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UPPER GASTROINTESTINAL ENDOSCOPIC FINDINGS AND HELICOBACTER PYLORI INFECTION IN CHILDREN WITH RECURRENT ABDOMINAL PAIN

TEKRARLAYAN KARIN AĞRISI OLAN ÇOCUKLARDA ÜST GASTROİNTESTİNAL SİSTEM ENDOSKOPİ BULGULARI VE HELİKOBAKTER PİLORİ İNFEKSİYONU

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Anahtar Sözcükler : tekrarlayan karın ağrısı, çocuk, H. pylori, gastritis, Sydney Sistem

Key Words : rap, children, h. pylori, gastritis, Sydney system

ABSTRACT

Recurrent abdominal pain (RAP) is a problem frequently encountered by the pediatricians. In this study, the role of upper gastrointestinal endoscopy in children with recurrent abdominal pain was evaluated. According to RAP diagnostic criteria, 64 of 182 children who had been seen in our pediatric gastroenterology and nutrition unit were evaluated retrospectively.

We found "endoscopic gastritis" in 54 of 64 children. Duodenal ulcer was observed 11.1 % and esophagitis in 9.2 % and ectopic pancreas in 7.4 %. H. pylori infection was identified in 36 children (56.3 %). We observed 70 % clinical recovery in H. pylori infected children with RAP after the eradication therapy. The upper gastrointestinal endoscopy must be used more widely in childhood because of the high rate of detection of changes in upper gastrointestinal system endoscopically in our study. The role of H. pylori infection in RAP might be important because high of the clinical response to H. pylori eradication therapy was observed in this study.

ÖZET

Tekrarlayan karın ağrısı (TKA), çocuk doktorlarının sık karşılaştığı bir problemdir. Bu çalışmada üst gastrointestinal sistem endoskopisinin TKA 'lı çocukların değerlendirilmesindeki rolü araştırıldı. Çocuk gastroenteroloji, beslenme ve metabolizma ünitemize karın ağrısı yakınması ile başvuran 182 çocuktan retrospektif değerlendirme sonucu, TKA tanı kriterlerine uyan 64'ü çalışmaya alındı.

Altmış dört çocuktan 54'ünde "endoskopik gastrit" bulundu. % 11.1 vakada duodenal ülser, % 9.2'sinde özefajit, % 7.4'ünde ektopik pankreas saptandı. Helikobakter pilori infeksiyonu 36 çocukta (%56.3) bulundu. Helikobakter pilori (H. pilori) infeksiyonu saptanan TKA 'lı çocukların % 70'inde eradikasyon tedavisi sonrasında klinik düzelme gözledik. Çalışmamızda endoskopik olarak saptadığımız yüksek orandaki bu değişiklikler nedeniyle üst gastrointestinal sistem endoskopisi daha yaygın olarak kullanılmalıdır. Helikobakter pilori eradikasyon tedavisi ile sağladığımız yüksek klinik cevap nedeniyle TKA' da H. pilori infeksiyonunun önemli olabileceğini düşünüyoruz.

INTRODUCTION

Recurrent abdominal pain (RAP) is a problem frequently encountered by the pediatricians. The definition of this syndrome is the occurrence, over a period of at least three months of three or more episodes of pain affecting the child's activities (1). The prevalence of the disturbance in school-age children is about 10-20 % (2-4). An organic cause is found in only a small proportion of them (3,5).

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In spite of its frequent occurrence, little progress has been made during recent years to clarify the nature of this syndrome. The rate of organic causes in RAP were reported as 5-20 % (1,6). Nowadays, Helicobacter pylori (H. pylori) infection has been investigated as an etiological factor in many diseases such as primary antral gastritis or duodenal ulcer in children and adults. The symptoms of H. pylori infection is very variable. It can be asymptomatic or may cause abdominal pain, vomiting, dyspepsia, protein losing enteropathy or anemia (7-9). In the literature, the role of H. pylori gastritis as a cause of RAP in children is controversial. H. pylori was identified in 40-72,5 % of children with RAP and in 69-100 % of cases, total clinical

recovery was observed after H. pylori eradication therapy (10-12). In this study, we aimed to evaluate of the role of upper gastrointestinal endoscopy, endoscopic findings in children with RAP and the role of H. pylori gastritis as a cause of RAP in children in Dokuz Eylül University Faculty of Medicine.

