Infant appendicitis with perforation: a case report

Fuad Adi¹, Ekvan Danang², Supangat*²
¹Faculty of Medicine, University of Jember, Jember, East Java, ²Department of Surgery, Dr. Soebandi District Hospital, Jember, East Java

ABSTRACT
Appendicitis is one of the most common surgical emergencies in children. In the USA, there are 70,000 cases diagnosed each year. Acute appendicitis is a rare case, barely considered in the diagnoses, and probably causes acute abdominal sepsis in neonates. It affects males generally 75% of the time and 25%-50% of all reported cases occur in premature infant. Almost 50 cases have been reported over the last 30 years. We reported a 5 month-old baby girl whom transferred to our hospital from a peripheral hospital. Previously, the baby diagnosis was low-type obstruction. At the time of admission to our hospital, the baby presented with a history of abdominal distension and did not pass stools after 48 h. Oxygen and oral gastric tube were administered. Exploratory laparotomy surgery was performed through a transverse incision. This report is a retrospective review of one patient with appendicitis perforation presented in our hospital.

INTRODUCTION
Appendicitis is one of the most common surgical emergencies in children. In the USA, there are 70,000 cases diagnosed each year. The risk of appendicitis-related deaths in boys around 9% and in girls 7%.¹ Acute appendicitis rarely causes acute abdominal sepsis in neonates and is hardly considered in the differential diagnoses. It was recorded that as much as 0.04-0.2% of the incidence of neonatal appendicitis has been reported.² The incidence in males is about 75% of the time, and 25%-50% of all reported cases occur in newborns.³-⁸ Over the last 30 years at least less than 50 cases have been reported,³ with a mortality rate ranging between 20% and 25%.⁵,⁷ Infant perforated appendicitis is a rare condition related to mortality and morbidity.⁹ Due to un-specific clinical presentation, late diagnosis well as
surgical intervention delaying occurred in mostly neonatal appendicitis leading to high morbidity and mortality. As well as the rarity of neonatal appendicitis (NA), the lack of specific signs and a low index of suspicion have led to delays in diagnosis and surgical intervention.\textsuperscript{10,11} In most health care facilities, the diagnosis is generally made during laparotomy for intestinal perforation neonatal cases.\textsuperscript{12} We reported here a baby girl whom diagnosed appendicitis with perforation.

**CASE**

A 5 month-old baby girl was transferred to our hospital from peripheral hospital. The baby was diagnosed with low-type obstruction by the peripheral hospital. The baby girl was born from a 46-year old primigravida at 33 weeks gestation by spontaneous vaginal delivery with a birth weight of 2.5 kg. At the time of admission to our hospital, the baby girl presented with a history of abdominal distension and did not pass stools after 48 h. Oxygen and oral gastric tube were administered.

Abdominal X-ray result showed distended bowel and air-fluid level. A diagnosis of bowel obstruction was made. Emergency surgery was planned. Fluid, electrolytes, parenteral nutrition, and intravenous antibiotics were administered before the surgical intervention. Exploratory laparotomy was performed through a transverse incision. This surgical operation revealed appendicitis perforation and an appendectomy was performed. The baby girl had an uneventful post-operative recovery. At 3 days and one month postoperative examination, the baby was doing well.

![Abdominal X-Ray exhibits air-fluid level and bloated bowel](image)

**FIGURE 1.** Abdominal X-Ray exhibits air-fluid level and bloated bowel

**DISCUSSION**

A rare case, barely considered in the diagnoses, and probably cause of acute abdominal sepsis in neonates is distinctive of acute appendicitis. The
symptoms of appendicitis can alter according to a child’s age. In 2 years old toddler or younger, the most common symptoms are bloated or swollen abdomen followed by cramp and less vomiting.9,13 White blood cell count (WBC) and C-reactive protein (CRP) are generally used immediately upon acute appendicitis is suspected.14 More than 90% of children with acute appendicitis appear WBC above 10,000 and often left shift but not finding. In radiography with ultrasound imaging discover a non-compressible, and fluid-filled appendix with a diameter of more than 6 mm.1

Single-dose antibiotic prophylaxis therapy considers being given preoperatively while the appendicitis diagnosis has been made. A second-generation cephalosporin against anaerobic bacteria or third-generation cephalosporin against partial anaerobic bacteria is mostly recommended besides the adjunct of metronidazole.1 One of the most complications is perforated appendicitis instead, use a single dose and one regimen antibiotic, need “triple” antibiotic regimen (e.g. gentamycin, ampicillin, and metronidazole or clindamycin), or a combination (e.g. metronidazole/ceftriaxone or ticarcillin/clavulanate and gentamycin).13

The circumstance which contributes to a high mortality rate as a result of peritonitis and perforation is a flimsy appendicular wall and caecum that can’t bloatedly incline to appendicular perforation in neonatal appendicitis. On the other hand, the underdeveloped and relatively meager size peritoneal space with the lower physiological reserve is a potential explanation of the swift spread of infection. In absence of conjecture of Hirschsprung’s disease, the preferred line of management is simple appendectomy along with peritoneal lavage beside warm saline.1 Because of these conditions, maintaining a high index of suspicion for appendicitis in neonates and infants presenting with intra-abdominal sepsis of unclear etiology was highly recommended.15

CONCLUSION

Infant perforated appendicitis demands a vigorous clinical suspicion and remains to be a challenging diagnostic. This case emphasizes an unusual manifestation of infant appendicitis in which the radiological and clinical features were towards midgut volvulus. This profitably manages to emergency laparotomy which affirms the diagnosis. Good management will resolve the convenient result of treatment.

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