

FREQUENCY OF GIARDIASIS IN DYSPEPTIC PATIENTS

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ABSTRACT

Objective: To determine the frequency of Giardiasis in dyspeptic patients, presenting at Military Hospital Rawalpindi.

Study Design: Descriptive study.

Place and Duration of Study: The study was conducted at medical/gastroenterological department Military Hospital Rawalpindi from May 2011 to Feb 2012.

Material and Methods: Patients were selected from those presented in medical OPD and admitted patients in medical wards. After informed consent the patient underwent upper GI Endoscopy for the complaints of dyspepsia and biopsy was taken. Mucosal biopsies were sent to determine the presence of Giardiasis. Three stool specimens were taken from each patient and examined for Giardia trophozoites and cyst.

Result: Stool RE revealed Giardia cysts/ trophozoites in 16 (10.67%) patients while duodenal biopsy was positive for Giardiasis in 24 (16%) patients.

Conclusion: Giardiasis should be considered in differential diagnosis while treating dyspepsia.

Keywords: Dyspepsia, Giardiasis.

INTRODUCTION

Giardiasis is a major diarrheal disease found throughout the world. The flagellate protozoan *Giardia intestinalis* (previously known as *G lamblia*), its causative agent, is the most commonly identified intestinal parasite in the United States and the most common protozoal intestinal parasite isolated worldwide¹⁻⁴.

It is more common in tropical regions and impoverished areas that lack water treatment systems⁵. *Giardia* causes an estimated 2.8×10^6 infections per year in humans⁶. A Pakistani study revealed that *Giardia* contributed to 50% of parasitic intestinal infestations⁷. Transmission of giardiasis occurs primarily by three means, person-to-person, food-borne, and water-borne. Ingestion of as few as 10 cysts is sufficient to cause infection in humans. In symptomatic individuals in the developing world, the prevalence of *Giardia* has been reported to be as high as 20 to 30 percent^{8,9}.

Almost 60% of infested patients are asymptomatic. Acute giardiasis occurs in less than half of cases and is manifested by

diarrhoea, malaise, foul smelling fatty stools, upper abdominal symptoms and dyspepsia¹⁰. Chronic giardiasis can develop in 30 to 50% of symptomatic patients and is characterized by loose stools, steatorrhoea, profound weight loss, malabsorption, malaise and fatigue¹¹. Children may present with growth impairment and recurrent abdominal pain¹². Diarrhea may be completely absent and only atypical upper gastrointestinal symptoms present¹³.

Dyspepsia is an extremely common though vague symptom which encompasses indigestion, abdominal bloating, epigastric discomfort etc. Almost every person experiences one or other feature of dyspepsia at some time in life. There are many causative factors and agents for dyspepsia among which giardiasis is a relatively uncommon but easily treatable cause¹⁴. Various laboratory tests used to diagnose giardiasis include stool examination, serological tests, examination of duodenal juice and duodenal biopsy. For diagnosis of giardiasis examination of stools is the oldest and simplest method. Both formalin-ether concentration method and modified fecal direct smear can provide a good cyst detection rate of *Giardia lamblia* provided that more than 3 consecutive examinations of stool under varying conditions are carried out¹⁵. Another method used is examination of duodenal juice.

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However its efficacy in detecting giardia trophozoites has been questioned¹⁶. IgM anti-giardia antibodies in serum have also been used in diagnosis¹⁷. A recently developed method is real-time Polymerase Chain Reaction (PCR) for detection of giardia in stools. Esophago Gastroduodenoscopy (EGD) may be employed in patients in whom the diagnosis is suspected but unproven after stool microscopy and ELISA. This also may be used for patients who continue to manifest symptoms of malabsorption after adequate therapy.

Endoscopy may be used to assess the small bowel architecture and obtain a duodenal aspirate or biopsy. While rarely necessary, duodenal biopsy may be the most sensitive test¹⁸. Duodenal biopsy is another method of detecting Giardia lamblia trophozoites. It has a high diagnostic yield and is considered superior to other methods¹⁹. Biopsy examination also has the advantage of showing mucosal changes in the duodenum which include cellular infiltration of lamina propria, partial villous atrophy and goblet cell depletion²⁰.

