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Case Report

Acute Colonic Pseudo-Obstruction (ACPO): A Rare but Serious Complication following Caesarean Section

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Abstract:

Background

Acute colonic pseudo-obstruction (ACPO), also known as Ogilvie's syndrome, is a rare but potentially life-threatening condition characterised by severe colonic dilation in the absence of mechanical obstruction. This condition is very rare in women of reproductive age, with few reported cases following normal delivery and caesarean section (c/s). Most physicians will see few cases, if any, during their careers. Given the rising caesarean section rate worldwide, it can be anticipated that more women will present with the condition, underscoring the need to raise awareness among healthcare professionals.

Case presentation

We present the case of a 31-year-old woman who underwent an uncomplicated emergency caesarean section in her second pregnancy due to maternal choice. She was readmitted two days after discharge with progressive abdominal distension and pain. A plain abdominal X-ray revealed a dilated large bowel. She was diagnosed with post-operative ileus and managed conservatively. The following day, she reported increased abdominal distension and pain. Computed tomography of the abdomen was highly suggestive of bowel perforation, which was confirmed during laparotomy. She underwent a right hemicolectomy with ileostomy and made a full recovery, with reversal of the ileostomy after three months.

Discussion

The exact aetiology of ACPO is unknown, but it is thought to result from impaired colonic motility due to autonomic nervous dysfunction, leading to functional colonic dilation. Diagnosing ACPO can be challenging due to a lack of awareness, and its presenting symptoms and signs can be mistaken for other conditions or post-operative complications. Treatment aims to decompress the colon and prevent perforation. Delayed treatment can result in rupture or perforation of the cecum and faecal peritonitis, which carries a high risk of morbidity and mortality.

Conclusion

ACPO is very rare in obstetric patients, and when it occurs, it is usually after a caesarean section. ACPO should be considered in any postpartum woman presenting with progressive abdominal distension and pain following a c/s. A high index of suspicion, along with a multidisciplinary approach and prompt initiation of appropriate investigations and treatment, is key to reducing morbidity and mortality.

Key words: acute colonic pseudo obstruction; ACPO; ogilvie's syndrome; caesarean section; dilated colon; neostigmine

Case Presentation

We report the case of a 31-year-old woman in her second pregnancy. Her first pregnancy ended in an emergency c/s at 29 weeks, for preterm premature rupture of membranes and breech presentation. In the current pregnancy, she was booked for elective c/s at 39 weeks at her request after appropriate counselling in the antenatal clinic. Her antenatal care was uneventful, and she presented to labour ward triage at 37 weeks' gestation in early labour with ruptured membranes.

An emergency caesarean section was performed under spinal anaesthesia following her informed decision. The procedure was uneventful, and a baby boy was delivered in good condition with normal pH and APGAR

score. Her immediate post-operative recovery was smooth and uneventful, and she was discharged home on the 3rd post-operative day.

She was readmitted two days later with a complaint of abdominal distension and pain. There was no history of fever, vomiting, or urinary symptoms. She reported having opened her bowels once since her operation. On examination, she was apyrexial; her abdomen was noted to be distended with mild tenderness, and bowel sounds were present. A rectal examination revealed a small pebble-sized stool in the rectum.

Laboratory investigation showed WBC 10.9 x10^3/uL, Hb 11.3gm/dL, Platelets 320 x10^3/uL, C-Reactive Protein 67gm/L. Her renal function, electrolytes and liver function tests were unremarkable.

