

CASE REPORT

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Peritonitis Caused by *Morganella morganii* After Elective Cesarean Section

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ABSTRACT *Morganella morganii* belongs to the tribe Proteaceae of the Enterobacteriaceae family. This species is considered as an unusual opportunistic pathogen that mainly causes post-operative wound and urinary tract infections. In this case we report a 33 year old multigravid woman presented to the emergency with diffuse lower abdominal pain. She was on her postoperative sixth day after an elective cesarean. Physical examination showed signs of acute abdomen and laboratory findings were consistent with infection. An emergency laparotomy revealed intraabdominal purulent fluid collection and fibrin deposits on organs. Microbiologic culture resulted in *M. morganii* and appropriate antibiotherapy was applied. The patient was discharged with no further complications. In conclusion, *M. morganii* is a rare cause of cesarean section related peritonitis and our patient may be the first case of *M. morganii* peritonitis and the first of monobacterial infection with that organism.

Keywords: *Morganella morganii*; peritonitis; cesarean section

Morganella morganii is a gram-negative facultative anaerobe that is a normal constituent of the gastrointestinal flora, and it is an uncommon cause of infection in healthy humans. Prolonged urinary catheterization, diabetes, malignancy or splenectomy are risk factors for *M. morganii* infection.¹ The entry of this opportunistic pathogen is usually the urinary tract, skin and blood and its virulence and increasing drug resistance may result in mortality.² *M. morganii* is a rare bacteria but calls for attention nowadays, therefore we present a case of an otherwise healthy woman with peritonitis after an uneventful cesarean section.

CASE REPORT

A 33 year old gravida 2, para 2 woman was admitted to the emergency ward due to persistent abdominal pain. She had undergone cesarean section due to rup-

ture of membranes (spontaneous rupture of membranes at full-term pregnancy) at 39 weeks and previous cesarean 6 days ago and was discharged on the postoperative first day. The pregnancy was uneventful and the patient had no systemic disease. The offspring was diagnosed with diaphragmatic hernia and was at another hospital. Body temperature was 36.8 °C, blood pressure was normal and she had no purulent vaginal discharge. Cesarean incision site was intact. Physical examination was positive for tenderness, defence and rebound. Blood tests showed white blood cell: 15.34/mm³ (4.5-11) and increased C-reactive protein (CRP) level: 26.9 mg/dL (0-5). The patient was negative on polymerase chain reaction for severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2). Transvaginal ultrasound examination revealed a uterus in postpartum appearance, abscess formation on the anterior part and free fluids mostly in Douglas and maximum depth was 3-

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4 centimeters. The abscess was on the anterior surface of the uterus and it was approximately 4 centimeters in size. It was starting from the level of the cesarean section and extending to the corpus anterior. Computed tomography was reported as intraabdominal fluid collection, abscess on the anterior inferior part of the uterus and defect at the incision site of the uterus.

The patient was hospitalised and an emergency laparotomy was performed. A midline vertical incision was applied and extensive purulent fluid was observed. Samples of the fluid were taken for bacteriologic and micotic investigation. Fibrin deposits were observed on the intestines, uterus and ovaries and specimens were taken for pathologic examination. A granulomatous collection was observed at the anterior part of the uterus and a defect of 1-2 cm was detected at the uterine incision site which was not bleeding. The abdominal cavity was washed extensively with isotonic fluids. No defect in the intestines, no bleeding and no other pathology was observed. Broad spectrum antibiotics (meropenem, teikoplanin, metronidazole) were administered after taking samples for blood and urine cultures. Culture of the abdominal fluid yielded *M. morganii* with sensitivity to meropenem which was already administered. The patient did not have fever postoperatively, she was mobilized on the first postoperative day and fed with clear food for three days. Drainage catheters were removed on the fifth and seventh day. The patient was hospitalized for 14 days and discharged with normal leukocyte and CRP levels.

DISCUSSION

M. morganii is a rare cause of bacteremia in healthy adults and is usually related to wound and urinary tract infections.³ Risk factors have been listed as advanced age, underlying diseases, hospitalization, surgery and antibiotic use.³ Even though considered as a rare and unimportant pathogen historically, *M. morganii* has been reclassified as a rare opportunistic pathogen and since the beginning of the 21st century reported cases have increased significantly.^{4,5}

Case reports by Tan et al. and Nakajima et al. describe patients with diaphragmatic defect and pleural effusion secondary to perinephric abscess and a giant iliopsoas abscess secondary to renal abscess all positive for *M. morganii*.^{6,7} Amputations for ulcers due to this pathogen have been described by Li et al. and Cardoso et al. in diabetic patients.^{8,9} Neonatal infections have been reported by Ranu et al., Casanova-Román et al. and Dessie et al. in which cases the mother presented with chorioamnionitis, premature prolonged rupture of membranes.^{1,10,11}

M. morganii has been shown to be resistant to amoxicillin clavulanate, ampicillin, cloxacillin, cefuroxime, and ceftazidime.^{1,12} In our case it was sensitive to gentamycin, levofloxacin, meropenem, piperacilin, ciprofloxacin. Since meropenem was already administered, we did not change the antibiotic. This pathogen has been shown to facilitate other pathogens by acting as a reservoir for resistance genes and should be considered as an important infectious agent.⁵ A pilot study showed that after recovery from respiratory infection of SARS-CoV-2, faecal samples with signature of high SARS-CoV-2 infectivity had higher abundances of *M. morganii*.¹³ Our patient was tested negative for SARS-CoV-2.

In conclusion *M. morganii* is recognized as an important pathogen with a broad disease spectrum and high mortality in reported cases. Resistance to beta lactam antibiotics is another important point. This present case was considered worth discussing because the patient had no apparent risk factor except rupture of membranes, presented with abdominal pain only and had a disseminated peritoneal infection which could have been mortal if neglected.

Informed Consent

The authors certify that have obtained all appropriate patient consent forms.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Aygül Aliyeva; **Control/Supervision:** Aslı Göker; **Literature Review:** Barkın Kabalar, İlayda Gençer, Deniz Türk; **Writing the Article:** Aslı Göker, Aygül Aliyeva, Şebnem Şenol.

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