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Case Report

Rare Case of Gallbladder Perforation in Pediatric Patient: A Pitfall in Generalized Peritonitis in Late Presented Typhoid Fever

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ABSTRACT

An 11-year-old boy presented to the emergency room with generalized abdominal pain, inability to pass gas nor stool in 2 days, along with step-ladder pattern fever which he had been having in the past 2 weeks before being admitted to the hospital. Abdominal surgical complications are one of most common complications (10-15% of typhoid fever patients) in pediatric typhoid fever, but gallbladder perforation is an uncommon one. Emergency surgical exploration with cholecystectomy was initiated and showed satisfying outcome [1].

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Introduction

Gallbladder perforation is a rare complication of cholecystitis, especially in typhoid fever, a fever caused by gram-negative bacteria; *Salmonella typhi*, which may cause an acute acalculous cholecystitis. Typhoid fever or the so-called enteric fever has become a global burden, especially in developing countries, where delayed treatments can still be found in some cases. There are no specific guidelines for managing the abdominal complication, moreover the gallbladder perforation of typhoid fever yet, because of its rare occurrence. Generalized peritonitis in patients with enteric fever may be differentially diagnosed with perforated intestine, intestinal hemorrhage, and rarer cases of perforated gallbladder and appendicitis. We report a case of pediatric gallbladder perforation found during surgical exploration which was presented as generalized peritonitis and at first diagnosed with perforated appendicitis or perforated small intestine [1-3].

Case Report

An 11-year-old boy was presented to Dr. Ramelan Naval Hospital, Surabaya with a chief complaint of generalized abdominal pain and distention starting from 2 days prior to hospital admission. He also complained of right lower quadrant abdominal pain 2 days before. He

had not passed stools for the last 2 days, had bilious vomiting and a history of occasional fever over 2 weeks. He had not been admitted to any doctors or hospitals before because of financial reason, therefore he had not received any antibiotics, either.



Figure 1: Plain abdominal X-ray.

Vital signs at the time of admission were: blood pressure – 90/65, pulse rate – 128/ minute, temperature – 38°C, and respiratory rate – 24 breaths/ minute. On examination, he was not icteric, the abdomen was slightly

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distended, lowered peristaltic sound and generalized abdominal muscle guarding with abdominal pain particularly in right lower quadrant. Plain abdominal X-ray showed dilated intestine, coiled-spring sign, thickened intestine wall and opacity in the upper right and lower left quadrant. The X-ray is shown in (Figure 1).

His laboratory results showed increased hematocryte, leukocytosis of 19190 u/l, neutrophilia, hyponatremia, and hypokalemia. His Tubex result came after his surgery and resulted positive (+6). The pathological anatomy examination of the gallbladder showed gallbladder with mononuclear inflammation cells infiltration of the lamina propria, Rokitansky aschoff sinus with necrotic area of the muscularis layer with no sign of malignancy, concluded as cholecystitis with hemorrhagic infarct.

Treatment

He was diagnosed with generalized peritonitis and mild to moderate dehydration, which then was given a fluid resuscitation in the emergency ward, along with electrolyte correction while preparing for the surgical exploration.

During the operation, the peritoneal fluid was found mixed with pus, dilated – hyperemia of the intestine, especially on the ileum. The appendix was found hyperemia with no perforation. We explored the upper quadrant, discovered parts of intestine near the liver covered in slough, and revealed a perforated of the gallbladder fundus (may be seen in Figure 2). There was no gallbladder stone found in the common bile duct, nor the cystic duct. We decided to do cholecystectomy and appendectomy because of the inflamed appendix which seemed to occur secondarily to the perforation. The peritoneal cavity was lavaged until the peritoneal fluid became clear and put in an intraperitoneal drain in the Morrison's pouch.



Figure 2: Perforated gallbladder.

After the finding of gallbladder perforation and based on the Tubex result, our patient was given therapeutic antibiotic of thiamphenicol for 7 days, nil per os for 3 days (while given total parenteral nutrition), and maintenance fluid. Patient was then discharged at day 7 post-surgery with no fever, and unrestricted diet. The peritoneal drain was taken off after 10 days.

Discussion

In developing countries, typhoid fever is a common infection mainly caused by *Salmonella typhi*, found in the environment with poor sanitation and little supply of clean drinking water. It accounts for nearly 27 million cases worldwide and 200000 deaths per year, while in Indonesia the prevalence is 0.3-3%, with highest incidence found in East Java based on 2007. Indonesian Health Research [4, 5].

Acute acalculous cholecystitis which causes the gallbladder perforation in pediatric typhoid fever is not extremely rare, but late presentation in patient may become a pitfall in preoperative diagnosis because of the sign of peritonitis mimicking other causes of peritonitis, such as perforation caused by appendicitis which is the most cause of acute abdominal pain in children [4, 6].

Table 1: Niemeier's classification of gallbladder perforation [4].

Type	Onset	Explanation
Type 1	Acute	Involves perforation of the gallbladder into the peritoneal cavity; it is not surrounded by any protective adhesions
Type 2	Subacute	Consists of a perforated gallbladder surrounded by an abscess that is walled off by adhesions
Type 3	Chronic	Includes the formation of a fistula between the gallbladder and some viscera

In this patient, we found type 2 perforated gallbladder based on Niemeier's classification (Table 1). The treatment of the perforated gallbladder is cholecystectomy continued with peritoneal lavage to manage peritonitis which are usually sufficient, continued with antibiotics. Even though, cholecystectomy in type 3 gallbladder perforation may be difficult. In this case, we preferred thiamphenicol (group of chloramphenicol) because based on the research done in Malang, East Java by Ni Made Diah *et al.* showed that chloramphenicol was the most cost-effective antibiotic for typhoid fever, compared to ceftriaxone and cefixime both in pediatric patients [4, 7].

Conclusion

Perforated gallbladder in pediatric patient who's suspected with typhoid infection should be considered in the presentation of peritonitis because even though it is very rare, but acalculous cholecystitis is not an uncommon abdominal complication in pediatric population. Therefore, it should be considered for the surgical approach and choice of abdominal incision, so that surgeons may explore liver region. Cholecystectomy, peritoneal lavage and peritoneal drain insertion, continued with antibiotic treatment for typhoid infection give a satisfying result.

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