

Relationship of Nodular Gastritis and *Helicobacter pylori* Infection in Children under Treatment at Gujarat Adani Institute of Medical Science Bhuj, Kutch, Gujarat, India

Thacker VA and Trivedi JV*

Gujarat Adani Institute of Medical science Bhuj, Kutch, Gujarat

*Corresponding author: Trivedi JV, Professor of Medicine, Gujarat Adani Institute of Medical science Bhuj, Kutch, Gujarat, Tel: +9102832246417; Fax: +9102832258080; E-mail: drjvtrivedi@rediffmail.com

Received date: March 31, 2016; Accepted date: May 18, 2016; Published date: May 25, 2016

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Abstract

Aim: To report annual experience of 20 children with recurring abdominal pain (RAP), endoscopic findings and the outcome of 2 weeks of treatment with omeprazole, clarithromycin and amoxicillin.

Methods: Present Study was performed at Gujarat Adani Institute of Medical science Bhuj, Kutch, Gujarat, India from March 2014 to March 2015. For the duration of a 12-month period, 20 children (12 males and 8 females, aged 7-15 years) underwent endoscopy for assessment of RAP according to Apley's criteria. Every child was screened for the existence of serum specific IgG antibodies against HP antigens using an ELISA quantitative immunoassay method. Statistical analysis was performed with the help of SPSS version 15.

Results: *Helicobacter pylori* (HP) gastritis was evident in 8 (40%) patients of the 20 investigated. In two of the eight duodenitis was also observed. The endoscopic manifestation in five patients out of the eight (62.5%) was characterized by numerous small nodules covering most of the antral area and part of the distal area of the fundus. All patients had no symptoms after duration of two weeks of management which consisted of proton pump inhibitor, clarithromycin and amoxicillin.

Conclusion: HP plays a role in childhood peptic ulcer disease. The endoscopic is suggestive of HP which plays a role in childhood peptic ulcer disease.

Keywords: Children; ELISA; Endoscopic; *Helicobacter pylori*; Gujarat

Introduction

Nodular gastritis (NG) is characterized by an abnormal goose-flesh manifestation on esophagogastroduodenoscopy (EGD). There is proof that *Helicobacter pylori* infection causes pathogenesis of NG [1-3]. Because of asymptomatic manifestation, majority of cases are diagnosed accidentally [4],

but some patients evince unusual upper gastrointestinal (UGI) symptoms such as indigestion, nausea, abdominal bloating, epigastric pain or abdominal discomfort [5, 6].

Endoscopically particular protrusions of the gastric antrum consist of fundic gland polyps, early gastric cancer, mucosa-associated lymphoid tissue lymphoma, intestinal metaplasia, and NG. 7-9 NG is an atypical type of gastritis, with a reported incidence of 0.18-0.22%, but is comparatively frequent among young female patients [10-12].

Biopsy should be done from protruded lesions when NG is alleged on endoscopy. Numerous studies are available to clarify the prevalence the prevalence of *Helicobacter pylori* infection and the linked symptoms in childhood [13]. Previous studies have elucidated a prevalence of HP gastritis of 30-60% in children with recurring abdominal pain (RAP) and HP was therefore understood to play a role in this indication complex [14]. In children, epigastric pain, haematemesis and vomiting have been reported by some authors as symptoms that link to the HP infection, while many other authors have not found any precise symptoms.

The macroscopic manifestation of nodular gastritis is a typical occurrence and often established in children infected by HP and is characterized by the manifestation of Lymph nodular hyperplasia of the antral mucosa [15].

Present study was done with the aim to report annual experience of 20 children with RAP, endoscopic findings and the outcome of 2 weeks of treatment with omeprazole, clarithromycin and amoxicillin.

Material and Methods

Present Study was performed at Gujarat Adani Institute of Medical science Bhuj, Kutch, Gujarat, India from March 2014 to March 2015. For the duration of a 12 month period, 20 children (12 males and 8 females, aged 7-15 years) undergo endoscopy for assessment of RAP according to Apley's criteria which is more than three attacks of diffuse or localized abdominal pain in an episode of more than 3 months disturbing the routine living activities of the child and no other obvious causes of RAP. Every child was screened for the existence of serum specific IgG antibodies against HP antigens

using an ELISA quantitative immunoassay method. Gastroduodenoscopy was done since regular laboratory examinations and abdominal ultrasound was negative. During endoscopy, two biopsies were taken from gastric antrum and body, and duodenal bulb for histology, using Giemsa stains, as well as two antral biopsies for urease testing (CLO-test). Histological examination of all paediatric samples was performed and the infection was diagnosed by three positive recognition test of HP.

