



Recurrent abdominal pain in a 7-year-old girl

This is the peer reviewed (post-print) version of the following article:

Original

Recurrent abdominal pain in a 7-year-old girl / Trombetta, A., Barbi, E., Pederiva, F.. - In: EMERGENCY MEDICINE JOURNAL. - ISSN 1472-0205. - ELETTRONICO. - 39:8(2022), pp. 607-634. [10.1136/emered-2020-211046]

Availability:

This version is available at: 11368/3026547 since: 2022-07-25T16:12:05Z

Publisher:

Published

DOI:10.1136/emered-2020-211046

Terms of use:

Some rights reserved. More details in the PostPrint rights section below.

License:

Attribution-NonCommercial 4.0 International

Publisher copyright

--

(Article begins on next page)

IMAGE CHALLENGE

Recurrent abdominal pain in a 7-year-old girl

CLINICAL INTRODUCTION

A 7-year-old girl was admitted to the emergency department for a 2-month history of recurrent abdominal pain, accompanied by nocturnal awakening, vomiting and interruption of daily activities. Her medical history was unremarkable, her family had recently moved from a low-income country.

At admission, the girl was afebrile, with mild abdominal tenderness without guarding. Blood tests showed neutrophilic leucocytosis (white blood cells 21 740/mL, N 18 620/mL), with haemoglobin 14 g/dL and thrombocytosis (platelets 685 000/mL) with C-reactive protein (CRP) level (0.5 mg/dL, normal range 0–0.5 mg/dL). An abdominal ultrasound scan failed to show abnormalities. Twelve hours after admission, the abdominal pain worsened, the temperature spiked to 39°C, the abdominal examination showed increased tenderness and diffuse guarding, while the CRP rose to 5.9 mg/dL. A supine X-ray was performed (figure 1).

WHAT IS THE DIAGNOSIS?

- A. Appendicitis
- B. Bowel perforation
- C. Choledocholithiasis with cholangitis
- D. Kidney stones with urinary tract infection



Figure 1 Abdominal X-ray.

Recurrent abdominal pain in a 7-year-old girl

ANSWER: B

Radiography revealed a large pneumoperitoneum outlining the falciform ligament in the upper quadrant (figure 2, white arrow). This radiologic appearance, known as 'falciform ligament sign' is suggestive for a bowel perforation.¹ The falciform ligament connects the liver to the anterior abdominal wall, extending inferiorly beyond the liver, where it becomes the round ligament. Although the presence of air above the diaphragm is the more suggestive sign of pneumoperitoneum (the 'dome sign'), sometimes it may be less evident (black arrow), in case of localised perforation, of supine film and of minimal presence of gas in the abdomen. CT has a higher sensitivity, and in this case confirmed the



Figure 2 Abdominal X-ray showing free intraperitoneal gas (black arrowhead).

radiologic findings (online supplemental material A,B). The patient underwent an abdominal exploration and a covered perforation was found at the pyloroduodenal junction. When specifically questioned, the family reported that the patient's father was on medication for *Helicobacter pylori*. Positivity of *H. pylori* stool antigen test and bacterial culture confirmed the diagnosis of *H. pylori*-related ulcer and treatment was started. *H. pylori* infection is more prevalent in developing countries than developed ones,² and it may cause a chronic ulcer leading to perforation.¹ While *Helicobacter* infection's symptoms are somehow specific in adults, most infected children are asymptomatic or have non-specific symptoms.^{2,3}

Andrea Trombetta , ¹Egidio Barbi,^{1,2} Federica Pederiva³

¹Paediatric Department, University of Trieste, Trieste, Italy

²Paediatric Department, Institute for Maternal and Child Health - IRCCS "Burlo Garofalo", Trieste, Italy

³Paediatric Surgery, Burlo Garofalo Pediatric Institute, Trieste, Italy

Correspondence to Dr Andrea Trombetta, Pediatrics, University of Trieste, Trieste 34127, Italy; andreamer91@live.it

Contributors AT wrote the first draft of the manuscript. PF followed clinically the patient. EB and FP made the revision of the manuscript.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Consent obtained from parent(s)/guardian(s).

Provenance and peer review Not commissioned; internally peer reviewed.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

© Author(s) (or their employer(s)) 2022. No commercial re-use. See rights and permissions. Published by BMJ.

► Additional supplemental material is published online only. To view, please visit the journal online (<http://dx.doi.org/10.1136/emmermed-2020-211046>).

Accepted 18 October 2021

REFERENCES

- 1 Kasznia-Brown J, Cook C. Radiological signs of pneumoperitoneum: a pictorial review. *Br J Hosp Med* 2006;67:634–9.
- 2 Mehrabani S. *Helicobacter pylori* infection in children: a comprehensive review. *Maedica* 2019;14:292–7.
- 3 Blecker U, Lanciers S, Hauser B, et al. The prevalence of *Helicobacter pylori* positivity in a symptom-free population, aged 1 to 40 years. *J Clin Epidemiol* 1994;47:1095–8.