases out of 246 cases presented with acute pancreatitis, and seventeen (7%) patients had sub-acute intestinal obstruction on admission. Out of 246 cases 6 (2.5%) cases presented with peritonitis. In the present series, 182 (74%) patients out of 246 patients were managed conservatively (>85% of these cases were having...
In 37 (15%) patients we did successful ERCP (diagnostic as well as therapeutic). Surgical intervention was required in 27 (11%) patients (laparoscopy as well as exploratory laparotomies).

**DISCUSSION**

This study was conducted prospectively from 2008 - 2018 in the postgraduate department of general surgery SMHS hospital, a tertiary care hospital catering about five million population in Kashmir valley. Ascaris lumbricoides lives in symbiosis with 20% of mankind, as it is a specific human helminth. The mean age of our patients in the present study was 28.3 years with SD of 10.2 years. The age ranged from 18-78 years. Out of total 246 patients, 160 (65%) were females and 86 (35%) were males (male:female ratio was 1:2). In this study the maximum number of patients, 158 (64%) were in the age group of 20-30 years. Bhansali and Sethna in their study recorded that, majority of cases being in the 3rd and 4th decade of life. Our study results are at par with their results. Louw in a review study observed that roundworms lead to biliary tract diseases, pancreatic diseases, intestinal obstruction, peritonitis and appendicitis. Mishra PK et al. in their study also noted the similar abdominal complaints due to ascariasis. Wani I et al. had even noted the involvement of meckles diverticulam. In our present study we have noted almost the same set of abdominal complaints due to ascariasis. In the present study we observed that out of 246 patients, 130(53%) patients presented with biliary colic, 40(16%) cases presented with acute pancreatitis, 12(5%) cases had cholangitis on presentation and 10(4%) cases had recurrent pyogenic cholangitis. In a study of 500 patients conducted by Khueroo MS et al. observed that, 280(56%) patients presented with biliary colic, 31(6.2%) cases had acute pancreatitis, 121(24%) cases had cholangitis. Our results are almost close their results, except that we have seen less number of cases with cholangitis and acute pancreatitis in our study, which may be due to early seeking of medical advice by our patients. In the past very limited studies have been conducted on adults who presented with intestinal obstruction due to ascariasis.

Mohannal choudhary et al. had reported an adult having intestinal obstruction due to entangled mass of worms, that presented as a lump in the right iliac fossa, in whom laparotomy followed by milking of the worms into colon was done. Mokoena T et al. had also conducted a study on adult patients who presented with intestinal obstruction due to ascaris lumbricoide. In the present study we noted that 22(9%) patients presented with intestinal obstruction (17 patients with sub-acute intestinal obstruction and 5 patients with acute intestinal obstruction). In the present series, 182(74%) patients out of 246 patients were managed conservatively (>85% of these cases were having hepato-biliary-pancreatic disease). In 37(15%) patients we did successful ERCP: diagnostic as well as therapeutic. Surgical intervention was required in 27(11%) patients (laparoscopy as well as exploratory laparotomies). Wani et al. in their study on 204 patients over a period of 5 years with biliary ascariasis, found that most of their patients responded to conservative management and around 20% of all patients required surgery. In our study we recorded that less number of patients with hepato-biliary and pancreatic involvement required surgical intervention, because now even some difficult cases are managed by ERCP only.

**CONCLUSION**

Ascaris lumbricoide lives in symbiosis with 20% of mankind, as it is a specific human helminth. In the past very limited number of studies have been conducted on adults who presented with abdominal complaints due to round worms. Ascaris lumbricoide in adult patients can present with varied symptomatology. This disease is endemic in areas lacking in basic sanitary infrastructure, with precarious housing, ignorance and poverty. In order to lower the burden of this disease, the government should take the appropriate steps to improve the sanitary infrastructure and public hygiene.

**REFERENCES**


### Table-1: Clinical findings of adult patients with ascariis lumbricoides on presentation to hospital

<table>
<thead>
<tr>
<th>Clinical findings</th>
<th>No. of patients</th>
<th>% age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biliary colic</td>
<td>130</td>
<td>53</td>
</tr>
<tr>
<td>Cholecystitis (acute &amp; chronic)</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Cholangitis</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Recurrent pyogenic cholangitis</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Biliary stricture</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Liver abscess</td>
<td>4</td>
<td>1.5</td>
</tr>
<tr>
<td>Condition</td>
<td>Count</td>
<td>Percentage</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td>Acute pancreatitis</td>
<td>40</td>
<td>16</td>
</tr>
<tr>
<td>Pseudocyst pancreas</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Sub-acute intestinal obstruction</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>Acute intestinal obstruction</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Peritonitis</td>
<td>6</td>
<td>2.5</td>
</tr>
<tr>
<td>Appendicitis</td>
<td>4</td>
<td>1.5</td>
</tr>
<tr>
<td>Meckle's diverticulitis</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>246</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**Figure-1:** Ultrasonography showing intestinal ascariasis

**Figure-2:** Worm seen inside the peritoneal cavity on emergency laprotomy