

## Giant Unilocular Intra-Abdominal Abscess after Caesarean Section Mimicking Intestinal Obstruction

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### Abstract

Intra abdominal abscess (IAA) following Caesarean section (CS) is rarely unilocular. A giant one diagnosed 5 weeks after CS in a 30-year-old woman, para<sup>1+0</sup> is presented. The clinical presentation mimicked intestinal obstruction. This presentation emphasized the relevance of plain radiograph and ultrasound in the management of IAA, and discussed the unfavourable outcome of open laparotomy drainage in the patient. We warn that a healthy postoperative period does not exclude the possibility of a developing intra-abdominal abscess and concluded base on the catastrophic outcome of open laparotomy drainage in this case, that percutaneous drainage may be safer and should be the initial option to in giant IAA.

*Keywords:* Caesarean Section, Abscess, Intestinal Obstruction, Laparotomy, Ultrasound

### Introduction

An intra-abdominal abscess (IAA) rarely occurs spontaneously but rather follows gastrointestinal surgery, a perforated viscus or penetrating abdominal trauma<sup>1</sup>. Unilocular IAA following caesarean section (CS) is rare. It could remain undiagnosed up to five months after initial surgery because postoperative analgesics and antibiotics may mask its symptoms<sup>2-4</sup>. The presence of swinging pyrexia, abdominal distension, jaundice and unexplained anaemia in the postoperative period should however lead to a suspicion of an occult collection of pus. Radiological imaging is vital to its diagnosis and management<sup>1,5</sup>. A giant unilocular IAA that clinically mimicked intestinal obstruction is presented because of the enormous size, the unfavourable outcome of laparotomy drainage and to emphasize the relevance of the simple and inexpensive plain radiograph and ultrasound in the management of IAA.

### Clinical Case

A 30-year-old civil servant, para<sup>1+0</sup>, who had

uneventful emergency caesarean delivery of live twin fetuses because of mal-positioning at a private clinic presented at our hospital five weeks after delivery with a history of low grade fever, progressive non-colicky abdominal pain, abdominal swelling and foul vaginal discharge. There were episodes of effortless non-bilious vomiting and non-defaecation for 72 hours. Her immediate postoperative period was good and she was discharged home on the seventh postoperative day. The first twin had died within 24 hours of delivery from an unknown cause while the second twin remained healthy. There was no history of premature rupture of membranes, prolonged labour or blood transfusion.

On examination, she was pale (packed cell volume was 18%), febrile (temperature 38.2°C) and anicteric. Pulse rate was 98 beats

