Non-Surgical Management of Post-Cesarean Endomyometritis Associated With Myometrial Gas Formation

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ABSTRACT


KEY WORDS
uterus; infection; myonecrosis

Postpartum endomyometritis develops in 27% to 85% of patients undergoing cesarean delivery. This is in marked contrast to patients undergoing vaginal delivery in whom the rate is less than 2.5%.1 In contrast to abortion-associated pelvic infections, the management of postpartum endomyometritis is primarily medical with surgical intervention only occasionally required.2 We present a case of post-cesarean delivery endomyometritis complicated by prolonged fever, abdominal abscess, and myometrial gas formation in which the need for emergency hysterectomy was seriously considered.

CASE REPORT

An 18-year-old woman, G2 PO Ab I, presented at 39 weeks gestation with pregnancy-induced hypertension and oligohydramnios. She underwent cervical ripening and labor induction over the next 48 hours. Fifteen hours after rupture of membranes the patient developed clinical evidence of chorioamnionitis. Intravenous ampicillin and gentamicin were initiated. An emergent cesarean section was performed 8 hours later due to fetal heart rate concerns, with delivery of a 3685-gram male infant, Apgars 0/0/0. Postoperatively, clindamycin was added to the antibiotic regimen. Fever persisted to 101.6°F with mild tachypnea and tachycardia, despite therapeutic aminoglycoside levels. Appetite and bowel function rapidly returned. Skin incision site erythema and induration were noted on postoperative day (POD) 6, at which time the wound was opened to the fascia and a seroma spontaneousely drained. Daily wound care was initiated, but fevers persisted. Computed tomography (CT) scanning of the abdomen and pelvis demonstrated a 6×4×6 cm walled off fluid collection in the midabdomen, anterior to the descending colon, consistent with abscess formation. Percutaneous drainage of the entire collection was accomplished. Although the patient appeared clinically well, spiking fevers and persistent tachycardia remained. On POD 8 heparin therapy was started for the presumptive diagnosis of septic pelvic thrombophlebitis. On POD 12 repeat CT scanning demon-

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strated reaccumulation of the abscess cavity in the pericolic gutter and a small right pleural effusion. An additional interval finding was the identification of gas within the lower uterine segment myometrium that tracked to the right lateral margin of the uterus (Fig. 1). This radiographic finding was not present in the previous CT scan. It was separate from the recurrent pericolic gutter abscess and did not communicate with the lower margins of the open wound. Despite persistent temperatures of 102–103°F and white blood cell counts ranging from 22,000 to 34,000/mm³, the patient was hemodynamically stable, ambulating well, and had good bowel and bladder function. Physical examination demonstrated only mild tachypnea with no tenderness in the abdominal and pelvic regions. The uterus was involuting well, and the lochia did not smell foul. The intravenous antibiotic regimen was changed to piperacillin/tazobactam and gentamicin. Repeat percutaneous drainage of the intrabdominal abscess was performed, with a catheter remaining in place. On POD 15 a repeat CT demonstrated a small, residual abscess cavity and a reduction in the myometrial gas pattern. Gradual clinical improvement was noted, and on POD 17 the patient was afebrile for 24 hours. The percutaneous catheter was removed. The patient remained afebrile until discharge on POD 22, when parenteral antibiotics and heparin were discontinued.

The patient was instructed to complete an additional 10 days of oral amoxicillin/clavulanate. Follow-up CT scanning two weeks later demonstrated no evidence of the pericolic abscess and resolution of the myometrial gas accumulation (Fig. 2).

**DISCUSSION**

Gas formation within the uterine wall of a patient with endomyometritis such as we present is an alarming finding and raises the spectre of uterine myonecrosis requiring hysterectomy. Most experience with this complication comes from patients presenting with severe uterine infections resulting from self-induced abortions. In such cases severe life-threatening disease was due in large part to local uterine trauma and devitilized tissue which favored rapid proliferation of endogenous organisms including Clostridium perfringens.³⁴ In general, laparotomy with possible hysterectomy has been recommended for patients with septic abortion if sepsis and clinical deterioration continue despite aggressive medical therapy and uterine curettage, the uterus is necrotic and perforated, clostridial sepsis (especially with hemolysis ) is present, or if there is radiographic evidence of air within the uterine wall.⁵

Considerably less experience is available with patients having uterine myometritis and local gas production following vaginal or cesarean delivery. Two such patients were reported recently, both infected with C. perfringens and with full recovery without hysterectomy in each case.⁶ Our case differs with gas production in the myometrium developing from a polymicrobial infection involving aerobic and nonclostridial anaerobic enteric organisms (Table 1).
TABLE I. Aerobic and anaerobic microbiologic results from site cultures

<table>
<thead>
<tr>
<th>Site</th>
<th>Aerobic and Anaerobic Bacteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uterine cavity (at cesarean section)</td>
<td>Peptostreptococcus sp., Prevotella sp., Enterococcus faecalis,</td>
</tr>
<tr>
<td>Transvaginal endometrial (POD 5)</td>
<td>Citrobacter koseri, Bacteroides caccae, Bacteroides ovatus</td>
</tr>
<tr>
<td>Wound (seroma)</td>
<td>Enterococcus faecalis, Citrobacter koseri</td>
</tr>
<tr>
<td>Intra-abdominal abscess (1st drainage)</td>
<td>Enterococcus faecalis, Citrobacter koseri, Bacteroides thetaoiotaomicron, Peptostreptococcus sp.</td>
</tr>
<tr>
<td>Intra-abdominal abscess (2nd drainage)</td>
<td>Enterococcus faecalis, Citrobacter koseri, Bacteroides caccae, Bacteroides thetaoiotaomicron</td>
</tr>
<tr>
<td>Blood cultures</td>
<td>No growth</td>
</tr>
</tbody>
</table>

*a Enterococcus susceptible to ampicillin.  
*b Citrobacter susceptible to gentamicin, ampicillin/sulbactum, and piperacillin/tazobactam.

Of note, gas production has been reported previously secondary to soft tissues infections with *Escherichia coli*, *Klebsiella*, and perhaps other facultative bacteria.7,8

Despite the ominous appearance of the pelvic CT scan and the previous reports advocating hysterectomy, at least in patients with septic abortion and uterine gas, we elected not to perform surgery. The primary reason for this decision was our patient’s overall clinical status. She was hemodynamically stable, ambulatory, lucid, and had only mild to moderate pain. Her complete recovery with disappearance of myometrial gas following a one month course of antibiotics supports this approach in selected patients. We conclude that local myometrial gas formation accompanying endomyometritis may be insufficient reason for hysterectomy in postpartum patients who are otherwise clinically stable.

REFERENCES

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