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CASE REPORT

Gangrene and Perforation of the Gallbladder as a Complication of Typhoid Fever – A Case Report

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Abstract

A rare consequence of typhoid illness is gall bladder gangrene with perforation. The gut and more rarely, the gall bladder are involved in surgical complications of typhoid fever. The morbidity and fatality rates are high, especially if they are not discovered and treated in time. Case report of a male adolescent patient with gall bladder gangrene with perforation is presented. Despite the difficult care, cholecystectomy and early intervention had positive outcome.

Key words: Surgery; Gallbladder; Typhoid; Gangrene; Radiology.

Introduction

A rare complication of typhoid illness is gall bladder gangrene with perforation. Although rare and much more so in the absence of gallstones, spontaneous perforation in calculus cholecystitis can occasionally accompany typhoid fever.[1] Mortality rates are very high if such illnesses are not addressed in a timely manner. Gangrene refers to the full necrosis of one or more areas of the gallbladder wall. Acute cholecystitis can progress to gangrene of an area of the gallbladder wall, which is followed by perforation. The word "gangrene" does not indicate that the gallbladder is gangrenous completely. Here is presented a case of a male adolescent who developed gall bladder gangrene with perforation as a complication of typhoid illness.

Case history

A 14-year-old child was seen with a 10-day fever and a 1-day history of abdominal pain. Diffuse, continuing and severe pain that hampered with daily activities. The child had never vomited, had no jaundice and had not experienced burning urine in three days. Physician recommended him to hospital for additional treatment. During examination, he was alert, oriented, febrile and his tongue had an even pallor. He had a normal heartbeat and tachycardia. There was some slight abdominal distention and the entire abdomen was tender and hard. Bowel sounds were absent, there was no palpable bulk in the belly and other systems remain normal.

Complete blood count (CBC) test revealed: haemoglobin: 11.5 g/dL, platelets count: 10,530/m^3, neutrophils count: 44,000/m^3. The peripheral smear showed normal leukocytes with elevated neutrophils and normocytic, normochromic erythrocytes, reduced quantity of platelets, no signs of immature cells or parasites. Impression of neutrophilia with thrombocytopenia was seen.

Multiple fluid levels were seen on the central part of the abdomen on an erect abdomen X-ray

and there was no free air below the diaphragm, indicating a small bowel obstruction. A mildly enlarged liver with normal echo texture, a gall bladder that was suitably enlarged and had normal walls, no calculi, a small volume of free fluid present in the peritoneum and an impression of mild hepatomegaly and mild ascites had been observed on an abdomen ultrasonography. Widal test revealed high titre of: *Salmonella typhi* O titre 1:640, *S typhi* H titre 1:640; *S paratyphi* A (H) negative and *S paratyphi* B (H) had negative results, indicating a positive Widal test meaning that there was a presence of *S typhi* in the blood.

