

# A Rare Entity in Children: Gastric Abscess

## Çocuklarda Ender Bir Antite: Mide Duvar Absesi

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### ABSTRACT

Gastric wall abscesses are rare infectious pathologies. We present a 11-year-old boy who had complaints of abdominal pain and vomiting and was diagnosed as gastric wall abscess. He presented with complaints of abdominal pain and vomiting that had started two days ago. He also had a history of Myasthenia Gravis. Computerized tomography scans revealed increased focal thickness between the pylorus and antrum, marked perigastric inflammation and submucosal multiple abscesses in the gastric wall. Oral intake was stopped and parenteral antibiotic treatment was started. After ten days of antibiotic treatment, the patient was discharged. Three weeks later, abdominal ultrasonography revealed minimal thickness in the stomach wall. Gastric wall abscesses are very rare entities that must certainly be differentiated from malignancies. This rare infectious condition that has not been clearly defined in children in the literature can be treated by potent antibiotherapy without any invasive interventions.

**Key Words:** Abdominal pain, Abscess, Antibiotic, Children, Gastric

### ÖZET

Mide duvarı abseleri, ender enfeksiyöz patolojilerdir. Karın ağrısı ve kusma ile kabul edilen ve mide duvarı absesi tanısı alan 11 yaşındaki erkek çocuğun sunulması amaçlandı. İki gün önce başlayan karın ağrısı ve kusma ile kabul edildi. Öyküsünde Myasthenia Gravis tanısı mevcuttu. Bilgisayarlı tomografisinde, perigastrik inflamasyon ve submukozal multipl abselerden kaynaklanan pilor ve antrumda fokal duvar kalınlaşması görüldü. Hastanın oral alımı kesildi ve parenteral antibiyotik tedavisi başlandı. On günlük antibiyotik tedavisi sonrasında hasta taburcu edildi. Üçüncü haftadaki kontrol ultrasonografisinde antrum ve pilorda minimal duvar kalınlaşması izlendi. Mide duvar abseleri, maligniteden ayırt edilmesi gereken ender antitelere aittir. Bu olgu, çocuk hasta grubunda herhangi bir girişime gerek kalmadan parenteral antibiyoterapi ile tedavi edilen ilk mide duvarı absesi olgusudur.

**Anahtar Sözcükler:** Karın ağrısı, Abse, Antibiyotik, Çocuk, Mide

### INTRODUCTION

Gastric wall abscesses are rare infectious pathologies. They can be seen in situations such as immune suppression and failure in the integrity of gastric wall mucosa (1,2). Previous studies have shown that the pathogenesis of gastric abscesses involves direct invasion or hematogenous spread of bacteria (3). These lesions are very rare since the gastric mucosa is very resistant because of high acidity in the stomach (4). We present 11-year-old boy who had complaints of abdominal pain and vomiting and was diagnosed as gastric wall abscess.

### CASE REPORT

An 11-year-old boy presented to the hospital with complaints of abdominal pain and vomiting that had started two days ago. He had been followed-up for Myasthenia Gravis for three and half years and was receiving prednisolone and pyridostigmine.

On physical examination, his condition was stable. His body mass index was 28.6 (overweight), body temperature 38.7°C, heart rate 110/min and blood pressure 110/70 mmHg.

There was tenderness on his epigastrium and right upper quadrant. In his laboratory tests, white blood cell count was 8300/mm<sup>3</sup> (4000-11000/mm<sup>3</sup>), hemoglobin was 12.6g/dl (12.6-17.4 g/dl), there was minimal hyperbilirubinemia (total/direct bilirubin: 1.38/0.31 mg/dl), (total/direct bilirubin normal rates <1.10/0.30 mg/dl) and C-Reactive protein level was 239.3 mg/L (0-3 mg/L). Other biochemical blood tests were normal. Ultrasonography (US) gave no remarkable data, so computerized tomography (CT) was performed, which revealed increased focal thickness between pylorus and antrum, marked perigastric inflammation and multiple submucosal abscesses in gastric wall (Figures 1,2).

Oral intake was stopped and intravenous fluid resuscitation was begun. Ceftriaxone 100 mg/kg/day, metronidazole 30 mg/kg/day and ranitidine 4 mg/kg/day were administered



**Figure 1:** Axial contrast-enhanced CT of upper abdomen shows focal gastric wall thickening due to submucosal fluid collections (arrows) consistent with abscess. Note the stranding of peritoneal fat around the abscess (star).