This study would help to determine frequencies of giardiasis as risk factor for dyspepsia.

MATERIAL AND METHODS

Study design: Descriptive study.

Place and duration of study: The study was conducted at Medical / Gastroenterological Department Military Hospital Rawalpindi from May 2011 to Feb 2012.

Sample Size: This hospital based study was carried out on 150 patients. Patients of 14-70 years, from either sex with dyspeptic symptoms like upper abdominal fullness, early satiety, burning, bloating, belching, nausea, retching or vomiting.

Exclusion criteria: Endoscopically proven cases of peptic ulcer, alcoholics, pregnant females, patient with co-morbid conditions like cardiac, renal and liver failure were not included in our study.

Sampling technique

Non-probability convenient sampling.

Data collection procedure

Permission from hospital ethical committee was sought. Patients selected from those presenting in medical OPD and admitted patients in Medical and Gastroenterology Department of Military Hospital Rawalpindi. A detailed history was taken from each patient specifically about dyspeptic symptoms in detail as mentioned in inclusion criteria. Relevant clinical examination was also done. After informed consent, the patients underwent upper GI Endoscopy for one of the complaints of dyspepsia. A mucosal biopsy specimen was obtained at each endoscopy and sent to determine presence of Giardia trophozoites.

Data analysis

Data collected was recorded using Statistical Package for Social Sciences (SPSS) version 11. Mean and standard deviation was obtained for numerical variables like age. Frequency distribution was calculated for categorical data like gender, dyspeptic symptoms and duodenal biopsy result (positive or negative for H.pylori).

RESULTS

Out of 150 patients, 125 (83.33%) were males and 25 (16.67%) were females. All the patients were also subjected to upper GI endoscopy and duodenal /biopsy was taken for detection of giardia and cysts and trophozoites.

Clinical presentation of the patients with percentage wise distribution of symptoms is given in fig 1.

Results of duodenal biops is shown figure 2.

DISCUSSION

Dyspepsia is an extremely common though a very vague symptom which carries different meanings for different patients. Almost every person experiences dyspeptic symptoms sometime during life. Dyspepsia may occur even in children as young as 06 months of age. The term dyspepsia includes upper abdominal pain/discomfort, feeling of early satiety, nausea, vomiting associated with food intake, retrosternal burning, belching, abdominal bloating etc. All of us suffer from one of these symptoms at one or other time. The incidence and prevalence of dyspepsia is on a progressive rise due to changing eating habits,

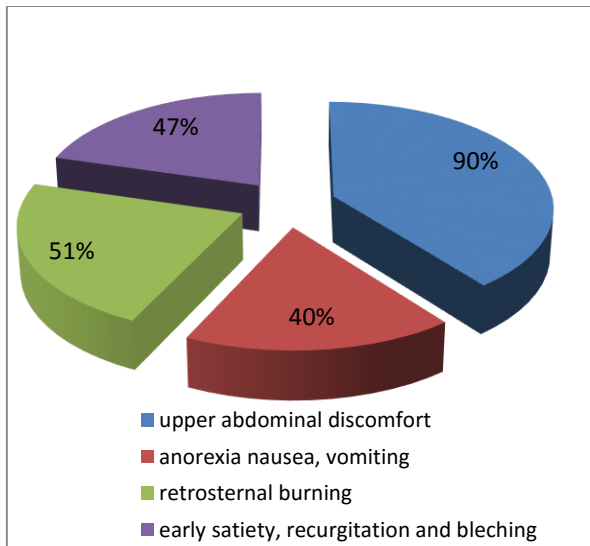


Fig.1: Symptoms of dyspepsia

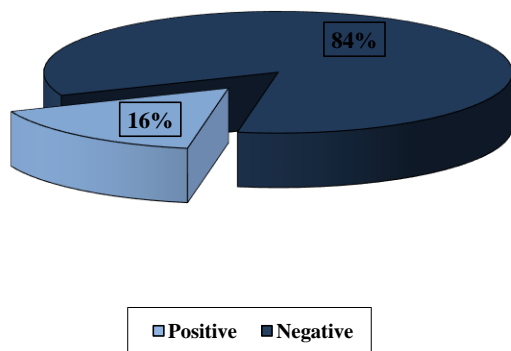


Fig.2: Duodenal Biopsy Results.

increased world-wide travelling and increase in the sedentary life style.