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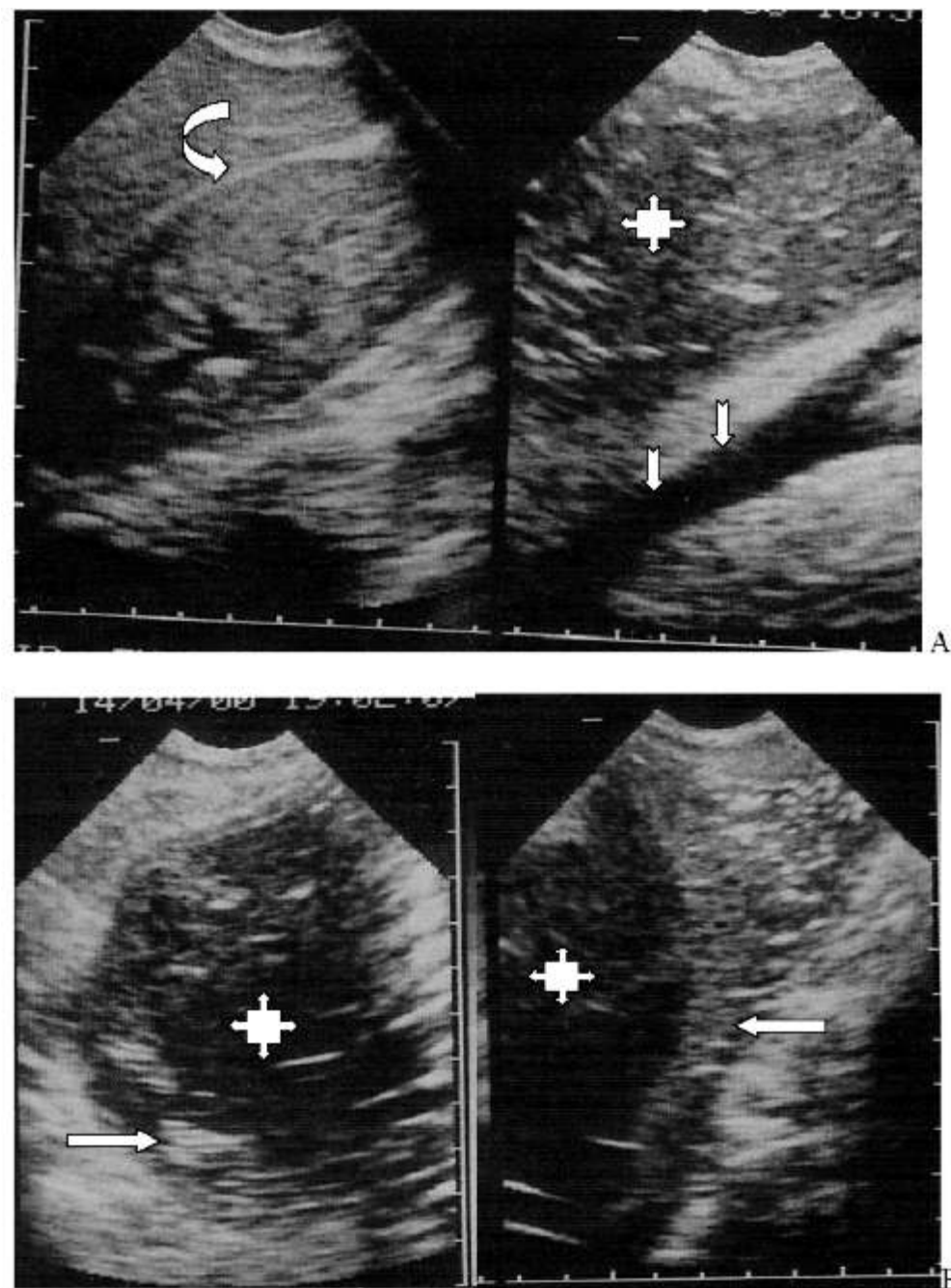


Fig. 1: Ultrasound images of the patient showing a well circumscribed thick-walled abscess (quad arrow). Note the internal echoes and some highly reflective specks (gas) within it. (A) Demonstrates free hepatorenal space (curved arrow), the anterior location of the abscess to the abdominal aorta (notched arrows) and its extension beyond the bifurcation of the aorta into the pelvis while (B) Focuses on the thick wall of the abscess (open arrow).

per minute and blood pressure was 110/65 mmHg. Her abdomen was distended, resonant to percussion centrally but dull at the flanks and showed a well-healed Pfannenstiel incision. Bowel sounds were hypoactive. Vaginal examination revealed

purulent and foul smelling discharge. The cervical os was closed and the uterus was well contracted. A clinical impression of partial intestinal obstruction from postoperative adhesion, with superimposed puerperal sepsis was made and she was

