Original article

Ascaris duodenitis- Endoscopic study in rural population

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Abstract:
Background: Helminthic and protozoal infestation of the alimentary tract is endemic in tropical and subtropical areas and also occur in temperate zones. Aim of the study is to evaluate duodenitis caused by parasite Ascaris Lumbricoides with help of upper gastrointestinal endoscopy.

Methods: Retrospective study of upper gastrointestinal endoscopy was done for patients with dyspeptic symptoms at the Bharati Vidyapeeth deemed University Medical college and Hospital, Sangli, from March 2010 to February 2014 a period of 4 years. A total of 363 patients were evaluated.

Results: Live Ascaris Lumbricoides was found endoscopically in 6 patients which were confirmed by extraction and histopathological examination. There was evidence of severe duodenitis endoscopically in all these patients.

Conclusion: Endoscopic findings of parasites is not very common but incidental. Confirmed diagnosis of duodenitis caused by parasite Ascaris Lumbricoides by live endoscopic visualization, extraction and histopathological confirmation is possible now. In the past, common methods of diagnosing parasitic infestation in the upper gastrointestinal endoscopy was by stool examination or findings during laparatomy for roundworms obstruction etc.

Key words: Ascaris Lumbricoides, Endoscopy, Duodenitis

Introduction:
Helminthic and protozoal infestation of the alimentary tract are endemic in tropical and subtropical areas and also occur in temperate zones.\textsuperscript{[1]} It is estimated that the world wide prevalence of intestinal nematode infections to be more than one billion people of which several millions have clinical disease due to Ascaris lumbricoides, Trichuris trichiura and hookworms.\textsuperscript{[2,3]} Parasites of gastrointestinal tract have various and wide spectrum of presentations as parasites infest and inhabit upper or lower gastrointestinal tract, pancreas, liver, gall bladder and biliary tree.\textsuperscript{[1]} The diagnosis of intestinal parasites is usually made by stool examination. Adult worms can be incidentally found during endoscopic examination.\textsuperscript{[4]}

Patients and Methods:
This is a retrospective study of upper G.I. Endoscopy done for patients with Dyspeptic Symptoms. We studied 363 patients in which upper GIscopy was done at the Bharati Vidyapeeth deemed University Medical college and Hospital, Sangli, from 2010 to 2014 in 4 years.

Inclusion criteria:
1- Age >18 years.
2- Non-emergency endoscopy

Exclusion criteria:
- Emergency endoscopy
A total 363 patients attended to the endoscopy units of our department for examination. They were studied for dyspepsia caused by duodenitis. All cases were inserted a intravenous cannula. In left lateral position and after local anaesthesia the endoscope was passed through the mouth, pharynx, esophagus, stomach, pylorus through the second part of the duodenum.

During the 4 years period a total of 6 cases of Ascaris infestation were detected. The larva was detected in each case, confirmation was done by histopathology. [Figure 1].

Table (1): Shows the data of all patients.

<table>
<thead>
<tr>
<th>Age (Years)</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>19 -70</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sex</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>250</td>
<td>68.87</td>
</tr>
<tr>
<td>Female</td>
<td>113</td>
<td>31.13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Residene</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>279</td>
<td>76.85</td>
</tr>
<tr>
<td>Urban</td>
<td>84</td>
<td>23.15</td>
</tr>
</tbody>
</table>

All the studied patients were subjected to the following: history taking, age, sex, presentation, residence. Demographic and clinical characteristics of cases are described in table 2.

Table (2): Demographic and clinical characteristics of cases with parasitic infestation.

