Severe endometritis caused by genital mycoplasmas after Caesarean section

Kálmán Patai,1 György Szilágyi,2 Martha Hubay,2 István F. Szentmáriay3 and Ferenc Paulin1

2nd Department of Obstetrics and Gynecology1, Department of Forensic Medicine2 and School of PhD Studies3, Semmelweis University, Úllői Street, Budapest, Hungary

Infrequently, post-Caesarean endometritis can progress to severe conditions. A case of post-Caesarean endometritis caused by Mycoplasma hominis and Ureaplasma urealyticum is reported in a young patient. In therapy-resistant endometritis unusual causative organisms should be considered and special microbiological investigations are recommended.

Case report

In the case of a 14-year-old white Caucasian woman there was a medical history of miscarriages in 6th and 7th weeks of previous pregnancies. She was hospitalized during her third pregnancy because of imminent abortion in the 8th and 11th weeks and premature labour in the 29th week. As a result of treatment (magnesium was used in the first trimester and Saletanol D5 solution (4·5 g sodium chloride, 50 g glucose and 50 g alcohol in 1000 ml solution) was used together with magnesium for tocolysis in the 29th week) she became asymptomatic and was discharged. She was admitted again to the department on the 40th week of gestation in ongoing labour. A Caesarean section was performed because of acute foetal asphyxia (heart rate decelerations), and a healthy, 2800 g girl with Apgar score 10/10 was delivered.

The mother developed 38 °C fever on the first postoperative day and gentamicin (160 mg), ampicillin (4 g) and metronidazole (1·5 g) therapy was started. Despite the combined antibiotic treatment, her temperature increased during the next 2 days and reached 38·8 °C. The uterus was soft by palpation with normal lochia at gross inspection and the Caesarean wound did not show signs of a pathological reaction. A lochia sample was sent for microbiological investigation, but failed to demonstrate any pathological aerobic or anaerobic bacteria in the cultures. At this time, the tests did not include a search for genital mycoplasmas.

By the fourth postoperative day the fever increased further, reaching 39·5 °C. Curettage was performed and histology revealed endometritis. Ceftriaxone (2 g) was added to the antibiotic treatment and the dose of gentamicin was reduced to 80 mg. The condition of the patient improved and in the next 4 days her temperature did not rise above 38 °C. Afterwards, on postoperative day 8, gentamicin and ampicillin were discontinued, and amoxycillin/clavulanic acid (4·8 g) and nystatin (1 500 000 IU) were introduced. A day later the body temperature elevated again above 39 °C, and clindamycin (900 mg) was added to the antibiotic therapy. Repeated lochia and blood samples revealed mycoplasmas in the cultures (Mycoplasma hominis and Ureaplasma urealyticum colour-changing units >104; Mycoplasma Duo, Sanofi Pasteur). Subsequent doxycycline therapy (200 mg on the first day, 100 mg on the following days) rendered the patient afebrile in 4 days and her condition improved rapidly. The standard aerobic and anaerobic cultures of the second lochia and blood samples were negative for bacteria.

Chlamydia trachomatis antigen tests (IDEIA Chlamydia, DAKO) of the patient’s cervical sample and smears from the newborn’s eye and vagina on the third day of doxycycline therapy were negative. The newborn remained asymptomatic and her upper respiratory tract and vagina did not contain genital mycoplasmas (Mycoplasma Duo, Sanofi Pasteur).

