

THE POTENTIAL SEVERE COMPLICATIONS OF GASTROESOPHAGEAL REFLUX – A CASE REPORT AND A REVIEW OF THE LITERATURE

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Abstract

Gastroesophageal reflux (GER) represents the involuntary passage of the gastric contents into the esophagus and is one of the most common symptoms in both children and adults. The symptoms vary very much and the severe complications are rather uncommon in children nowadays due to a widely available treatment. We present the case a 12-year-old male patient, admitted in our clinic for morning vomiting after meals, with abundant mucus, dysphagia for solid food, epigastric pain, food refusal, nocturnal agitation associated with sleep disorders for approximately 1 month, and weight loss (2-3 kg in the last 6 months), whose personal history revealed multiple acute upper airways infections during the first year of life and gastroesophageal reflux diagnosed approximately at the age of 1 year, which improved without treatment until the age of 3 years. The esophagogastroduodenoscopy and barium transit exam established the diagnosis of esophageal stenosis and gastroesophageal reflux with favorable evolution after a prolonged treatment with proton pump inhibitors. The particularity of the case consists in diagnosing a peptic esophageal stenosis in a 12-year-old child, with onset of symptoms approximately 1 month ago, whose personal history revealed multiple acute upper airways infections during the first year of life and gastroesophageal reflux at 1 year of age which apparently solved without treatment until the age of 3 years.

Keywords: gastroesophageal reflux, child, esophageal stenosis

Abbreviations: cm – centimeters, GER – gastroesophageal reflux, H – height, kg – kilograms, W -weight

Introduction

Gastroesophageal reflux (GER) represents the involuntary passage of the gastric contents into the esophagus, and it can be either a physiological or a pathological phenomenon, but in any case it is one of the most frequent occurring symptom in both children and adults (1). The so called ‘physiological’ GER occurs in the

first months of life or when it has no associated symptoms, and it has a protective role during meals or early after meals, while the pathological GER occurs with an increased frequency and it is associated with symptoms and complications (1). If GER causes mucosal damage or impairs the quality of life it will lead to gastroesophageal reflux disease (GERD) (2,3). Daily regurgitation occurs in approximately 50% of infants under the age of 3 months reaching a percentage up to 66% at the age of 4 months, and decreasing to only 5% at 1 year of age (4,5). Reflux esophagitis is one of the most common, but severe complications of GER that can lead in time to esophageal stenosis requiring even surgical management. Reflux esophagitis is encountered in up to 62% of children that undergo evaluation for GER symptoms, while Barrett’s esophagus in up to 3%, and GERD that requires surgical management in up to 13% of the cases (1). The factor that influence the development and outcome of GER are multiple and interconnected. Thus, among the factors that were proved to contribute to this pathology were reported: genetic susceptibility, alcohol, smoking, drugs, food habits, overweight and obesity, posture, mastication and swallowing, sphincter incompetence, *Helicobacter pylori* infection, race, etc. (1).

The clinical manifestation of GER is very complex and variate, and depends on the age. The most frequently described symptoms include: regurgitation, excessive crying and irritability, vomiting, food refusal, persistent hiccups, failure to thrive, persistent cough, aspiration pneumonia, wheezing, laryngitis, ear problems, sleeping disturbances, anemia, melena, hematemesis, apnea, heartburn, hoarseness, chronic asthma, and sinusitis, while esophageal stricture, Barrett’s esophagus, and esophageal adenocarcinoma are symptoms that prove a prolonged untreated GER that appear with a more decreased frequency in children (1). GERD may lead to severe complications like esophagitis, Barrett’s esophagus, strictures or esophageal adenocarcinoma (1). Nowadays, due to a widely available therapeutic options for GER, esophageal stenosis and ulceration are uncommon in children (6).

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The most frequently used diagnostic tools for GER are radiologic contrast studies (e.g. barium transit exam), ultrasonography, 24-h esophageal pH monitoring and esophagogastroduodenoscopy that can reveal different anatomic malformations and esophagitis, not reflux (1).