<table>
<thead>
<tr>
<th>Case</th>
<th>Age/Sex</th>
<th>Residence</th>
<th>Presentation</th>
<th>Finding</th>
<th>Worm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>65/M</td>
<td>Rural</td>
<td>Pain in epigastrium, anaemia</td>
<td>Duodenitis</td>
<td>A.lumbricoides</td>
</tr>
<tr>
<td>2.</td>
<td>59/M</td>
<td>Rural</td>
<td>Pain in epigastrium, anaemia</td>
<td>Duodenitis</td>
<td>A.lumbricoides</td>
</tr>
<tr>
<td>3.</td>
<td>35/M</td>
<td>Rural</td>
<td>Pain in epigastrium, anaemia</td>
<td>Duodenitis</td>
<td>A.lumbricoides</td>
</tr>
<tr>
<td>4.</td>
<td>28/M</td>
<td>Rural</td>
<td>Pain in epigastrium, anaemia</td>
<td>Duodenitis</td>
<td>A.lumbricoides</td>
</tr>
<tr>
<td>5.</td>
<td>56/M</td>
<td>Rural</td>
<td>Pain in epigastrium</td>
<td>Duodenitis</td>
<td>A.lumbricoides</td>
</tr>
<tr>
<td>6.</td>
<td>33/M</td>
<td>Rural</td>
<td>Pain in epigastrium, anaemia</td>
<td>Duodenitis</td>
<td>A.lumbricoides</td>
</tr>
</tbody>
</table>
All cases are of rural residence and males. *Ascaris* parasite was most found in all 6 cases. Five cases had upper abdominal pain and anemia as presenting manifestation. All cases were referred to the endoscopy unit from the outpatient department. All cases had signs of severe duodenitis in the form of mucosal erythema and congestion seen by endoscope. Live larvae of worm were found in every case and seen endoscopically [Figure 2,3]  

**Figure 1: Histopathogy of extracted Ascaris larva.**

**Figure 2: Live Ascaris larva on Endoscopy.**

**Figure 3: Doudenitis with Ascaris worm(larva)**

**Discussion:**

Parasitic infestation of the gastrointestinal tract, especially Helminthic and Protozoal, is a known entity all over the world. It is estimated that more than one billion are infected of which several millions are due to Ascariasis Lumbricoides, T. Trichiura and hookworms.[2,3] The common intestinal worms include hookworms, Ascaris lumbricoides, Trichuris trichiura, Enterobius vermicularis, Strongyloides stercoralis, Capillaria philippinensis, and Anisakis.[1]

Upper gastrointestinal endoscopy is a very important tool for the diagnosis of gastrointestinal problems, and there are some reports of parasitic diagnosis during routine upper endoscopy.[5-7]

The symptoms of parasitic infestation are usually abdominal pain, vomiting and peptic ulcer like symptoms & rarely obstructive symptoms especially in children. The parasites were known to migrate from intestines to liver, bronchus and back to the intestines. This migration caused mucosal inflammation, ulcers and bleeding as in anisakias larva or ascaris.[8-10]

Usually, the diagnosis of alimentary tract parasites is made by the characteristic findings such as eosinophilia and egg shape appearance on faecal examination.[1] Now it is possible to directly
visualize them in the intestine during endoscopic procedures and extract them with help of biopsy forceps and confirm their identity by histopathology. Parasites may be missed during routine upper endoscopy, and this may be due to the observation that the nematode is often hidden among gastric folds, can be confused with gastric mucus, and difficulty to reach the site. Consequently, the use of narrow band imaging has been recently suggested to improve parasite detection at endoscopy.\textsuperscript{[11]} Ascaris is a large roundworm (15-40cm in length) and inhabits the small intestine and hence could be detected during upper endoscopy. The rest of the parasites, including hookworm, usually reside in the upper portion of small intestine; but it is hard to distinguish them only by endoscopy.\textsuperscript{[12]} Duodenitis is divided into grades 0,1,2 and 3.\textsuperscript{[13]} In our series all cases had severe duodenitis due to Ascariasis but not graded by histology as mucosal biopsies were not taken and worms confirmed only by histology. Bleeding by Ascaris is probably due to produced toxins by the worm that lead to multiple intestinal erosions which may cause the bleeding\textsuperscript{[14]} and presents as anaemia.

Rural communities of India still had a high prevalence of parasitic infestation and this may be related to different causes which include poor sanitary conditions, lack of proper sewage disposal systems, lack of health awareness and sometimes also lack of health care systems. This is confirmed in this study where all cases of parasitic infestation are of rural origin.

Men affected mainly in studies concerned with parasitic infestations during endoscopy.\textsuperscript{[14]} In our study 68.87% cases were males and 31.13% were females, and this may be related to more risk of exposure in men than women.

In conclusion, detection of parasites during upper gastrointestinal endoscopic procedures is an incidental event. Detection of parasites like Ascaris, in the duodenum should be suspected in patients with anemia and persistent epigastric pain.

References:


