

Unusual Polymicrobial Wound Infections In Healthy Patient After Cesarean Sectio

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ABSTRACT

Cesarean delivery often complicated by surgical site infection, wound infection and endometritis. No study mention Multidrug Resistant *Klebsiella pneumonia* and *Acinetobacter lwofii* were isolated.

Here we report a rare case of polymicrobial wound infections in healthy patient after Cesarean Sectio caused by *Pseudomonas aeruginosa*, Multidrug Resistant *Klebsiella pneumonia* and *Acinetobacter iwofii*. A 30-year-old woman at 37 weeks gestation (G1P0A0) presented to our hospital for cesarean sectio due to oligohydroamnios and malpresentation. She came to us on the eleventh post-delivery day with discharge from her surgical wound. Intraoperative cultures revealed *Pseudomonas aeruginosa*, Multidrug Resistant *Klebsiella pneumonia* and *Acinetobacter lwofii*.

The greatest contribution to risk for surgical site infection was associated with maternal obesity and hypertensive disorder, but she has no risk factor. The polymicrobial combination of our patient's is unique from previously described studies, in this case all were Gram negative bacteria (*Pseudomonas aeruginosa*, Multidrug Resistant *Klebsiella pneumonia* and *Acinetobacter lwofii*).

Keywords: cesarean section, multidrug resistant, polymicrobial, surgical site infection.

INTRODUCTION

Cesarean delivery is a major obstetrical surgical procedure to save lives of mother and fetuses.¹ Cesarean delivery often complicated by surgical site infection (SSI), wound infection (2-7%) and endometritis (2-16%).² Many independent risk factors for SSI are identified through previous researches, the most common are obesity, presence of hypertension or preeclampsia, and diabetes mellitus.^{3,4} Many studies already concluded the most common organisms related to Cesaran Sectio – SSI are *Staphylococcus aureus* (50.4%) and *Eschericia coli* (16.8%).^{5,6} Gram negative bacilli, coagulase negative

staphylococci, and *Enterococcus* species are other organisms commonly found from SSI.¹ A large study done at Qatar showed *Pseudomonas* species only isolated in 2.8% cases of Cesarean Sectio-SSI.³ None of those studies mention Multidrug Resistant (MDR) *Klebsiella Pneumonia* and *Acinetobacter lwofii* were isolated. Here we report a rare case of polymicrobial wound infections in healthy patient after Cesarean Sectio caused by *Pseudomonas aeruginosa*, MDR *Klebsiella pneumonia* and *Acinetobacter iwofii*.

METHODS

A 30-year-old woman at 37 weeks gestation (G1P0A0) presented to our hospital for cesarean section due to oligohydramnios and malpresentation. She had unremarkable past medical history and regularly did follow up with her obstetrician. She was given Ceftriaxone prior to the surgery as prophylaxis. The patient had an uneventful hospital course and was discharged with Cefixime as home medications. She came to us on the eleventh post delivery day with 5 days of reddish to blackish discharge from her surgical wound, she denied fever.

Her vital signs included temperature 36°C, a heart rate of 85 beat per minute, a respiratory rate of 20 per minute, and a blood pressure of 110/80 mmHg. On physical examination, she was fully awake, seen dark bloody discharge from surgical incision. The wound was partially opened and probed, but there was no foul smelling. She had a firm, localized tender abdomen on palpation around the surgical incision.

Her admission laboratory were hemoglobin 9.1 g/dl, White Blood Cells (WBC) $5.06 \times 10^9/L$, and platelet count 521000.

An exploratory laparotomy was performed on the same day, and an abscess with necrotic tissue on subcutaneous level were found. Intraoperative cultures revealed *Pseudomonas aeruginosa*, *MDR Klebsiella pneumonia* and *Acinetobacter lwoffii*. CT-scan of the abdomen post exploratory laparotomy was done revealed hematoma pocket in intramuscular of rectus abdominis, measured 11.7 x 4.1 x 5.98 cm, adhere to urinary bladder but there is no fistula, liver, gallbladder, pancreas, spleen, kidney, and intestines are normal.

Because of the overwhelming infection, the decision was made to shift the antibiotics, Ciprofloxacin and

Metronidazole to Meropenem. During admission the patient was referred to Infectious disease service, Meropenem was continued, there was improvement of discharge amount from surgical wound. The rest of hospital stay was unremarkable and she was sent home on twelfth day post laparotomy with repeated laboratory showed improved hemoglobin without blood transfusion, normal platelet count and made a full recovery.

DISCUSSION

The US Centers for Disease Control and Preventions (CDC) has divided SSI into three categories, superficial incisional SSI, deep incisional SSI, and organ/space SSI. Based on its definition our patient is categorized as superficial incisional SSI, which infection occurs within 30 days after the operation and infection involves only skin or subcutaneous tissue of the incision and at least on one of the following : purulent drainage, with or without laboratory confirmation, from the superficial incision; organism isolated from an aseptically obtained culture of fluid or tissue from the superficial incision; signs or symptoms of infection; diagnosis of SSI by surgeon or attending physician.⁷

The largest research studying independent risk factors for SSI after cesarean section was done in the United States, they concluded higher BMI at admission, admission to the university teaching service, absence of cephalosporin prophylaxis before or during the operation, and development of subcutaneous hematoma after the operation as independent risk factors for SSI.⁸ Other large study found obesity, diabetes mellitus, hypertension, tobacco or steroid use, malnutrition and blood transfusion are associated with increased risk of SSI.^{3,4} Our patient does not have any co-morbidities, however, the

development of hematoma after the surgery is associated with SSI. The most important source of microorganisms responsible for post cesarean infection is the genital tract, particularly if the membranes are ruptured. Infections are commonly polymicrobial, include *Staphylococcus aureus*, *Escherichia coli*, gram negative rods, *Enterococcus faecalis*, coagulase negative staphylococci, group B streptococcus, *peptostreptococcus*, and *bacteroides* species.⁹

The polymicrobial combination of our patient's is unique from previously described studies. *Staphylococcus aureus* is the most common organism isolated in SSI, followed by *Staphylococcus epidermidis* (CONS).^{1,10} Despite *S. aureus* is one of the most prevalent bacteria, but in this case the polymicrobial infections all were Gram negative bacteria. The greatest contribution to risk SSI was associated with maternal obesity and hypertensive disorder,¹¹ but she has no risk factor. One of three pathogens has found MDR *Klebsiella pneumoniae*, and only sensitive to Meropenem and Amikacin. Carbapenems are generally active against a wider range of organism than other penicillins, cephalosporins, beta-lactam/beta lactamase inhibitor combination agents. Meropenem has generally been considered first-line therapy for serious infections caused by ESBL (Extended Spectrum Beta-Lactamases) and AmpC-type beta-lactamases bacteria.¹²

CONCLUSION

Cesarean delivery often complicated by surgical site infection. The development of hematoma on post cesarean wound is associated with wound infections despite in patient who does not have co-morbidities. The polymicrobial combination of our patient's is unique from previously described studies, in this

case all were Gram negative bacteria (*Pseudomonas aeruginosa*, MDR *Klebsiella pneumoniae* and *Acinetobacter lwoffi*). All of three pathogen are sensitive to meropenem and amikacin. Meropenem has generally been considered first-line therapy for serious infections caused by ESBL bacteria, indeed meropenem was given and showed satisfied results.

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