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The efficacy of steroids for postoperative persistent inflammatory reaction in a patient with barium peritonitis: A case report



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ABSTRACT

INTRODUCTION: Barium peritonitis is a serious and life-threatening disease requiring intensive care. Residual barium in the intraperitoneal cavity can cause persistent inflammation, postoperatively.

PRESENTATION OF CASE: An 80-year-old woman was admitted to our hospital because of abdominal pain and vomiting after barium meal examination. Physical and radiographic examination showed sigmoid colon perforation. Barium sulfate extravasation was noted in the intraperitoneal cavity. We diagnosed the patient with barium peritonitis, and performed Hartmann's procedure and thorough lavage of the intraperitoneal cavity with 20-L saline. Postoperative blood examination results were not readily improved because of the residual barium in the intraperitoneal and retroperitoneal cavities. We excluded the presence of any other inflammation origin, except that from residual barium. Methylprednisolone 500 mg/body/day was administered for 3 days and the dose was gradually decreased thereafter. The white blood cell count and serum C-reactive protein levels immediately improved to normal levels.

DISCUSSION: Barium peritonitis is associated with high mortality. Residual barium in the intraperitoneal cavity can cause chemical peritonitis, leading to granuloma formation and ileus, postoperatively. Therefore, complete removal of barium in the abdominal cavity with aggressive drainage and large quantity of saline is necessary to prevent postoperative inflammatory reaction. The use of steroids improves the persistent inflammation caused by residual barium, unless any infectious origins are present, which can worsen with steroid-use.

CONCLUSION: Residual barium in the intraperitoneal cavity causes persistent inflammatory reaction in patients with barium peritonitis. The use of steroids is effective for postoperative persistent inflammation due to the residual barium.

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1. Introduction

Barium meal examination for the gastrointestinal tract is widely performed to detect the presence of various gastrointestinal diseases. We occasionally encounter cases of barium peritonitis caused by gastrointestinal or colorectal perforation after barium

Abbreviations: WBC, white blood cell; CRP, C-reactive protein; CT, computed tomography; POD, postoperative day; PET, Positron emission tomography.

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meal examination. Barium peritonitis due to intra-abdominal perforation has been reported to be associated with a high morbidity and mortality, ranging from 35% to 50% [1]. Patients with barium peritonitis generally need intensive care, including the management of sepsis, adequate intravenous feeding, surgical debridement for barium in the intraperitoneal cavity, and postoperative management for infection. Residual barium in the intraperitoneal or retroperitoneal cavity can be a persistent inflammatory source postoperatively for patients, leading to granuloma formation and intestinal adhesion [2,3].

We herein report a case of barium peritonitis due to colonic perforation with postoperative prolonged inflammatory reaction, which was successfully treated with steroids. In this case report, all information was reported in line with the SCARE criteria [4].

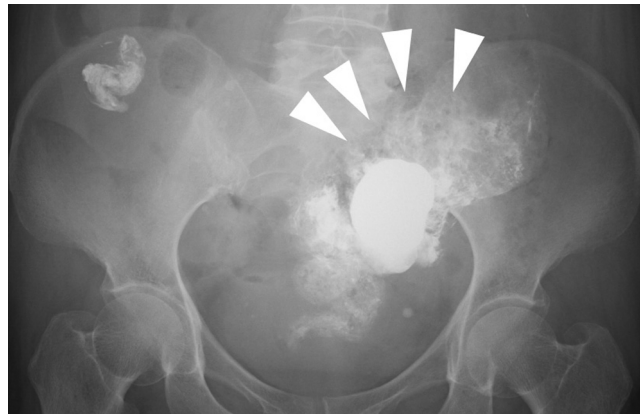


Fig. 1. Barium is extravasated around the sigmoid colon (arrowheads).