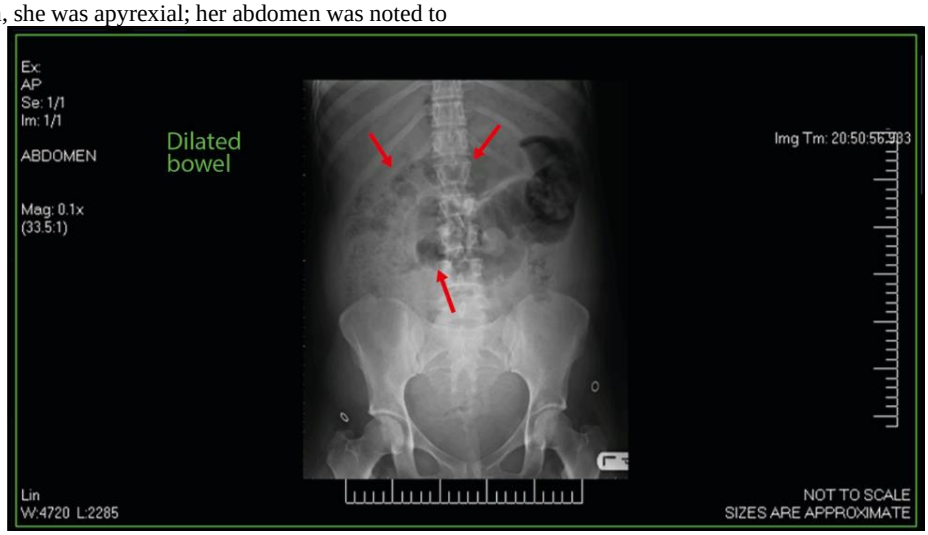

Figure 1: (Plain X-ray abdomen)

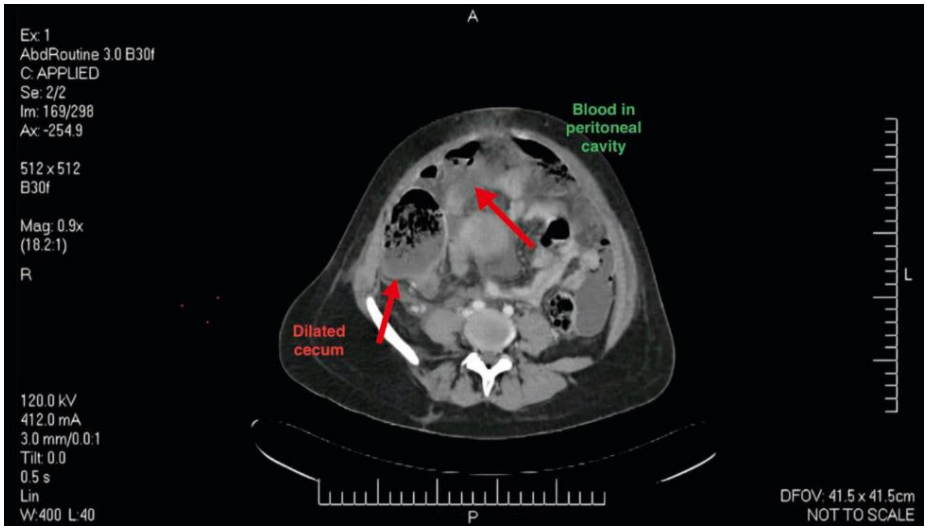

Figure 2: (CT of abdomen and pelvis)

An initial diagnosis of post-operative ileus and constipation was made. A plain X-ray of the abdomen (Figure 1) revealed a distended proximal colon extending to the splenic flexure and generalised faecal impaction. Conservative management was initiated in consultation with the general surgical team. She was kept nil orally; intravenous fluids, a nasogastric tube, paracetamol, and a glycerine suppository were administered with strict instructions to avoid opioid analgesia. The following day, while awaiting Computed Tomography (CT) of the abdomen and pelvis to rule out mechanical obstruction or other intraperitoneal pathology, she reported increased abdominal distension and pain. Examination at this time confirmed the presence of increased abdominal distension with generalised abdominal tenderness, guarding, and rebound tenderness.

Immediate CT of the abdomen and pelvis (Figure 2) revealed extensive free fluid in the paracolic gutter with gas superiorly, indicating post-operative changes or possible bowel perforation. Given her worsening condition and the CT report, an emergency laparotomy was performed. The findings during laparotomy included caecal perforation with faecal contamination of the abdominal cavity. A right hemicolectomy with an end ileostomy was performed after copious peritoneal lavage. She was then transferred to the Intensive Care Unit (ICU). She experienced a turbulent post-operative recovery and was discharged home after 15 days. The reversal of the ileostomy was performed three months later, and she made a complete recovery.

