

Cecal Bascule after Cardiac Surgery: A Case Report

Abstract

Cecal bascule is a form of volvulus resulting from upward and anterior cecal folding, and accounts for 0.01% of adult large bowel obstructions. With a competent ileocecal valve, cecal bascule may progress to closed loop obstruction, ischemia, gangrene, or perforation. Failure to treat cecal bascule has a mortality of 50%. Nonoperative management includes nasogastric and colonoscopic decompression, with a 95% failure rate. The gold standard is right hemicolectomy with a near nonexistent recurrence rate. Severe gastrointestinal complications following cardiothoracic surgery may lead to increased morbidity, length of stay, and mortality. Here, we present the first reported case of cecal bascule following cardiac surgery.

Keywords: Abdominal pain, cecal bascule, colon dilatation, coronary artery bypass, coronary artery disease, intestinal volvulus

Introduction

Cecal volvulus refers to any twisting that involves the cecum, terminal ileum, and ascending colon. Cecal bascule is a rare form of volvulus that results from upward and anterior folding of the cecum.^[1] If a competent ileocecal valve exists, cecal bascule can quickly progress to a closed loop obstruction.^[2] Cecal volvulus accounts for 1–1.5% of large bowel obstructions in the adult population, with 10–15% caused by cecal bascule.^[3] Treatment of cecal bascule is usually surgical as delay in treatment may lead to complications such as bowel perforation and necrosis.^[1] Gastrointestinal complications occur in 1% of cardiothoracic operations, most commonly ileus and pseudo-obstruction.^[4] We present the first reported case of cecal bascule following cardiac surgery.

Case Presentation

A 73-year-old male with past medical history significant for coronary artery disease, stage III chronic kidney disease, appendectomy, and cholecystectomy underwent urgent on-pump coronary artery bypass grafting ×3. He received perioperative antibiotics for 48 hours. On postoperative day (POD) six, he complained of nausea and abdominal pain. An abdominal film illustrated colonic dilation to 10 cm [Figure 1]. A nasogastric tube was

placed. General surgery was consulted, and computed tomographic (CT) scan illustrated focal dilatation of the right transverse colon and hepatic flexure consistent with cecal bascule [Figure 2a and b]. With nasogastric decompression and bowel rest, the patient's symptoms resolved and he was discharged on POD 12.

Discussion

Cecal bascule was initially described by Treves in 1899 and radiographically described by Weinstein in 1938.^[5] Bascule typically occurs secondary to incomplete intestinal rotation during embryogenesis or failure of the right colon mesentery to fuse with the retroperitoneum. It may also occur following dissection of peritoneal attachments^[6] or from pre-existing adhesions that create a point of fixation. Increased cecal mobility may allow the posterior portion of the cecum to rotate anteriorly while the appendix folds cephalad. This produces a flap valve and prevents the cecum from emptying.^[2] With a competent ileocecal valve, cecal bascule progresses to a closed loop obstruction as the cecum is unable to decompress. The bowel distends with metabolic gas from colonic bacteria, becomes ischemic from arterial torsion and venous congestion, and may become perforated or gangrenous.^[2]

Risk factors for bascule include previous abdominal surgery, high fiber intake, chronic constipation, ileus, distal colonic

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Submitted: 28-Aug-2018

Revised: 07-Nov-2018

Accepted: 23-Nov-2018

Published: 07-Apr-2020

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Access this article online

Website: www.annals.in

DOI: 10.4103/aca.ACA_171_18

Quick Response Code:



How to cite this article: Johnson AM, Park S, Lytle FT. Cecal bascule after cardiac surgery: A case report. *Ann Card Anaesth* 2020;23:216-7.