PATIENTS AND METHODS

One hundered-eighty two children with abdominal pain who admitted to Dokuz Eylul University Faculty of Medicine Pediatric Gastroenterology and Nutrition Unit between January 1999-October 2001, were evaluated retrospectively from patient's charts. According to RAP diagnostic criteria (up to five years old children, more than three attacks of diffuse or localized abdominal pain in a period of three or more months affecting the daily activities of the child within the last year, normal physical examination, complete blood count, blood biochemical values, erythrocyte sedimentation rate, stool analysis and ultrasonography), 64 (mean age: 13.16±2.82 years; range: 6-17 years; male/female: 27/37) of 182 children were enrolled the study (6).

Complete blood count, urine analysis, serum transaminases, renal function tests, stool fat and reducing substance, abdominal ultrasound records were evaluated.

In our clinic, endoscopic Sydney classification system have been used for evaluation in alterations of gastric and duodenal mucosal appearence (13). Agar gel rapid urease test (C.P test, Yamanochi Pharma S.p.A, Carugate, İtalya) had been used for the direct examination of urease activity in antral biopsy specimens of all cases in endoscopy room. These data were obtained from patient's endoscopic records.

Statistical analysis was performed with 2000 SPSS software. The groups were compared by using Mann-Whitney U or Chi-square tests. The results were expressed as mean±SD and a two-tailed "p" value less than 0.05 was considered significant.

RESULTS

We found "endoscopic gastritis" in 54 (84.4 %) of 64 children. In remaining of 10 patients (15.6 %) endoscopic findings were normal. According to Sydney System endoscopic erythematous/exudative gastritis was observed in 52 of 54 patients (96.2 %). Endoscopic flat erosive and hemorrhagic gastritis were found in one patient for each (1.9 %). Severity of endoscopic gastritis was found to be mild in 33 cases (61.1 %), moderate in 18 (33.3 %), severe in 3 (5.5 %; Table).

Table. Endoscopic findings and comparison of H. pylori infected and non-infected children with reccurrent abdominal pain

Endoscopic findings	Patients (n=64)	%	H. pylori positive group (n=36)	H. pylori negative group (n=28)	p value
Presence of endoscopic gastritis	54/64	84.3	30/36	24/28	>0.05
Severity of endoscopic gastritis					
Mild	33/54	61.1	17/30	16/24	
Moderate	18/54	33.3	11/30	7/24	
Severe	3/54	5.5	2/30	1/24	
Localization of endoscopic gastritis					
Antrum	39/54	72.2	22/30	7/24	
Antrum predominant pangastritis	8/54	14.8	6/30	2/24	
Corpus predominant pangastritis	7/54	12.9	2/30	5/24	
Type of endoscopic gastritis					
Erythematous/exudative	52/54	96.2	29/30	23/24	
Flat erosive	1/54	1.9	1/30	-	
Hemorrhagic	1/54	1.9	-	1/24	
Presence of endoscopic duodenitis	14/64	21.8	12/36	2/28	**0.036**
Type of endoscopic duodenitis					
Erythematous/exudative	12	85.7	10	2	
Erosive	2	14.2	2	-	
Presence of esophagitis	5/64	9.2	3/36	2/28	
Endoscopic mucosal nodularity	14/64	21.8	14/36	3/28	**0.026**
Duodenal ulcer	6/64	9.4	6/36	0/28	**0.023**
Helicobacter pylori infection*	36/64	56.3			

** Helicobacter pylori infection had been detected by rapid urease test and/or histopathologically*

The localization of gastritis was antral in 39 cases (72.2 %), antrum predominant pangastritis in 8 (14.8 %) and corpus predominant pangastritis in 7 cases (12.9 %;Table). We found endoscopic duodenitis in 14 (21.8 %) of 64 children. Endoscopic mild and moderate erythematous/exudative duodenitis were observed in 12 of 14 patients (85.7 %). Mild erosive duodenitis was found in two patients (14.2 %) and duodenal ulcer in 6 (11.1 %; Table). Upper gastrointestinal endoscopy revealed nodularity of gastric mucosa was observed in 14 of 64 cases (21.8 %), esophagitis in 5 (9.2 %) and ectopic pancreas in 4 (7.4 %).

H. pylori infection was identified by using rapid urease test and/or antral histopathological evaluation in 36 of 64 children (56.3 %). Among H. pylori infected children, endoscopic presence of mucosal nodularity and duodenal ulcer were higher than H. pylori negative group ($p<0.05$). Twenty of 36 H. pylori infected children with RAP had been followed, and 14 cases (70 %) recovered clinically after successful H. pylori eradication therapy. In remainning six patients, H. pylori eradication could not been provided. In all of 20 patients, H. pylori infection had been reevaluted by urea breath test. In H. pylori negative group (n=28) 13 cases had been followed and only one child (7.6 %) recovered.