Discussion

Acute colonic pseudo-obstruction (ACPO), or Ogilvie's syndrome, was first described by Sir Ogilvie in two middle-aged men with subdiaphragmatic metastatic deposits in 1948 [1]. The condition is commonly seen in seriously ill elderly patients, those on antipsychotic medication, and following major surgeries such as orthopaedic surgery,

trauma, sepsis, burns, and especially in the postpartum period after caesarean sections [2].

The exact incidence is unknown due to a lack of awareness of the condition, and most subclinical cases resolve spontaneously, thus going unreported [3]. Ross et al [4], in a large study involving the general adult population, reported an incidence of 100 cases per 100000 patients per year. It is estimated that 10% of reported cases are related to obstetric or gynaecological procedures, with most cases occurring postpartum following c/s [5]. Reves et al reported an incidence of 1:1500 deliveries. In a systematic review by Tempfer et al [6] involving 96 gynaecology and obstetrics patients with ACPO, 66 of the 76 (87%) obstetric cases occurred after c/s for various indications, while 10 (13%) occurred during pregnancy or postpartum [6].

There is little unanimity regarding the exact pathophysiology of ACPO. It is generally believed to result from dysregulation of the autonomic impulses of the colonic enteric nervous system [7]. Sir Ogilvie, while explaining the aetiology in two patients with sub-diaphragmatic malignant deposits, postulated that the condition is due either to direct stimulation of the parasympathetic supply to the colon or interruption of the colonic sympathetic supply by the subdiaphragmatic metastatic nodules, leading to unopposed parasympathetic activity [1]. Since then, studies have reported the opposite: that sympathetic overactivity in the distal colon results in functional obstruction with relaxation in the proximal colon or reduced parasympathetic activity as the most likely cause [3,7]. This is supported by the occurrence of ACPO mainly in critically ill elderly patients with greater sympathetic drive, the characteristic colonic dilation often stopping at the level of the splenic flexure, and the successful treatment with parasympathomimetic agents such as neostigmine.

Clinical presentation varies depending on the degree of colonic distension and the patient's overall condition [3]. Progressive abdominal distension along with pain or discomfort are the most common presenting symptoms and can be misdiagnosed as other acute abdominal conditions or post-c/s complications [3,7,8]. Many patients will experience associated constipation, with or without nausea or vomiting; others may continue to pass flatus or liquid stool [8]. Our patient opened her bowel once after her operation and did not have nausea or vomiting. An examination may be unremarkable, apart from a distended abdomen. Jayaram et al in a systematic review, found abdominal distension and pain to be the main presenting symptoms in 89% and 60 % of the patients respectively, with 43% of the patients having bowel perforation or ischemic serosa tear [5]. The presence of fever and peritoneal signs is ominous and highly suggestive of perforation or impending perforation, requiring immediate surgical intervention. Jayaram et al. reported that 9 of the 11 patients with fever in their study had perforation or peritoneal signs [3]. Our patient complained of worsening abdominal pain the day after admission; she had no fever, and her previous blood workup was unremarkable. An immediate CT of the abdomen and pelvis was highly suggestive of perforation, which was confirmed at laparotomy, highlighting the rapidity with which the patient can deteriorate while on conservative management and the need for serial assessment. In rare cases, signs of systemic toxicity or peritoneal signs may not appear if the perforation is sealed off, preventing faecal peritoneal irritation.