The management of GER cases is complex and can include: non-pharmacological measures such as dietary treatments, posture, pharmacological treatment or surgical one in carefully selected cases.

Case report

We present the case of a 12-year-old male patient, admitted in our clinic for morning vomiting after meals, with abundant mucus, dysphagia for solid food, epigastric pain, food refusal, nocturnal agitation associated with sleep disorders for approximately 1 month, and weight loss (2-3 kg in the last 6 months). The personal history revealed the following pathological elements: multiple acute upper airways infections during the first year of life and gastroesophageal reflux diagnosed approximately at the age of 1 year, which improved without treatment until the age of 3 years.

The clinical exam performed at the moment of admission revealed the following pathological elements: influenced general status, ailing face, pallor, poorly represented adipose tissue, tenderness at palpation in the epigastric area; W: 29 kg, H: 130 cm. The CBC count, the inflammatory biomarkers and the biochemistry test were all within normal ranges. We also excluded a celiac disease and a food allergy based on the negative values of the anti-transglutaminase and anti-endomysial antibodies, and the total level of immunoglobulin E, respectively, which was normal. We performed an esophagogastroduodenoscopy which revealed intense hyperemia of the mucosa in the inferior third of the esophagus with erosions associated with esophageal stenosis and esophageal spasm that do not allow the exploration of the stomach. We also took biopsy specimens from the esophageal mucosa, and the histopathological exam revealed inflammatory infiltrate with neutrophils.

Therefore we performed an esogastroduodenal barium study which pointed out thin walls of the esophagus with an esophageal stenosis of approximately 2 cm length in the inferior part of the esophagus, gastric dilation with obvious gastroesophageal reflux in Trendelenburg position.

Thus, our diagnosis was esophageal stenosis as a result of gastroesophageal reflux. The dietetic management consisted in semiliquid semisolid food, frequent meals in small amount. We also initiated treatment with proton pump inhibitors (Esomeprazole), domperidonum and spasmolytic drugs (Papaverin) for 8 weeks.

The follow-up exam revealed a favorable clinical evolution after 8 weeks of treatment was favorable, without vomiting, he is able to consume semisolid food and intermittently even solid, and he also gained 2 kg. The esogastroduodenal barium study revealed major improvements of the esophageal stenosis, without

esophageal spasm or obvious gastroesophageal reflux. We also repeated the esophagogastroduodenoscopy and we were able to explore also the stomach, which presented a normal aspect. Therefore, we recommended the continuation of diet and proton pump inhibitor treatment for another 4 weeks. After this period, the patient no longer presented symptoms and he continued to gain weight.

Discussions

GERD is probably one of the most frequent gastrointestinal conditions worldwide affecting all human beings independently by the age that can lead to severe complications impairing the patients' life quality. In the past, when reflux treatment was not available, approximately 40 years ago, esophageal strictures were encountered in up to 5% of children who presented with reflux symptoms (7). This condition is diagnosed in more than 10% of adult population, and even though most of the patients present a favorable outcome after an adequate acid-suppression therapy, approximately 10% are refractory to treatment and can develop serious complications (8). Nevertheless, it has been proven that certain complications of GER, such as Barrett's esophagus can present a positive influence of patient's symptoms. This fact has been explained by the increased resistance of metaplastic epithelium present in Barrett's esophagus to gastric acid, leading therefore to the significant improvement of symptoms (8). Similarly, in our case the lack of symptoms can be due to the presence of Barrett's esophagus taking into account that the patient was diagnosed with GER at 1 year of age which apparently solved without treatment until the age of 3 years. Most likely the condition did not solve, but the patient developed a Barrett's esophagus which improved his symptoms until he developed the symptoms of esophageal stenosis.