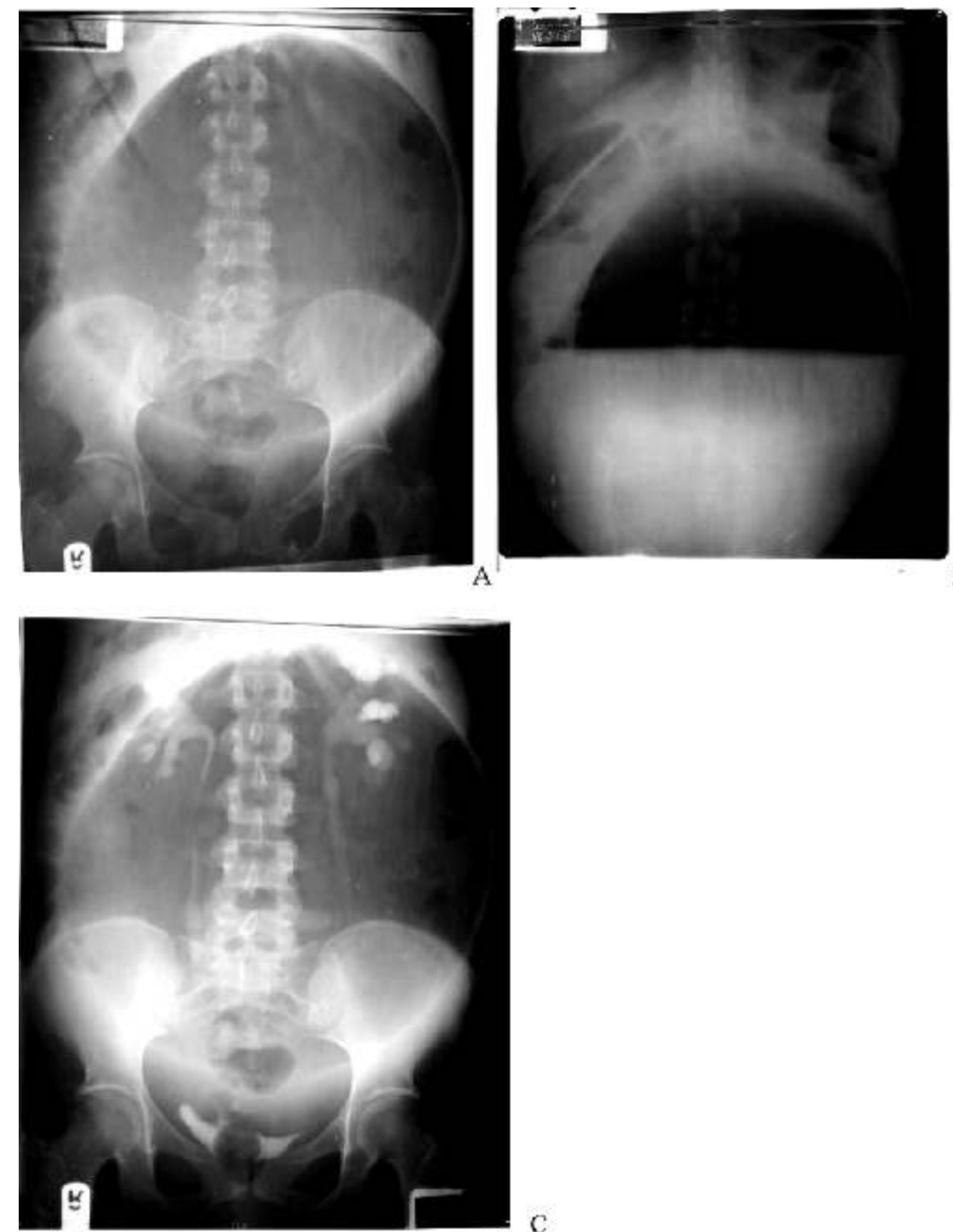


Fig. 2: Abdominal radiographs showing giant intra-abdominal abscess. (A) Supine radiograph showing well-marginated rounded homogeneous extraluminal lucency; (B) Erect radiograph demonstrating giant air-fluid level and (C) Delayed intravenous urogram of the same patient showing bilateral hydronephrosis. Note also the previously demonstrated giant homogeneous lucency due to the abscess.

commenced on parenteral antibiotics.

The serum biochemistry, retroviral screening and blood culture results were normal. Abdominal ultrasound scan showed a highly reflective central abdomen, presumed to be gas. There was also fluid with reflective

internal echoes extending from the epigastrium down to the pelvis (Figure 1A & B). This extensiveness made ultrasonic estimation of its volume difficult. Bowel loops showed poor peristalsis and were displaced peripherally. Other intra-abdominal organs were normal. These

sonographic findings led to the suspicion of intestinal perforation with IAA as a differential. The plain radiographs showed abdominal distension with a well-marginated homogenous central large extraluminal lucency with an air fluid level displacing the bowel loops peripherally (Figure 2A & B). The chest, except for elevated hemi diaphragms from raised intra-abdominal pressure, was normal. Emergency intravenous urography to exclude renal involvement showed prompt, good and bilateral excretion but with mild pelvicalyceal and ureteric fullness worse on the left (Figure 2c). The radiographic findings led to the diagnosis of IAA.

The preceding history of CS, which seems to be the only identified predisposing factor to IAA in this patient, heightened the suspicion of retained foreign body and hence the management option of exploratory abscess drainage was chosen. The intra-operative findings were a huge abscess (1,950mls of pus) walled off by omentum, adherent bowel loops with involvement of the uterus. Post drainage, she was maintained on parenteral antibiotics. However, her clinical conditions continued to deteriorate and she died on the 11<sup>th</sup> postoperative day from multiple organ failure.