**Figure 2:** Axial contrast enhanced CT of upper abdomen with oral contrast medium shows asymmetric gastric wall thickening (arrow).

intravenously. The patient was consulted to Pediatric Neurology and the treatment for Myasthenia Gravis was continued. Upper gastrointestinal endoscopy and endoscopic ultrasonography (EUS) was performed but showed nothing remarkable about the abscess. However there were erosive areas in the corpus, a peptic ulcer scar in the prepyloric antrum and deformations in the pylorus. Gastric wall thickness was increased in the prepyloric antrum (14 mm) and normal in the antrum, corpus and fundus. A homogenous, hypoechoic lymph node 5x3 mm in size was detected in the left perigastric region. Endoscopic biopsy was taken from the peptic ulcer scar. On the fourth day of hospitalization, the abdominal pain and epigastric tenderness disappeared. The patient was allowed to begin oral intake. At the first week of hospitalization, a follow-up CT was performed, which showed abscess formation with a size of 8x7 mm and decreased gastric wall thickness between the antrum and pylorus with decreased perigastric inflammation. After ten days of antibiotic treatment, the patient was discharged. Three weeks later, abdominal ultrasonography revealed minimal thickness of the stomach wall. Histopathological evaluation of endoscopic biopsy specimen revealed chronic active non-atrophic gastritis, H. pylorus negative.

## DISCUSSION

Suppurative gastritis can be diffuse (phlegmonous gastritis), local (gastric abscess) or mixed. The diffuse form is more common though the local form can appear at a rate of 5-15%. The local form usually presents in the antrum and pylorus. In this case we also encountered antral abscesses and local type of gastritis. Underlying reasons include diffuse infections of other intraabdominal organs, (appendicitis, cholecystitis, etc.), surgical interventions, endoscopic biopsies, infection overlap of gastric tumors, and foreign body ingestion (1,3). Gastric wall abscesses are caused by infectious infiltrators in the submucosal layer. These lesions are very rare since the gastric mucosa is very resistant because of high acidity in the stomach (4). Old age, achlorhydria, diabetes mellitus, chronic alcoholism, gastric surgeries, endoscopic polypectomy, corrosive substance ingestion, gastritis, chronic peptic ulcers and immunosuppressive conditions are some of the predisposing factors (1). They are three times more common in the male gender and usually appear between 30-60 years of life (1). To talk specifically for this case, the reason of abscess was thought to be the immunosuppressive treatment of the child for Myasthenia Gravis. The data of adult patients lead us to presume that the reasons of gastric abscesses were direct microorganism invasion or hematogenous spread (3). Usually the organisms that play a role in the pathogenesis are usual members of oropharyngeal flora but *Escherichia coli*, *Streptococcus*, *Staphylococcus*, *Haemophilus influenzae*, *Proteus*, *Clostridium welchii*, *Pseudomonas aeruginosa*, *Bacillus subtilis* are some of the isolated bacteria from gastric abscesses. The most common microor-

ganism, which was isolated from these lesions, is streptococci (75%) (1).

The patients usually present with abdominal pain, nausea and vomiting, and high fever. Physical examination can be all normal except mild epigastric tenderness. Sinking pain while sitting and Deinerger finding which is defined as purulent vomiting are specific (1). This case presented with mild symptoms and was diagnosed by radiological imaging modalities. Since it is a very rare disease with mild and non-specific symptoms, it is quite natural not to think of gastric abscess as the diagnosis in the first place and to investigate other reasons of acute abdomen.

The diagnosis of the disease usually requires a combination of different imaging modalities including plain abdominal radiographs, upper gastrointestinal series, CT and EUS because of the rarity and non-specific symptoms. Plain abdominal radiographs show abnormalities in 50% of the cases including paralytic ileus, edematous gastric folds, elevation of the left hemidiaphragm and free gas under the hemidiaphragm if complicated with perforation. Upper gastrointestinal series may demonstrate a filling defect that is an indication of a submucosal mass with gastric fold thickening (5,6).

CT shows a localized thickening of the gastric wall related to a submucosal mass that may show fluid and air in it with wall enhancement indicating an abscess. CT also shows perigastric inflammatory changes including fat stranding and hyperplastic lymph nodes that may also support the diagnosis (2,5).

Recently EUS is a preferred imaging method in evaluating gastric wall abscess with better delineation of gastric wall layers. The most reported sonographic features of a gastric submucosal abscess are heterogeneous and hypoechoic mass located mainly in the muscularis propria or the submucosa layer. On the other hand a localized gastric wall abscess may mimic an intramural tumor. At this point color Doppler US and fine needle aspiration may help to differentiate these entities. Perilesional increased flow on color Doppler US indicates a gastric wall abscess. EUS-guided aspiration may also help to confirm the diagnosis although it may be difficult to aspirate thick and viscous pus with a small gauge needle (7).

Previously, the treatment option was a combination of parenteral antibiotics and surgical intervention. Nowadays surgical interventions are less invasive with radiological modalities and endoscopic procedures (1,8). Marcos et al. treated twelve of

nineteen patients surgically, four of them endoscopically, two of them percutaneously and one patient was only parenterally given antibiotic medication (1). If the patient has peptic ulcer like our patient, parenteral antibiotherapy must be supported by peptic ulcer treatment. Literature data support a combination of parenteral antibiotics and surgical interventions or endoscopic drainage, but treatment is also possible with only antibiotics as in our patient.

In conclusion, gastric wall abscesses are very rare entities that must certainly be differentiated from malignancies. This rare infectious condition that has not been clearly defined in children in the literature can be treated by potent antibiotherapy without any invasive interventions.

Informed Consent: Written informed consent was obtained from the parents of the child for this study.

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