



Case Report

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Peptic perforation in Children: a diagnostic dilemma

Sunder Goyal¹, Aditya Garg², Snigdha Goyal³

¹ Professor and Head, Surgery Department, Kalpana Chawla Govt Medical College, Karnal

² Department of Surgery, Kalpana Chawla Govt Medical College, Karnal India

³ Department of Pathology, Civil Hospital, Ambala Cantt, Haryana, India

Abstract

Pediatrics duodenal ulcer disease is an uncommon clinical entity. There is diagnostic dilemma even in cases with complications like perforation, pneumoperitoneum and hemorrhage. Diagnostic dilemma is due to low index of suspicion due to low incidence. We report a perforated duodenal ulcer in a young child who presented with nausea, anorexia, abdominal pain and pneumoperitoneum. There was no history of predisposing risk factors like non steroidal anti-inflammatory drugs (NSAID), corticosteroids and physiological stress.

Keywords: Pediatrics duodenal ulcer, Pneumoperitoneum, Diagnostic dilemma.

INTRODUCTION

There are countable causes of the acute surgical abdomen in infants and children. In case of significant pneumoperitoneum, one has to differentiate between perforated appendicitis and peptic perforation in otherwise healthy children. The incidence of perforated peptic ulcers in children is less in developed countries as compared to developing countries^[1-3] and is due to malaria, meningitis, gastroenteritis, and lymphoma^[4-7]. We report a case of perforated duodenal ulcer in a young child without any history of predisposing risk factors like *H. Pylori*, NSAID drugs, corticosteroids and physiological stress.

CASE REPORT

An 11 years female child presented with history of pain abdomen and vomiting of one day duration. The patient took treatment locally, with no relief. The patient also took treatment for pain abdomen and fever from local private practitioner 15 days back.

On Examination: abdomen was distended with a board like rigidity and tenderness. Guarding and rigidity were present all over the abdomen. Bowel sounds were absent. X-ray Abdomen revealed Free Air under both domes of the diaphragm (Fig-1). USG Abdomen showed free fluid and air in abdomen. Total Local Count -40740/cm. Differential Leukocyte Count- Polymorphs 87, Lymphocytes 9, Monocytes 2, Eosinophil 2. C-Reactive Protein 48.5 mg/L. Exploratory Laparotomy was performed and closure of duodenal perforation was done with the omental patch (Fig-2). Post-operative period was uneventful.

DISCUSSION

Duodenal ulcer is a rare clinical entity in children with very few reports in the literature. Its reported incidence is of 1.55 cases per year as per Indian series^[8]. Pneumoperitoneum and peritonitis following the peptic ulcer perforation is an uncommon cause of an acute abdomen in children. Most common cause of pneumoperitoneum and peritonitis in children is perforated appendicitis^[1,9]. Usually diagnosis is overlooked because of vague and variable symptoms and due to low index of suspicion^[10]. Mostly the diagnosis of peptic ulcer in children is made due to complications like perforation and hemorrhage^[11-14]. Postoperative complications are higher due to delayed diagnosis and treatment.

Associated diet may be a predisposing factor^[8]. Z-E syndrome, sickle cell anemia, *H. pylori* infection^[10], blood group O, etc. are primary causes for peptic ulcer in children. Where as non steroidal anti-inflammatory drugs (NSAID), corticosteroids^[15,16], physiological stress (in burns, head injury), or mucosal ischemia are secondary causes for perforation.

*Corresponding author:
Dr. Sunder Goyal
Professor and Head, Surgery
Department, Kalpana Chawla
Govt Medical College, Karnal
India
Tel: +919416839094
Email:
goyal.sunder[at]yahoo.in

In Western countries, causes for peptic perforation in children are mainly chronic steroid administration, NSAIDs, severe underlying illness, trauma, iatrogenic perforations from EGD,^[17-22] whereas in Asian countries perforation is secondary to meningitis, malaria, lymphoma, and gastroenteritis^[4-7,23].

In a series of 52 patients reviewed by Hua et al., peptic perforation was common in male adolescents where as our patient was 11 years female^[9]. According to another study, peptic perforation was due to secondary causes like NSAID drugs or severe underlying disease in patients less than 10 years age where as in elder patients perforation was due to primary etiology. Incidence of recurrence is higher in patients with primary duodenal perforation^[3].

The *H. Pylori* infection is prevalent in Asian and developing countries where as its incidence has declined in the Western Counties. Children with primary peptic ulcer disease should be investigated for *H. Pylori* infection as reported incidence of recurrence is high in Peptic ulcer disease secondary to *H. Pylori* infection. Usually children acquire *H. Pylori* infection from their mothers by sharing a bed and sharing plates, spoons, or tasting food by the mother before feeding the child^[20, 24].

There exists a diagnostic dilemma as peptic ulcer disease is uncommon in children. The diagnosis of perforated duodenal ulcer is often missed in the emergency setting due to low index of suspicion. Due to delayed diagnosis, children usually present late with shock^[8] and thus there are higher chances of morbidity and mortality. Diagnosis of perforated

duodenal ulcer is usually made on exploratory laparotomy for peritonitis in spite of pneumoperitoneum in abdominal X-ray.

The treatment of perforated duodenal ulcer is surgical repair (open or laparoscopic). Various methods of treatment include simple closure with omental patch, truncal vagotomy and drainage procedure (TVGJ), hemigastrectomy, etc. There is no extensive study regarding role of acid lowering procedures in children. Edwards *et al.* reported a series of 29 pediatric patients with complicated peptic ulcer disease and recommends that complicated peptic ulcer disease may be treated with an antacid procedure at the time of initial operation. Otherwise simple repair of ulcer or with omental patch is enough^[19,25]. The consensus from review of the literature is consistent with our decision to treat the perforation with primary repair and omental buttress^[26,27]. Simple closure of the perforation with omental patch is an adequate procedure in emergency and can be followed up with medical treatment for the peptic ulcer disease after proper evaluation, a view that is shared by other authors as well^[11,12,16].

Laparoscopy repair of peptic ulcer is safe and effective in children^[17,27]. In a reported series, 17 pediatric patients of perforated peptic ulcers were repaired laparoscopically^[27].

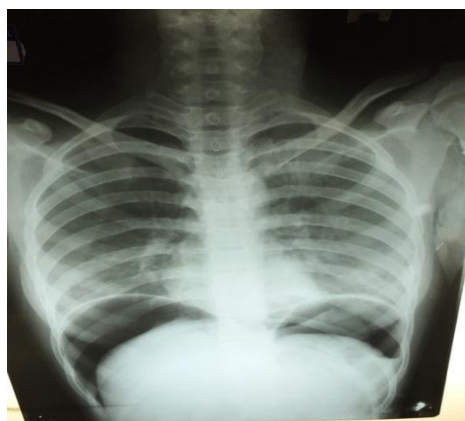


Figure 1: X-ray Abdomen-Free Air under both domes of diaphragm



Figure 2: showing duodenal perforation during laparotomy

CONCLUSION

This case signify a rare cause of acute abdomen in pediatric patients. The incidence of perforated peptic ulcer in children is uncommon and poses diagnostic dilemma to treating physician. Laparoscopy is a safe procedure in the surgical management of peptic ulcer disease in children. Ideally, perforation should be treated with primary closure, with or without omental patch followed by medical treatment of the underlying cause.

Conflicts of Interest

The authors declare no conflict of interest.

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