DISCUSSION

Recurrent abdominal pain is a frequent problem in childhood. While this complaint often represents a difficult diagnostic problem, a number of reports have documented that the RAP of childhood less commonly results from entities of clearly definable nature (1,2,6). Organic causes of RAP as H. pylori infection, intestinal inflammation associated motility disorders of gastrointestinal system, intolerance of lactose and sucrose, idiopathic hypercalciuria and food allergies has been reported with increasing frequency in recent years (6,10-12,14-16). Therefore, in our study, we evaluated endoscopic changes in upper gastrointestinal system for detection of organic causes of RAP.

We found endoscopic gastritis in 54 of 64 (% 84) cases. The most commonly seen endoscopic gastritis type according to Sydney System (13) was endoscopic erythematous/exudative gastritis (81.3 %) which was indeed the most commonly observed endoscopic gastritis in adulthood. (6,13). The most commonly detected localization of gastritis was antrum (72.2 %) which was again similar in adults (13). In addition demostration of gastritis in 54 children with RAP, we found duodenal ulcer (11.1 %), esophagitis (9.2 %) and ectopic pancreas (7.4 %) by upper gastointestinal endoscopy. All of the cases with duodenal ulcer had H. pylori infection. Previously, it has been shown that, H.pylori infection in gastric mucosa is responsible for duodenal ulcer in chilhood as in adulthood (17-19).

Antral nodularity is a common finding in H. pylori gastritis in children (19). It is generally associated histologically with lymphoid hyperplasia (20). In our study we found antral nodularity in 14 of 36 H. pylori infected children. We found ectopic pancreas in 4 cases (7.4 %) which is the most commonly seen congenital anomaly of the antrum (21). Ectopic pancreas is usually located in prepyloric region at the direction of greater curvature of the stomach. It approximately measures 2.3 cm (0.6-6 cm) in diameter and is a raised lesion with central indentation. It could easily be distinguished macroscopically but definitive diagnosis can be made histopathologically after surgical removal (21). It could be asymptomatic or may present with RAP, dyspepsia, nausea, upper gastrointestinal bleeding or obstruction (21-24). We suggest that, the upper gastrointestinal endoscopy must be used more widely in childhood because of the high rate of detection of changes in upper gastrointestinal system endoscopically in our study.

Observation of the microorganism in gastric biopsy specimen is the gold standard at diagnosis of H. pylori infection. Besides biopsy, rapid urease test being highly specific and sensitive for H. pylori infection, is important to support the diagnosis of H. pylori infection (25,26). In our study, we found H. pylori infection in 30 (55 %) of 54 children with endoscopic gastritis by rapid urease test and/or histopathologic evaluation. In the literature, there were various studies about the role of H. pylori infection in RAP (10-12,27,28). H. pylori infection was reported 40-54 % of causes with RAP (10,11,28). This rate was 60.4-72.5 % in our country (12,27,29). Günel et al (29) found that H. pylori infection was as high in healthy Turkish children as in children with RAP and there was no association between H. pylori infection and RAP. However H. pylori infection was diagnosed serologically in the study. Sensitivity and specifity of detection of Ig G type antibody against H. pylori in serum is lower than histopathologic evaluation (10,25,30). In other studies H. pylori was evaluated histopathologically and clinical recovery was provided in 69-100 % of cases after the eradication therapy (10-12,27). We found 56.3 % H. pylori infection in children with RAP which is a similar rate compared to other Turkish data (12,27,29). While the clinic recovery in H. pylori infected group was 70 % after eradication therapy, this rate was only 7.6 % in H. pylori negative children with RAP. Our study did not include control children without RAP. It would not be ethical to endoscope normal children, and we could not find sufficient number of children who underwent endoscopy for other reasons such as to work-up for the etiology of malabsorption during the same period of time, so we could not consisted control group without RAP in our study. However, Ozen et al (27) from our country, reported that, H. pylori infection rate was 20.8 % in children who underwent endoscopy for other reasons, 70.6 % in children with RAP. The clinic recovery rate in children with RAP was found higher than in children without RAP in this study. These results consistent with our findings.

Although the report of Gunel et al (29) and studies which showed absence of specific symptomatology of H. pylori infection (31,32), our findings and other reports in literature (10-12,27) suggested that the role of H. pylori infection in RAP is important because a very high clinical response to H. pylori eradication therapy was observed. We suggest that, H. pylori infection is responsible at least for some cases of RAP and since the response to eradication therapy is rewarding, H. pylori infection should be sought in children with RAP. The high rate of endoscopic gastritis (84 %), duodenitis (21.8 %), duodenal ulcer (11 %), ectopic pancreas (7.4 %) and H. pylori infection (56.3 %) as organic etiological factors of RAP in our study suggested that, in the future, with more advanced technology, higher rate of organic etiological factors might be determined in RAP.

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