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An unusual case of peritonitis following a caesarean delivery

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ABSTRACT

Postoperative fluid accumulation is a very rare complication of caesarean delivery. We present an unusual case of peritonitis of unknown origin following a caesarean delivery. Emergency surgery was performed. On exploration there was a large amount of clear fluid which was removed. No signs of iatrogenic injury or any abnormality was detected. Fluid cultures of fluid drained from the abdomen did not grow any organisms. The working diagnosis was reactive peritonitis. Post exploratory laparotomy sepsis developed which was managed conservatively. The patient was discharged after full recovery.

1. Introduction

Postoperative fluid accumulation is a very rare complication of caesarean delivery. Bleeding or iatrogenic injuries to the bowel and the urinary bladder should be excluded promptly to avoid devastating results for the patient. In some cases, in spite of investigating patients extensively, no definitive cause for the accumulation of fluid can be identified. In such cases, idiopathic allergic or inflammatory reaction of the peritoneum may be responsible for fluid accumulation. We present a case of idiopathic fluid accumulation in a young female following a caesarean delivery with complications following surgical intervention.

2. Case report

Mrs. MM a 27 year old healthy female was pregnant with her first child. Antenatal period and routine laboratory tests were normal. Patient choice caesarean delivery was performed at full term. Postoperative period was uneventful and she was discharged on the next day.

Two days later, she developed a fever (38.5 °C), which improved with oral Amoxicillin. On the following day she developed constipation with severe distention. Ultrasonography of abdomen revealed free fluid in the abdomen. She was admitted to surgical department. Vital signs and laboratory tests were normal. CT scan abdomen revealed intraperitoneal free fluid with multiple fluid levels in the intestine but no other lesion was identified. The provisional diagnosis was postoperative peritonitis. A Ryle's tube was inserted. She was given nothing by mouth, IV fluids, IV third generation cephalosporin antibiotics and IV metronidazole. Following an initial improvement her condition deteriorated so emergency surgery was performed 48 h after admission. On exploration there was a large amount of clear fluid which was removed. Careful inspection of the bladder and the bowel did not reveal signs of iatrogenic injury or any abnormality. The appendix appeared normal. Thorough lavage of the peritoneal cavity was performed using 0.9% saline and a pelvic drain was left in place. Our working diagnosis was reactive peritonitis. Biochemical analysis of fluid drained from the abdomen revealed an exudate (the protein content was 40 g/dl) containing excess WBCs only, mainly polymorphonuclear leukocytes. Fluid cultures for aerobic/ anaerobic organisms and mycobacterium tuberculosis did not grow any organisms. No malignant cells were noted on cytology. Her condition improved markedly. The drain output became minimal and was removed after 2 days.

There were however postoperative complications. Two days after exploratory laparotomy she developed fever (40 °C), dyspnea, hypotension (90/60 mm/Hg), tachypnea and tachycardia (120 Beats/minute). Emergency CT scan of chest revealed bilateral bronchopneumonia. Sepsis developed in the wound. IV Meropenem was administered. Her condition slowly improved. Her temperature dropped but dyspnea persisted. Blood tests revealed a hemoglobin of 6 gm/dL, WBCs 19×10^3/ul and platelet 278×10^3/ul.

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Serum liver and renal function tests were remained normal. C-reactive protein was 78 mg/l. She received two units of packed RBCs. Later on she developed bilateral soft pitting edema in both legs that rapidly progressed to involve her thighs, vulva, abdomen and back. Her albumin was 1.6 gm/dl (normal 3.5–5.5 gm/dl) but with no albuminuria. She received IV albumin and frusemide. She was discharged on day 12 after full recovery. No further readmissions were required and on 10-month follow-up. There had been no further adverse events or re-accumulation of fluid.

3. Discussion

This was an unusual case of abdominal fluid accumulating following an elective caesarean delivery with no evidence of bleeding, iatrogenic injuries to the bowel or urinary tract nor peritoneal contamination. No definitive cause was identified in spite of performing a thorough postoperative biochemical and cytological analysis of the fluid. Following exploratory laparotomy and drainage of the fluid, no further intraabdominal accumulation occurred. No additional therapeutic intervention was given other than intravenous antibiotics. We attribute the development of fluid accumulation to an idiopathic allergic or inflammatory peritoneal reaction.