In certain countries this condition might be considered a major public health problem, such as Russia, where according to a study performed on 34 903 upper endoscopies on patients with symptoms of gastric dyspepsia, the prevalence of erosive esophagitis was of 4.9% and peptic esophageal strictures were encountered in 0.2% of the patients (9). Peptic esophageal strictures are frequently encountered in children from developing countries due to the lack of appropriate medical centers (10), but it is also encountered in developed countries. The chronic effect of GER on the esophageal mucosa will lead in time to the development of fibrotic tissue and as a consequence to peptic esophageal strictures. The main symptom of this disorder is dysphagia and the most appropriate diagnostic tools are barium transit exam and upper endoscopy (11). In our case, the diagnosis was also established by the previously mentioned diagnostic approaches. Up to 23% of patients diagnosed with reflux esophagitis will develop strictures (12) that are usually located at the squamo-columnar junction and have a length which ranges from 1 to 4 cm (13). Similarly, our patient presented an esophageal stenosis with a length of approximately 2 cm in the lower

part of the esophagus. According to the data reported in the literature, the incidence of GERD is higher in male children



Fig. 1. Aspect of the esophageal stenosis at esophagogastroduodenoscopy

Even though the cardinal signs of peptic esophageal strictures is dysphagia with an insidious or sudden onset, it has been proven that up to 25% of the patients present no history of heartburn or other suggestive symptoms for GER (13). In the case described by us, similarly to the data mentioned in the literature, the patient did not present any history of suggestive symptoms for GER, but he was diagnosed during his early childhood with GER. On the other hand, it has been stated that GER it is also physiological in infants, in the lack of symptoms or shortly after meals as a defensive mechanism. Despite the fact that GER was defined as physiological in infants, it must be taken into account that it can also become pathological in these age group if it associates symptoms, such as daily vomiting in great amounts, failure to thrive, food refusal, hematemesis, irritability, etc. Therefore, Crankson et al described a case of 7-year-old male infant, with a history of vomiting since birth, who was diagnosed with circumferential thickening of the lower esophagus after a computed tomography exam (15).

Management of peptic esophageal stenosis in children is complex and it often requires a multidisciplinary approach with the involvement of different specialists, such as: pediatrician, gastroenterologist, surgeon, and general

(13,14). Our patient was also a male.

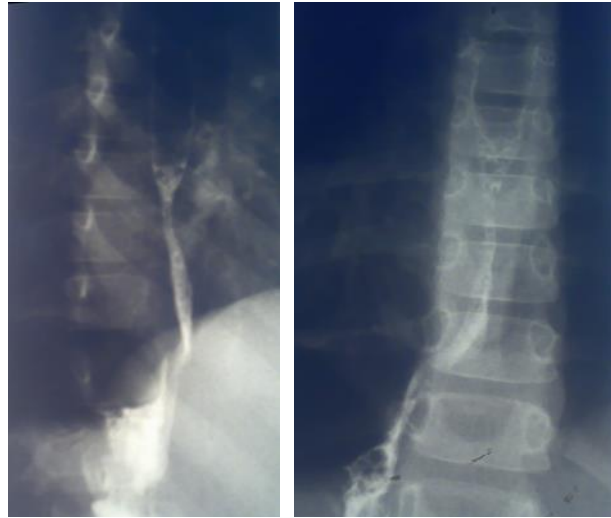


Fig. 2. 3. Aspect of the esophageal stenosis at esogastroduodenal barium study

practitioner. The management protocols include medical therapy, bouginage, fundoplication, stricture resection or interposition grafting (16). It is well-documented that endoscopic dilation of peptic esophageal strictures is safe in children, but some authors sustain the fact that the outcome will be significantly better if pharmacological treatment is administered before the endoscopic dilation, antireflux surgery or post-operative dilation (16-19). Fortunately, in our case prolonged pharmacological therapy presented a very favorable effect and the patient did not need a surgical approach.

Early diagnosis and management of GER in children is essential in order to prevent severe complications, such as esophageal stenosis or even esophageal adenocarcinoma.

Conclusions

Even though GER is very common in both children and adults and it can be physiological under certain circumstances, it can also lead to very severe complications such as esophageal stenosis and even esophageal adenocarcinoma. Nevertheless, these two complications are rarely encountered in children, it is of major importance to take into account that they can develop even in the absence of suggestive symptoms.

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