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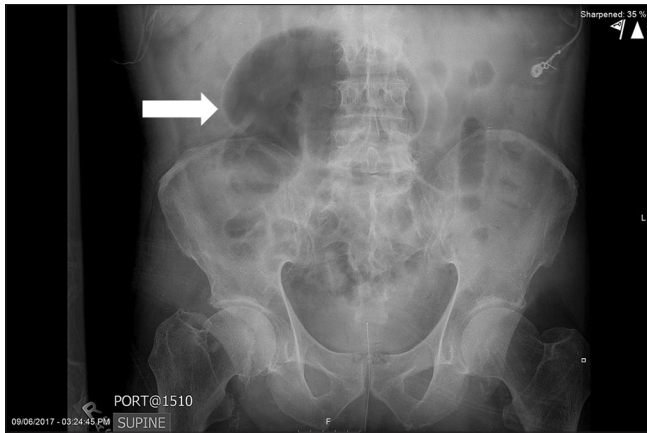


Figure 1: Plain abdominal film illustrating 10-cm cecal dilatation

obstruction, or colonic pseudo-obstruction.^[1,3,7] Conditions such as sepsis, heart disease, malignancy, renal failure, electrolyte abnormalities, pulmonary abnormalities, calcium channel blockers, narcotics, and neurologic abnormalities are associated with colonic pseudo-obstruction; and therefore, increased the risk for cecal bascule.^[7] Prior abdominal surgery has been described in 23–53% of cases and patients are typically in their sixth decade.^[7] Risk factors for our patient included postoperative ileus and two previous intra-abdominal operations.

Symptoms of cecal bascule are similar to those of ileus, namely, nausea, vomiting, abdominal pain, and distention. A plain abdominal radiograph is nonspecific and identifies a dilated cecum that appears as an “inverted tear drop,” often in the mid-abdomen or pelvis.^[8] Contrast enemas have a diagnostic accuracy of nearly 90% and may also be therapeutic.^[9] Cecal bascule appears as a gas-filled cecum projecting anterior to the contrast-filled ascending colon, with an identifiable fold.^[9] CT scan is diagnostic in 90% of the patients and classically illustrates upward folding of the cecum without torsion and an ileocecal valve in the right upper quadrant.^[1,6] CT additionally offers the ability to identify complications such as pneumatosis intestinalis, pneumoperitoneum, and mesenteric stranding, which may be suggestive of perforation, strangulation, or impending perforation.^[1]

The preferred treatment of cecal bascule is operative as the failure rate of nonoperative management approaches 95%.^[1] Failure to quickly identify and treat cecal volvulus is associated with a mortality rate of up to 50%.^[8,10] Nonoperative management includes nasogastric and colonoscopic decompression, and several reports of successful nonoperative management exist.^[7,9] Surgical approaches include right hemicolectomy, cecopexy, and decompressive cecostomy tube. The gold standard is to perform a right hemicolectomy as this has an almost nonexistent recurrence rate.^[1,7] Treatment of cecal bascule with cecopexy and cecostomy tube are reserved for more unstable or debilitated patients with nonperforated, viable bowel as these boast recurrence rates of up to 28% and mortality rates of up to

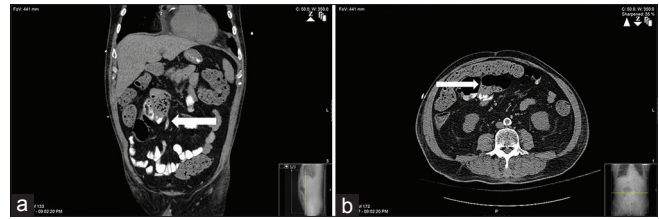


Figure 2: (a) Coronal view of computed tomography scan illustrating ileocecal valve in the right upper quadrant and upward cecal folding. (b) Axial view of computed tomography scan illustrating cecal folding

14%.^[1] Cecostomy tube placement is reserved as a last resort as this does not treat the underlying pathology and is more prone to complications including leak, infection, colo-cutaneous fistula, and torsion around the tube.^[1]

We present the first reported case of cecal bascule after cardiac surgery. This is an extremely rare complication; however, if unrecognized and untreated, it can quickly progress to intestinal ischemia and perforation which may have dire consequences.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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