Discussion

The role of genital mycoplasmas such as M. hominis, Mycoplasma genitalium and U. urealyticum in many infections is proven; however, in others the causative relationship is not well-understood (Taylor-Robinson et al., 1995). They are responsible for different kinds of infections of the human body. Urethritis can be caused by U. urealyticum and M. hominis (Horner et al., 1993; Jensen et al., 1993; Stamm et al., 1983; Taylor-Robinson, 1985). Moreover, M. hominis can lead to pyelonephritis (Thomsen, 1978), and epididymo-orchitis is caused by U. urealyticum (Jalil et al., 1988). Genital mycoplasmas can contribute to vaginosis as well. The role of M. hominis and U. urealyticum in the pathogenesis of infertility is not yet clear (Taylor-Robinson et al., 1995); however, to acquire these pathogens during delivery could result in a serious infection of the neonate, especially in low-birth-weight infants. The role of M. hominis and U. urealyticum in post-partum fever is well-known. Furthermore,
genital mycoplasmas cause serious infections in immunosuppressed patients (Taylor-Robinson et al., 1995) and initiate stone development in urine.

Many previous reports have dealt with the pathogenic effects of genital mycoplasmas in the case of Caesarean section. In the mid-1980s, U. urealyticum was shown to be an exclusive pathogen in post-Caesarean endometritis, and colonization at the site of the chorioamnion is a major risk factor for endometritis even with intact membranes (Andrews et al., 1995). It has also been proven that U. urealyticum plays a prominent role in Caesarean wound infection.

In this case, the soft palpable uterus, vaginal discharge and fever supported the diagnosis of post-Caesarean endometritis. The absence of other potential foci of infection and the transient improvement of the general condition after curettage gave further indirect evidence of endometritis. The bacteriological investigation did not demonstrate any causative organism other than genital mycoplasmas, and thus they were considered as the sole causative agents for the endometritis of the febrile patient. Further evidence was that the condition of the patient did not improve during initial antibiotic treatment that contained drugs entirely or partially ineffective on genital mycoplasmas (penicillin, ceftriaxone, gentamicin, metronidazole and nystatin). However, the patient became afebrile with doxycycline treatment effective against U. urealyticum and M. hominis. Clindamycin, effective only against M. hominis, could have contributed to the remedy of the patient.

Whether both of the detected mycoplasmas were responsible for the endometritis remains a question. Since M. hominis and U. urealyticum were found in high numbers in the lochia, we assume that both organisms had an aetiological role in the pathogenesis. Contrary to our observation, others have reported that M. hominis was less frequently isolated in cases of endometritis than U. urealyticum (Andrews et al., 1995).

The second question is whether Chlamydia trachomatis, having similar natural antibiotic resistance to that of mycoplasmas, did participate in the infection. Although harbouring of C. trachomatis is less common than harbouring of U. urealyticum in our population, and the newborn’s chlamydia test was negative, because the mother’s test for chlamydia was performed on the third day of doxycycline/clindamycin treatment, a definite conclusion regarding the role of chlamydia cannot be drawn.

The presented case not only supports the idea that genital mycoplasmas can cause post-Caesarean endometritis by themselves, but draws attention to the fact that these infections could lead to severe clinical outcomes. Since asymptomatic harbouring of U. urealyticum is common, it is strongly suggested that microbiological assays for genital mycoplasmas be included in the diagnostic protocol of post-Caesarean endometritis. Although tetracycline resistance has been reported for some genital mycoplasmas, doxycycline, effective against both mycoplasmas and chlamydia, seems to be the most relevant first-line antibiotic for the treatment of mycoplasma endometritis even if ablactation or suspension of breastfeeding is necessary (Table 1).

## Table 1. Antibiotic resistance of M. hominis and U. urealyticum

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>M. hominis</th>
<th>U. urealyticum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetracycline</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Erythromycin</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Clarithromycin</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Azithromycin</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Gentamicin</td>
<td>+/-</td>
<td>+/-</td>
</tr>
<tr>
<td>Clindamycin</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Cephalexin</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Penicillin</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Caesarean endometritis. Although tetracycline resistance has been reported for some genital mycoplasmas, doxycycline, effective against both mycoplasmas and chlamydia, seems to be the most relevant first-line antibiotic for the treatment of mycoplasma endometritis even if ablactation or suspension of breastfeeding is necessary (Table 1).

## References