To date, evidence in the literature to suggest the possibility of peritoneal allergic or inflammatory reaction to agents used during surgery in cases where visceral injury or other pathology has not been identified is limited to isolated case reports. Most of reports on this subject have been on patients undergoing gynecological procedures. Postoperative ascites of unknown origin has been reported following laparoscopic appendicectomy, laparoscopic cholecystectomy, laparotomy for resection of ovarian cysts and for myomectomies, laparoscopic salpingectomy, laparoscopic gynecologic surgery, diagnostic laparoscopy, hysteroscopy and peritoneal dialysis.[1–10] After performing a systematic search on MEDLINE, we identified a previous report of the development of postoperative idiopathic fluid accumulation following caesarean delivery.[11] The previous reports have suggested the possibility of allergic reaction to chemical agents used during laparoscopy or laparotomy (antiseptic peritoneal lavage and methylene blue dye) or some substances used (carbon dioxide, electricity, light/heat, diathermy and latex powder). However, our patient was not administered any specific cemical agent or intraperitoneal diathermy during the caesarean section and the colour of the ascites was such that made the diagnosis of bacterial ascites unlikely. This was supported by the negative fluid cultures. Regarding latex powder induced peritoneal inflammation; our patient did not develop fluid accumulation after her second laparotomy.

There were serious postoperative complications following exploratory laparotomy: severe bronchopneumonia, wound infection, severe anemia and hypoalbuminemia. Bronchopneumonia and wound infection are common postoperative complications. Both occur at days 3–5. Pneumonia accounts for a 2.7% to 3.4% of complications among surgical patients.[12] In the post-operative setting, hospital-acquired pneumonia is the predominant type.[13] Surgical site infections are the third most frequently reported healthcare associated infection.[14] Surgical site infections can be caused for a variety of factors.[14] Common pathophysiologic factors to all surgical site infections can be broken down into two general categories: immune dysfunction (intrinsic factors); environmental and external factors related to the operation itself (extrinsic factors).[14] Anemia and hypoalbuminemia are associated with sepsis.[15–17] Sepsis alters RBC morphology and membrane composition and both contribute to the development of anemia in septic patients.[15,16] Severe anemia often occurs in sepsis. [14] An association between a low serum albumin and infection has been found in intensive care unit patients and serum albumin has been noted to be low in sepsis (below 2.0 g/100 ml).[17] Many reports have been published on surgical and caesarean delivery infection prevention.[18,19]

This case report describes an unusual case of peritonitis of unknown origin following an elective caesarean delivery with serious post exploratory laparotomy complications. Complete recovery occurred in spite of these serious complications. Authors could not determine the etiology of the serous fluid in this patient suggestive of idiopathic allergic or inflammatory reaction of the peritoneum. This is the second reported case of postoperative fluid accumulation of unknown origin after caesarean delivery. In the first case fluid accumulation occurred after the second caesarean delivery while in our case after the first caesarean delivery.[11] In both cases the cause was not identified. Also in this case report, caesarean delivery was performed on maternal request. These days primary caesarean deliveries are generally accepted as nearly risk-free operations.[20] In the United States a major factor encouraging caesarean delivery is its increased safety.[21] This perception is in contrast to our case report, in which serious and life-threatening complications occurred after elective caesarean delivery. The overall rate of complications after caesarean delivery is 8.1%.[22] Our case emphasizes the importance of performing caesarean delivery only when the benefits to be accrued outweigh the potential risks.[23] Performing a caesarean delivery on maternal request is medically and ethically acceptable.[24] Physicians, however, should, in the absence of an accepted medical indication, recommend against medically unindicated caesarean delivery.[24]

In conclusion, postoperative fluid accumulation of unknown origin following a caesarean delivery is a very rare complication. When it arises, patients should be thoroughly investigated and monitored to exclude the possibility of bleeding or an iatrogenic visceral injury during the caesarean section. Emergency laparotomy should be considered early, if the patient is developing signs of peritonitis. If no definitive cause for the fluid accumulation can be identified, the most likely explanation is idiopathic allergic or inflammatory reaction of the peritoneum. In our experience, after draining the fluid, such patients recover well and no further intervention is required.

Conflict of interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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Ethical approval

Not needed.

Patient consent

The patient's consent has been obtained.

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