#### Discussion

Postoperative IAA may go unrecognized as in our patient until it is advanced and has produced profound effects on the patient<sup>2</sup>. The pelvis is the common location of the condition when it follows CS<sup>6</sup>, unlike the central location in our patient. However, the giant unilocular appearance of our case makes it unique. The possible reasons for this may include a slowly forming abscess, which allowed sufficient time for inflammatory responses and omental wall-off leading to the well-demarcated abscess margins (Figures 2 a-c). Secondly, postoperative antibiotics may have retarded

the growth of the invading microbes thereby facilitating the curtailment of the abscess as reported by Connell *et al*<sup>4</sup>.

The predisposing factors in our patient without a history of prolonged rupture of membranes, obstructed or prolonged labour and prolonged surgery is uncertain. Although we could not ascertain the length of surgery and attendant blood loss, our patient's good postoperative period and good wound healing makes wound infection as a cause unlikely. In addition, the non-demonstration of any foreign body on imaging and at laparotomy makes such an unlikely cause.

According to Altemeier *et al*<sup>2</sup> and Connell *et al*<sup>3</sup>, diagnosing IAA in the postoperative period may be difficult or delayed because postoperative analgesics and incision pain frequently mask abdominal findings. In addition, antibiotic administration may mask abdominal tenderness, fever, and leukocytosis<sup>2</sup>. The preceding CS and 5weeks interval from surgery to diagnosis of IAA in our patient is consistent with these findings. Ultrasound and computed tomography (CT) are favoured diagnostic imaging modalities of choice<sup>1</sup>. However, some authors believed that investigation should begin with plain radiographs of the abdomen because of its large diagnostic possibilities and standardized practicability, while CT should be use in the unclear cases and for planning of further surgical treatment because of its inherent advantages at demonstrating the exact location and extension of the lesion<sup>1,4</sup>. Plain radiograph alone is diagnostic in about 50% of the cases by accurate interpretation. Added to ultrasonography, the diagnostic possibility is about 90%<sup>1,4</sup>. These two imaging modalities were diagnostic in this case.

Ultrasound, aside being readily available, portable and inexpensive, has diagnostic

accuracy in the region of 90% for IAA in experienced hands<sup>1, 8-10</sup>. However, marked obesity, bowel gas, intervening viscera, surgical dressings, open wounds, and stomas can create problems with definition in addition to its being operator dependent. The excretory urography used to assess the renal status or involvement in our patient conforms with the report of Connell *et al*<sup>4</sup> that selective use of contrast study is complementary to the diagnostic accuracy of the conventional radiograph.

The treatment of postoperative abscess is drainage. Recent advances in imaging techniques have led to gradual shift from the conventional laparotomy drainage to percutaneous drainage under ultrasound, ultrasound/fluoroscopic and CT guidance<sup>10</sup>.<sup>11</sup>. The American College of Radiology has reported that imaging-guided percutaneous IAA drainage is safe and effective with about 80% success rate<sup>11,12</sup>. However, Dahnert *et al*<sup>12</sup> warns on the need to be cautious and to individualize the clinical and imaging approach to each patient suspected of an abscess, the need to individualize the imaging procedure based upon what is done best at the institution, and the need for percutaneous aspiration of all fluid collections for diagnosis.

The abscess in our patient, though was

unilocular, had laparotomy drainage rather than percutaneous drainage because of consideration of the possibility of a retained foreign body from the previous surgery she had, that may be radiologically inapparent, as well as the possibility of small pockets of synchronous abscesses, which have been variously documented<sup>2,3,5,7</sup>. The outcome of laparotomy drainage and percutaneous drainage of IAA are similar except that the morbidity is slightly higher for the former<sup>6,10-12</sup>. The mortality rate of postoperative IAA is as high as 35% if not promptly diagnosed and treated<sup>1,3,4</sup>. The determinants of outcome include the size of the abscess, completeness of drainage and multiple organ involvement<sup>3,4</sup>. The presumed cause of death in this patient was multiple organ failure similar to that reported by other authors<sup>1,3,7</sup>.

#### Conclusion

Plain radiograph and ultrasound remain invaluable diagnostic methods in IAA. With this case, we warn that a healthy postoperative period does not exclude the possibility of a developing intra-abdominal abscess that could clinically mimics intestinal obstruction. Base on the catastrophic outcome of open laparotomy drainage in this case, we conclude that percutaneous drainage may be safer and should be the initial option to in giant IAA.

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