Long list of etiologies for dyspepsia have been documented in the literature. These include *H. pylori* Infection, peptic ulcer disease, alcoholism, functional disorders of gut motility, drugs, endocrine disorders, intra abdominal malignancies etc. One of the few uncommon causes world-wide is a chronic infection with the intestinal protozoan parasite *Giardia lamblia*. This parasite is transmitted through faeco-oral route and usually causes acute diarrhoea.

However, if infection becomes chronic, it may cause chronic intermittent diarrhoea, malabsorption and dyspepsia. In our

community where education standards and therefore hygienic conditions are not up to the mark, Giardiasis, like other faeco-orally transmitted diseases, is pretty common and can prove a significant cause of dyspepsia. Its importance in this context is high lighted by the fact that it is an easily treatable infection. *Giardia* exists in the alimentary tract as trophozoites which absorb nutrients from upper small intestine. The parasite is transmitted to other persons in cyst form. Cysts are passed in stools and are spread through contaminated water, food and directly from person to person.

Various methods used to diagnose giardiasis include stool examination to detect cysts or trophozoites, serological tests, antigen detection assays on stool, examination of duodenal aspirate and biopsy for giardia. Stool examination is a cheap and easy test but carries a high rate of false negative results because cyst excretion is variable. Examination of duodenal aspirate/biopsy (obtained endoscopically) is an invasive investigation but has a better diagnostic yield.

Our study showed that giardiasis is a relatively uncommon but statistically significant cause of dyspepsia and that duodenal aspirate examination is a better diagnostic tool to confirm giardiasis than stool routine examination(RE).

There is a lack of studies on this topic but the results of our study are comparable to those of few other studies performed in this regard. A recent study conducted by Yakoob J et al²¹ a Aga Khan University Hospital Karachi revealed Giardiasis in 44% patients undergoing upper GI endoscopy for dyspepsia.

In a study conducted by Grazioli B et al²² Giardiasis was found in 6.5% patients of dyspepsia and IBS who underwent oesophago-gastro-duodenoscopy (OGD).

In 1991, Zafar MN et al²³ conducted a study (JPMC Karachi Pakistan) In which 9% duodenal aspirates and 1.8% duodenal biopsies were found positive for giardia trophozoites.

Dogliani C et al²⁴ performed a study which revealed gastric Giardiasis in 0.37% of patients undergoing OGD.

In a study by Samad MM and colleagues, gastric giardiasis was found in 14% of patients with chronic gastritis and intestinal Giardiasis.

Reul. W and colleagues²⁵ found that 3.5% of patients under going OGD for dyspepsia had evidence of Giardiasis.

Therefore we can conclude that Giardiasis is a fairly significant cause of dyspepsia. Endoscopically obtained duodenal biopsy is a costly, invasive but can be a better investigation to determine Giardiasis in difficult cases.

CONCLUSION

Dyspepsia is a commonly seen problem in hospitals. Out of the many causes of dyspepsia, Giardiasis is a relatively uncommon and often missed cause. In a community like ours, where hygienic conditions are generally poor and dyspepsia is rampant, one must keep in mind giardiasis as a cause of chronic dyspepsia. Stool RE is an easily available investigation to detect Giardia cysts or trophozoites. Since the cysts are excreted at a variable and unpredictable rate, stool RE alone may not always lead to the diagnosis.

Examination of duodenal biopsy for giardia is a helpful investigation. However, it is invasive, expensive, less frequently available and is occasionally associated with complications. Therefore, it should be preserved for cases who present a diagnostic dilemma.

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