Blood investigations usually show leucocytosis and raised C-reactive protein but may be unremarkable, as in our patient, and should not be considered in isolation. The patient should be closely monitored. A plain, erect abdominal X-ray is the first-line diagnostic imaging. Early recourse to CT of the abdomen and pelvis has been advocated, as it has the added advantage of excluding mechanical obstruction or identifying coexisting pathologies that may be missed with radiographs [9]. The characteristic findings include a dilated colon, usually up to the splenic flexure, and free air if perforation has occurred. It has been argued that the clinical course of ACPO in pregnancy may differ from that of the general population, with pregnant women being more susceptible to colon perforation due to the effects of pregnancy on the elasticity and resistance of the colon [3]. Although perforation can occur anywhere along the large bowel, the caecum remains the most common site due to its larger diameter compared to the rest of the colon, thus requiring the least amount of pressure to distend it. This is explained by Laplace's law, which states that the pressure required to stretch a hollow organ is inversely proportional to its radius. In the report by Jayaram et al [3] involving 22 patients with perforation, perforation occurred in the caecum in 18 cases. 3 occurred in the ascending colon and 1 in the ileum with concomitant impending caecal perforation. A caecal diameter greater than 12 cm appears to be a critical threshold that significantly increases the risk of rupture, along with prolonged distension lasting more than 6 days [10]. Prolonged intraluminal pressure leads to compression of the vessels within the bowel wall, reduced blood flow, and consequently, ischemic necrosis and perforation. Jayaram et al [3], in a review of 42 patients with available caecal diameter data, reported rupture in all 6 patients with a diameter greater than 12 cm, compared to 4 of 14 patients (21%) who had a diameter of 9-12 cm and 3 of 17 (3%) with a diameter of less than 9 cm. Vanek et al, in a review of 400 pooled cases of ACPO, reported a 23% risk of perforation of the caecum when the diameter exceeds 14 cm [11].

Most obstetric patients with ACPO usually present within 7 days of delivery [3]. Most of the patients reported by Jayaram presented or were diagnosed within the first 5 days postpartum, with 8 of the 66 patients in the study diagnosed with perforation at the time of imaging [3]. Our patient was readmitted on day 5 post c/s. Her initial blood workup was unremarkable, however, her abdominal radiographs showed large bowel dilation, which was misdiagnosed as post-operative ileus, highlighting the dilemma of diagnosing ACPO in post-c/s patients. It is possible that if Ogilvie's syndrome had been diagnosed at the time of her admission and appropriately managed, rupture of her caecum might have been avoided.

Initial treatment involves conservative measures such as resting the bowel, intravenous fluids, stopping opioid analgesia, treating any coexisting infection, correcting electrolyte imbalances, inserting a nasogastric tube, and ambulation. The success rate for conservative management has been reported to be between 70% and 90% [4, 11]. Medical treatment with neostigmine should be considered for those who fail to respond to conservative management, followed by endoscopic decompression. Valle et al., in a review of a randomised controlled trial involving 127 patients, reported an 89.2% success rate following one dose of neostigmine [13]. Similarly, other randomised controlled studies have reported a success rate of over 70% with a single intravenous dose of neostigmine [12, 14]. However, neostigmine is not without adverse effects, and patients should have close clinical and cardiac monitoring, with an atropine syringe readily available to be administered in the event of an adverse reaction [15]. Colonoscopy decompression should be offered to those who fail conservative and medical treatment if there is no suspicion of perforation. While colonoscopy has the added advantage of ruling out any mechanical obstruction, care must be taken to avoid perforation in an already distended colon. The overall success rate

following colonoscopy decompression has been reported to be over 90% [16]. Patients undergoing conservative management should be closely monitored with serial physical examinations, blood investigations, and radiographs to assess whether the patient is responding favourably to conservative management or deteriorating. Surgical treatment should not be delayed if conservative or medical treatment fails, or if there is suspicion of perforation, ischemia, or peritoneal signs.

Conclusion

ACPO is a rare but serious condition in obstetric patients. Most obstetricians will see very few cases, if any, during their careers, raising the potential for missed or delayed diagnosis. With the rising c/s rate worldwide, it can be anticipated that more women will present with ACPO. Diagnosing ACPO can be challenging, as symptoms and signs can be confused with other post-operative conditions. Furthermore, the current enhanced recovery model, along with early discharge from the hospital following c/s and subsequent follow-up in the community, means that patients may not seek advice promptly, highlighting the need for education and awareness among obstetricians and other healthcare professionals. ACPO should be considered in any postpartum woman presenting with progressive abdominal distension and pain following c/s. Prompt radiographs and CT should be arranged. The finding of colonic dilation in the absence of mechanical obstruction is diagnostic. A high index of suspicion, coupled with a multidisciplinary approach and prompt initiation of appropriate management, is key to reducing morbidity and mortality. Future research is needed to better understand the incidence and pathophysiology of ACPO in pregnant women.

conflict of interest

All the authors report no conflict of interest

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