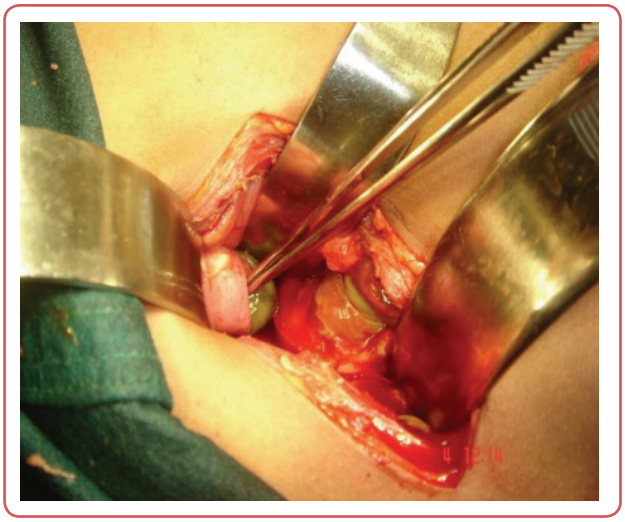

Figure 1: Gall bladder showing perforation at fundus

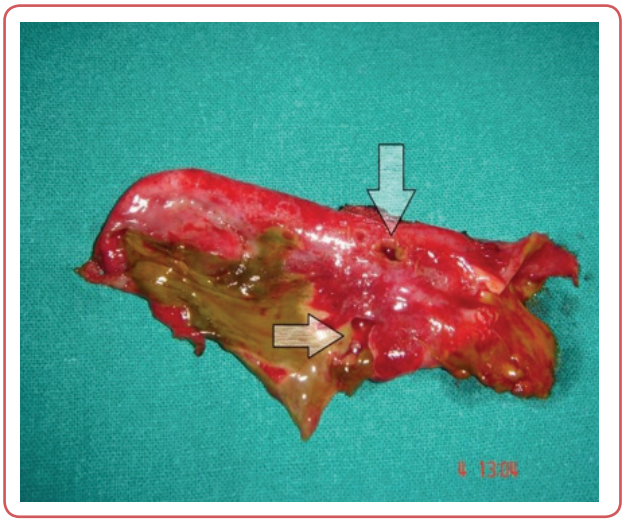

Figure 2: Gall bladder showing perforation and gangrene

Due to the high endemicity of typhoid fever and the absence of free gas under the diaphragm on the patient's X-ray, he was diagnosed with typhoid fever with paralytic ileus. Patient was treated conservatively, but did not improve.

Distention and pain in the abdomen persisted with bilious aspirate, so it was decided to perform an exploratory laparotomy on the third day of admission, which revealed a small fundus perforation (Figure 1) and a 50 % gangrenous gall bladder (Figure 2). There were large, thick pus flakes inside the peritoneal cavity. The appendix, cecum and terminal ileum were all inflamed and oedematous. Cholecystectomy was carried out and the abdomen was closed in layers and the peritoneal cavity was thoroughly cleaned with normal saline. Post-operative discomfort and distention decreased and the child recovered without any complications.

Discussion

Typhoid gall bladder perforation (GBP) is a rare surgical complication of typhoid illness and is virtually ever identified prior to surgery, even in regions where typhoid ileal perforation is widespread.[2-4] This is because generalised peritonitis is a common symptom of typhoid infection. Acalculous typhoid GBP is thought to be caused by the simultaneous existence of severe inflammation, immunosuppression and extremely virulent organisms.[5] Routine plain radiographs of the abdomen and chest to check for air under the diaphragm may have postponed intervention without significantly advancing diagnosis and care. Although Sood[6] stated that ultrasonography had a high degree of accuracy in detecting GBP, in presented case ultrasonography gallbladder imaging showed distention with normal walls and no calculi. This patient's gangrenous gallbladder, which affected 50 % of it, had a perforation at its fundus, making cholecystectomy impossible. Cholecystectomy was performed after it was discovered that the inflammatory tissues close to the gallbladder neck may be easily separated with blunt dissection. Numerous series have documented increased fatality rates in GBP patients.[7]

Conclusion

To avoid the potentially fatal consequences of perforation and gangrene, acute cholecystitis in children with typhoid fever demands a high index of suspicion when diagnosing.

Ethics

Our institution does not require ethics approval for reporting individual cases or case series. Since the patient described in this report was a minor, the written informed consent for anonymised patient information to be published in this article was obtained from his parents.

Acknowledgement

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Conflicts of interest

The authors declare that there is no conflict of interest.

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Data access

The data that support the findings of this study are available from the corresponding author upon reasonable individual request.

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References

1. Shukla VK, Khandelwal C, Kumar M, Vaidya MP. Enteric perforation of the gall bladder. Postgrad Med J. 1983;59:125-6. doi: 10.1136/pgmj.59.688.125.
2. Uba AF, Chirdan LB, Ituen AM, Mohammed AM. Typhoid intestinal perforation in children: a continuing scourge in a developing country. Pediatr Surg Int. 2007 Jan;23(1):33-9. doi: 10.1007/s00383-006-1796-3.
3. Ugwu BT, Yiltok SJ, Kidmas AT, Opaluwa AS. Typhoid intestinal perforation in north central Nigeria. West Afr J Med. 2005 Jan-Mar;24(1):1-6. doi: 10.4314/wajm.v24i1.28152.
4. Saxena V, Basu S, Sharma CLN. Perforation of the gall bladder following typhoid fever-induced ileal perforation. Hong Kong Med J. 2007;13:475-7. PMID: 18057437.
5. Chirdan LB, Iya D, Ramyil VM, Sule AZ, Uba AF, Ugwu BT. Acalculous cholecystitis in Nigerian children. Pediatr Surg Int. 2003 Apr;19(1-2):65-7. doi: 10.1007/s00383-002-0826-z.
6. Sood BP, Kalra N, Gupta S, Sidhu R, Gulati M, Khandelwal N, et al. Role of sonography in the diagnosis of gallbladder perforation. J Clin Ultrasound. 2002 Jun;30(5):270-4. doi: 10.1002/jcu.10071.
7. Essenhigh DM. Perforation of the gall-bladder. Br J Surg. 1968 Mar;55(3):175-8. doi: 10.1002/bjs.1800550304.