Statistical analysis was performed with the help of SPSS version 15. Level of confidence interval and p value was set at 95% and 5% respectively.

Results

HP gastritis was evident in 8 (40%) patients of the 20 investigated. In two of the eight duodenitis was also observed. The endoscopic manifestation in five patients out of the eight (62.5%) was characterized by numerous small nodules covering most of the antral area and part of the distal area of the fundus. The nodular appearance was restricted to the gastric mucosa and not seen in the duodenum. In the further two patients, only antral erosions were observed. The histological picture of the nodular gastric mucosa was characterized by a heavy inflammatory cell infiltrate consisting mainly of monocytes and an enlarged number of lymphoid follicles. HP was identified by urease test and by Giemsa stain in all included cases. Nine patients had elevated serum IgG antibody titers against HP. All patients had no symptoms after a duration of two weeks of management which consists of proton pump inhibitor (omeprazole: 0.7 mg/kg/d), clarithromycin (25 mg/kg/d) and amoxicillin (50 mg/kg/d). None has relapsed for 6-8 months subsequent treatment.

Four patients who underwent a second endoscopy, 3 months after the end of the treatment, had very mild antral nodularity which was significantly less than originally observed, almost complete departure of the inflammatory process, and HP could not be recognized.

Discussion

Inflammation of the gastric and duodenal mucosa is the final result of an inequity between mucosal defensive and aggressive factors. The amount of the inflammation and disparity between defensive and aggressive factors can lead to varying degrees of gastritis and mucosal ulceration [16, 17]. This is due to fact that HP is established in 80-90% of gastritis cases in adults and has a universal allocation that suggests a chief role for HP in the etiology of peptic disease.

The reports of HP-associated gastritis or ulcer are in smaller amount in pediatric patients compared to adults and comprise of slighter percentage of patients infected by the bacteria. The reason of the high incidence of infection in paediatric population may be due to spread of HP infection from person to person with general environmental or genetic factors.

HP was identified in around 40% of the patients undergoing endoscopy for RAP. However prevalence of HP infection in

children diagnosed as having primary gastritis is much higher compared to our study [18]. Various direct/invasive and indirect/non-invasive diagnostic tests are available for the diagnosis of HP infection. We have diagnosed HP infection in our study on the basis of three methods- Giemsa staining, urease test and serum antibody titers (ELISA).

Nodular gastritis was observed in 66-90% of the cases reported by other authors [15]. In present study the percentage was 62.5%. Histological examination in nodular gastritis consisted primarily of mononuclear cells and eosinophils and an enlarged number of lymphoid follicles. These macroscopic and microscopic results very much resemble benign lymphoid hyperplasia, which is commonly seen in small and large bowel mucosa of children. It seems that the inflammatory process in the gastrointestinal tract in children has its own specific characteristics differing from those seen in the adult. Although four cases were re-examined by endoscopy, the findings of these cases advocate that elimination of HP precedes the complete resolution of the inflammatory process. In spite of biopsies were taken from antral body of the stomach and the duodenal bulb we have 10 seropositive children but 8 with positive Giemsa stain test and 5 with positive CLO test. It may be due to either localization of HP outside the antrumcorpus region or previous broad-spectrum antibiotic treatment for other infectious diseases [19]. The remaining children were seropositive for anti-HP IgG but negatives for the other two assays; with possibility that these were false-positive antibody test results.

We secure to treat our patients with omeprazole, amoxicillin and clarithromycin for 2 weeks. This treatment resulted in the vanishing of symptoms in our patients and the progress of histological findings on the 2nd endoscopy which was done on 3 children which was in accordance with studies [19-21] which shows that one-week therapy with omeprazole, clarithromycin and metronidazole or amoxicillin is an effective treatment in children with HP infection.

Conclusion

From this study as well as those of others, it is suggested that HP play a role in childhood peptic ulcer disease. The endoscopic is suggestive of HP which plays a role in childhood peptic ulcer disease. Endoscopic observation of nodular gastritis may serve as evidence to the diagnosis of HP infection.

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