



## ORIGINAL ARTICLE

# Duodenal pathologies in children: a single-center experience<sup>☆</sup>

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### KEYWORDS

Duodenitis;  
Endoscopy;  
Children

### Abstract

**Objective:** Several studies have been performed concerning pathologies of the stomach and esophagus in the pediatric age group. However, there have been very few studies of duodenal pathologies in children. The authors aimed to examine the clinical, endoscopic, and histopathological characteristics, as well as the etiology of duodenal pathologies in children.

**Method:** Patients aged between 1 and 17 years undergoing esophagogastroduodenoscopy (EGD) during two years at this unit, were investigated retrospectively. Demographic, clinical, endoscopic data, and the presence of duodenal pathologies, gastritis, and esophagitis were recorded in all of the children.

**Results:** Out of 747 children who underwent endoscopy, duodenal pathology was observed in 226 (30.3%) patients. Pathology was also present in the esophagus in 31.6% of patients and in the stomach in 58.4%. The level of chronic diarrhea was higher in patients with duodenal pathology when compared with those without duodenal pathology ( $p=0.002$ , OR: 3.91, 95% CI: 1.59–9.57). *Helicobacter pylori* infection was more common in patients with pathology in the duodenum (59.3%).

**Conclusion:** Duodenal pathology was detected in 30.3% of the present patients. A significantly higher level of chronic diarrhea was observed in subjects with duodenal pathologies compared to those with no such pathology. The rate of *H. pylori* infection was considerably higher than that in previous studies. In addition, there is a weak correlation between endoscopic appearance and histology of duodenitis.

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## PALAVRAS-CHAVE

Duodenite;  
Endoscopia;  
Crianças

## Patologias duodenais em crianças: experiência de único centro

## Resumo

**Objetivo:** Foram realizados vários estudos com relação a patologias do estômago e esôfago no faixa etária pediátrica. Contudo, poucos estudos das patologias duodenais em crianças. Visamos examinar as características clínicas, endoscópicas e histopatológicas juntamente com a etiologia das patologias duodenais em crianças.

**Método:** Foram investigados retrospectivamente pacientes com idades entre 1 e 17 anos submetidos a esofagogastroduodenoscopia (EGD) durante dois anos em nossa unidade. Os dados demográficos, clínicos e endoscópicos e a presença de patologias duodenais, gastrite e esofagite foram registrados com relação a todas as crianças.

**Resultados:** Das 747 crianças submetidas a endoscopia, 226 (30,3%) pacientes apresentaram patologia duodenal. A patologia também esteve presente no esôfago de 31,6% dos pacientes e no estômago de 58,4% deles. O nível de diarreia crônica foi maior nos pacientes com patologia duodenal, em comparação aos pacientes sem patologia duodenal ( $p=0,002$ , RC: 3,91, IC de 95%: 1,59-9,57). Infecção por *H. pylori* foi mais comum em pacientes com patologia no duodeno (59,3%).

**Conclusão:** Foi detectada patologia duodenal em 30,3% de nossos pacientes. Um nível significativamente maior de diarreia crônica foi observado em indivíduos com patologias duodenais, em comparação aos sem nenhuma patologia. A infecção por *H. pylori* esteve presente consideravelmente maior que em estudos anteriores. Além disso, há uma fraca correlação entre a imagem endoscópica e a histologia de duodenite.

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## Introduction

Esophagogastroduodenoscopy (EGD) is a reliable technique widely used in the diagnosis of diseases of the esophagus, stomach, and proximal duodenum. The advantages of this method are that the internal surface of the organ undergoing endoscopy can be observed directly, pathological sampling from lesions can be performed, and treatment can be administered when necessary. Since its introduction in pediatric patients in 1970, the use of endoscopic procedures has increased dramatically.<sup>1</sup> Franciosi et al.<sup>2</sup> reported that the number of upper endoscopic procedures increased by 12-fold between 1985 and 2005. As a consequence of this trend, new disorders of the GI tract and new pathologies were described in children.

In parallel to the increased use of EGD among children, numerous studies evaluating the pathologies of the stomach and esophagus in children have been performed.<sup>3,4</sup> However, there have been very few studies investigating the association between duodenal endoscopic findings and histologic diagnosis in the pediatric population. Alper et al.<sup>5</sup> reported that the prevalence of duodenitis in children undergoing endoscopy was 12.7%, and the correlation between endoscopic appearance and histology was considered to be poor. In another study, Alabd Alrazzak et al.<sup>6</sup> observed an 11% rate of duodenitis prevalence, while in a study of 1000 children undergoing EGD, Sheiko et al.<sup>7</sup> observed endoscopic disorder in the duodenum at a rate of 9.9% and histopathologic disorder at a rate of 10.7%.

The aim of the study was to assess the endoscopic and histopathologic features of duodenal disorders with respect to age groups in children undergoing diagnostic EGD for the first time.

## Methods

The authors retrospectively reviewed all upper endoscopic charts of children between the ages of 1 and 17 years who underwent diagnostic EGD at Kanuni Training and Research Hospital Pediatric Gastroenterology Department, Turkey, between September 2014 and September 2016. Clinical data, demographic characteristics, and histopathology findings were also reviewed. Patients with known gastrointestinal disease (such as celiac disease, Crohn's disease, and ulcerative colitis), with neurodevelopmental delay (such as cerebral palsy), and those undergoing endoscopy for therapeutic purposes were excluded. In children undergoing endoscopy more than once, the data of the first EGD was recorded. This study was performed in agreement with the Declaration of Helsinki and following the approval of the Local Ethics Committee. Symptoms were grouped into growth retardation, chronic anemia, chronic diarrhea, chronic abdominal pain, dyspepsia, and reflux symptoms (vomiting, chest pain, regurgitation, and eructation).<sup>8</sup> Chronic abdominal pain was defined as three or more bouts in at least a three-month period.<sup>9</sup> Chronic diarrhea was defined as that lasting more than 14 days.<sup>10</sup> The patients were stratified into four groups with respect to the growth stages; infants (0–2 years), preschoolers (3–5 years), school-aged children (6–11 years), and adolescents (>12 years).

All procedures were performed by the same experienced gastroenterologist (U.E.A.) on a video gastroscopy device (Olympus, GIF-H180, PA, USA). Mucosal breaks of >5mm observed in endoscopy were defined as ulcers.<sup>11</sup> In addition, gross endoscopic findings such as scalloping, nodularity, loss of mucosal folds, or mosaic pattern in the duodenum were regarded as pathological findings.<sup>12–14</sup>

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