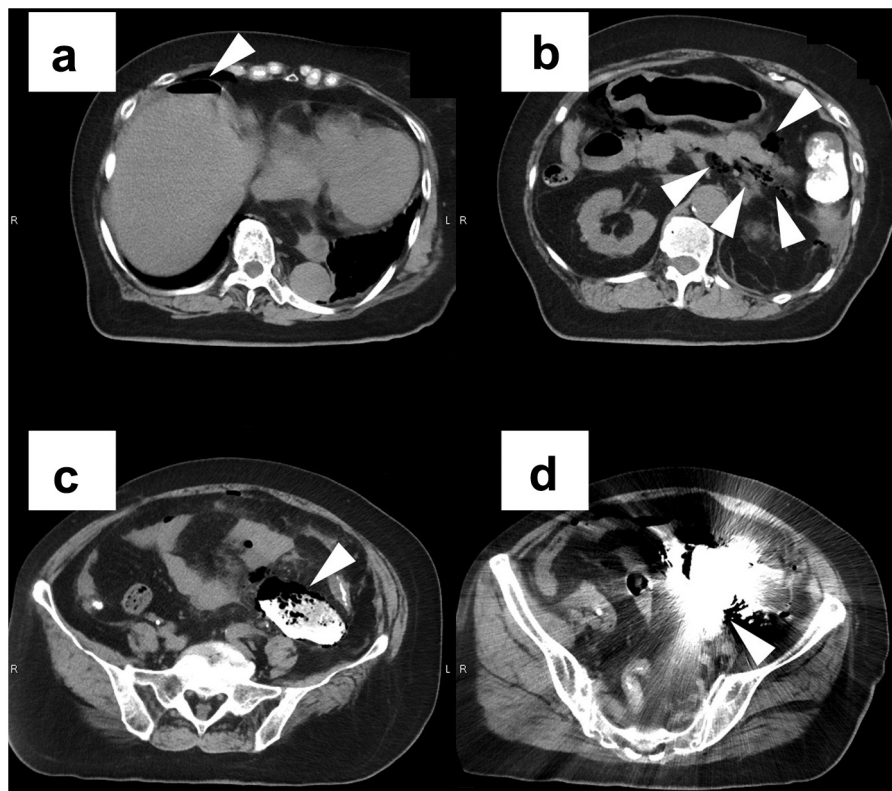


Fig. 2. Free air was detected anterior to the liver (arrowhead).
 (a) Abundance of free air was detected in the intraperitoneal cavity (arrowheads).
 (b) Free air and extravasated barium were detected around the sigmoid colon (arrowhead).
 (c) A large amount of barium was extravasated around the sigmoid colon (arrowhead).

2. Presentation of case

An 80-year-old woman was admitted to our hospital because of abdominal pain and vomiting after a barium meal examination was performed at another hospital. Physical examination showed peritoneal irritation signs, including tenderness and guarding in the abdomen. Blood examination showed reduced white blood cell (WBC) count and increased serum C-reactive protein (CRP) level, which indicated sepsis. Abdominal X-ray findings showed barium leakage from the sigmoid colon (Fig. 1). Abdominal computed tomography (CT) findings showed abundance of free air in the intraperitoneal cavity, such as at the liver surface and around the sigmoid colon. We confirmed barium leakage from the sigmoid colon on abdominal CT (Fig. 2). We diagnosed the patient

with barium peritonitis with sigmoid colon perforation, and we performed an emergency surgery. The Hartmann's procedure and intraperitoneal drainage, which intended to remove as much barium as possible was performed. A large amount of barium was noted in the intraperitoneal and retroperitoneal cavities. We performed thorough lavage of the intraperitoneal cavity with 20-L saline. Impipenem/cilastatin sodium followed by doripenem was administered postoperatively. Although the serum CRP level was gradually decreased until postoperative day 10, it increased again. In contrast, the WBC count continued to increase until postoperative day 13 (Fig. 3). Systemic CT examination was performed to detect other inflammation origins, although no inflammation origins were found, except that from the residual barium sulfate in the intraperitoneal and retroperitoneal cavities (Fig. 4). Methyl-

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