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Gastric adenocarcinoma associated with Helicobacter pylori (Hp) in the pediatric setting

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Dear Editor,

We report the case of a 12-year-old patient that was taken to the ER because of epigastralgia for 15 days. He had no other relevant symptoms or history. As he had high-organicity pain (severe pain in the epigastrium that interfered with sleep), and the patient came from a high-prevalence region for *Helicobacter pylori* (Hp) infection (Colombia), a breath test was performed with $^{13}$C urea (UBT). Following UBT positivity therapy was indicated with omeprazole, clarithromycin, and amoxicillinin for 14 days.

One month later he presented with persistent epigastralgia in association with vomiting, diarrhea, and asthenia. Physical examination revealed a tender, distended abdomen. A routine blood test was ordered, which showed normal parameters, as well as an abdominal CT scan, which revealed abundant ascites and peritoneal implants. He was admitted to hospital and underwent a diagnostic paracentesis procedure, which was positive for malignancy suggestive of adenocarcinoma (ADC). A gastroscopy plus gastric biopsy was carried out, and a pathology diagnosis with signet ring ADC positive for e-cadherin and p53, negative for MLH1/MSH2 was obtained.

After checkup (normal head and chest CT scans, negative microbiology, and PET/CT with uptake from stomach, omentum, and peritoneal patches), with a diagnosis of diffuse ADC with peritoneal implants, palliative chemotherapy was initiated. The
patient passed away at 2 months after diagnosis.

**Discussion**

Gastric ADC is a common malignancy in adults; in pediatrics, however, it represents 0.05% of all neoplasms (1). In a review, Lu (2) reported the case of a 12-year-old girl and found 15 pediatric adenocarcinoma cases reported in the literature, with an age interval of 2.5-17.8 years. Regarding the prognosis of 9 patients who were followed up, 4 died within 6 months, 4 died within 1 year, and 1 survived up to 102 months. The author does not mention Hp.

The role of Hp infection in the development of ADC by means of bacterial virulence factors such as CagA and VacA (3) is well known, not so much the role of other factors (tobacco, vitamin C deficiency, poverty, excessive smoked food intake, genetic predisposition), including Hp infection, in the pediatric setting. The causes why some individuals with Hp infection only have multifocal gastric atrophy whereas others develop gastric cancer remain unknown (4-6).

Given the extremely low incidence of ADC together with nonspecific manifestations, the diagnosis is usually delayed until metastatic disease is present. All this entails a poor prognosis in the short term. Subbiah (1) reported in 2011 5 cases in a 20-year span, of which only 1 patient survived.

It is recommended that the diagnosis of Hp infection include gastroscopy, UBT and gastric biopsy. UBT is recommended to confirm eradication following therapy. However, it is on occasion performed as a diagnostic test because of lower invasiveness and better access as compared to gastroscopy, despite the fact that the gastric mucosa cannot be examined (8).

This is why gastroscopy should be the diagnostic modality of choice for persistent epigastralgia or epigastralgia associated with alarm signs, as well as for clinically suspected infection with Hp.

**References**


