Maternofetal infections due to *Eikenella corrodens*

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*Eikenella corrodens*, a commensal of the human oral cavity, is generally associated with bite wounds and head and neck infections. Neonatal infections are rare. We report two cases of premature birth associated with maternofetal *E. corrodens* infection.

**Introduction**

*Eikenella corrodens* is a component of the flora of human dental plaque and gastrointestinal mucous epithelia. *E. corrodens* has been reported to cause head and neck infections and gynaecological and intra-abdominal syndromes in patients with underlying diseases (e.g. malignancies) or predisposing factors (poor dental hygiene, intrauterine devices, etc.) (Sheng *et al.*, 2001). To our knowledge, the literature describes few paediatric cases (Paul & Patel, 2001) and only four cases of chorioamnionitis (Sporken *et al.*, 1985; Jeppson & Reimer, 1991; Andrés *et al.*, 2002; Kostadinov & Pinar, 2005). We report two cases of maternofetal infection (MFI) caused by *E. corrodens* in France.

**Case reports**

**Case 1**

A 23-year-old woman was admitted after 32 weeks and 5 days of gestation; premature rupture of the membranes occurred and chorioamnionitis was suspected on the basis of clinical and biological findings (Table 1). Intravenous amoxicillin was started, but was replaced the next day by ceftriaxone and amikacin. Vaginal delivery of a premature girl took place 16 h after membrane rupture. The infant's clinical and biological status (Table 1) pointed to MFI. Maternal urine and placental cultures yielded the same small Gram-negative bacillus, and pathological studies showed funisitis and chorioamnionitis. The neonate's blood, ear swab and cerebrospinal fluid cultures were sterile, but a gastric aspirate grew the same bacillus.

The three Gram-negative isolates from maternal urine, the placenta and the neonatal gastric aspirate were identified as *E. corrodens* with the API 20E system (bioMérieux), and confirmed by 16S rRNA-based PCR assay as previously described (Gauduchon *et al.*, 2003).

**Case 2**

A 31-year-old woman was admitted for preterm onset of labour at 30 weeks of pregnancy (Table 1). Her clinical and biological status is described in the table. The delivery period was fully covered by two infusions of amoxicillin. The amniotic fluid was clear, but the premature infant had severe signs of MFI (Table 1). Placental culture yielded a Gram-negative bacillus. In the newborn, the same Gram-negative bacillus grew from a gastric aspirate, whereas blood and cerebrospinal fluid cultures were negative.

The Gram-negative bacterium isolated was identified as *E. corrodens* by using the same identification system and molecular biology techniques as those described above.

**Discussion**

Few paediatric cases of *E. corrodens* infection have been reported (Paul & Patel, 2001) and, until now, only four cases (Andrés *et al.*, 2002; Jeppson & Reimer, 1991; Kostadinov & Pinar, 2005; Sporken *et al.*, 1985) of chorioamnionitis and neonatal infections have been described, including a twin pregnancy. Their clinical and biological features are summarized in Table 1. These cases strongly suggest the responsibility of this dental plaque commensal in cases of human chorioamnionitis and...
Table 1. *Eikenella corrodens* neonatal cases: clinical features, antibiotic regimens and outcomes

CRP, C-reactive protein; WBCs, white blood cells; MAP, mean arterial pressure; –, unknown.

<table>
<thead>
<tr>
<th>Year</th>
<th>Age</th>
<th>Risk factors</th>
<th>Pregnancy (weeks)</th>
<th>Symptoms</th>
<th>WBCs (mm⁻³)</th>
<th>Positive samples</th>
<th>Birth weight (g)</th>
<th>Symptoms</th>
<th>WBCs (mm⁻³)</th>
<th>CRP (µg ml⁻¹)</th>
<th>Treatment</th>
<th>Outcome</th>
<th>Positive samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>23</td>
<td>–</td>
<td>32 + 6 days</td>
<td>38.9 °C, intact membranes; premature labour; CRP = 105 µg ml⁻¹</td>
<td>25 000</td>
<td>Urine; placenta</td>
<td>1830</td>
<td>Tachycardia; hepatomegaly</td>
<td>16 000; 16% myelaemia</td>
<td>16</td>
<td>Cefotaxime (8 days) + gentamicin (3 days)</td>
<td>Favourable</td>
<td>Gastric aspirate</td>
</tr>
<tr>
<td>2006</td>
<td>31</td>
<td>–</td>
<td>30</td>
<td>37.8 °C, intact membranes; premature labour; CRP = 105 µg ml⁻¹</td>
<td>Placenta</td>
<td>1800</td>
<td>Pallidness; respiratory distress; infectious alveolitis; hypotension (MAP 30 mmHg); tachycardia; neonatal jaundice</td>
<td>10 020</td>
<td>41.7</td>
<td>Cefotaxime (10 days) + gentamicin (2 days)</td>
<td>Favourable</td>
<td>Gastric aspirate</td>
<td>This study; case 2</td>
</tr>
<tr>
<td>1985</td>
<td>28</td>
<td>Oral sex during pregnancy</td>
<td>24</td>
<td>38.9 °C, intact membranes; premature labour</td>
<td>15 200</td>
<td>Cervix; amniotic fluid</td>
<td>570</td>
<td>Congenital sepsis</td>
<td>–</td>
<td>–</td>
<td>No resuscitation</td>
<td>Death shortly after birth</td>
<td>Swabs; blood</td>
</tr>
<tr>
<td>2002</td>
<td>28</td>
<td>–</td>
<td>28</td>
<td>Intact membranes; intrauterine infection</td>
<td>–</td>
<td>Vagina; cervix</td>
<td>1035</td>
<td>–</td>
<td>16 000</td>
<td>30</td>
<td>Favourable</td>
<td>Swabs</td>
<td>Andrés et al. (2002)</td>
</tr>
<tr>
<td>2005</td>
<td>14</td>
<td>Bleeding gums; young age</td>
<td>23</td>
<td>Intact membranes; no clinical signs of infection</td>
<td>–</td>
<td>None</td>
<td>590</td>
<td>Congenital sepsis</td>
<td>–</td>
<td>–</td>
<td>No resuscitation</td>
<td>Death shortly after birth</td>
<td>Twin A: lung blood post-mortem</td>
</tr>
</tbody>
</table>

* Molecules unspecified.
Chorioamnionitis due to Eikenella corrodens

premature delivery (Bearfield et al., 2002). In humans, the natural habitat of E. corrodens is the oral cavity and gastrointestinal mucous epithelia, and to our knowledge there are no reports of E. corrodens in the normal vaginal flora. In three out of five reported cases, gum bleeding and oral sex during pregnancy were possible risk factors. Chorioamnionitis could have resulted from direct infection of the vagina by the partner’s oral flora, from dissemination after brief bacteraemia or the organism may also have emanated from the gastrointestinal tract. The periodontal status and sexual habits of the mothers and their partners were not documented in the cases that we describe here.

Both our cases were associated with premature labour in mothers with intact membranes and only minor signs of infection. As with other oral pathogens, the amniotic infection was subclinical and the maternal outcome was good. In contrast, two of the five neonates reported elsewhere, both of whom were highly premature (24 and 23 weeks), died of neonatal/congenital sepsis. Both the cases that we describe occurred despite appropriate intrapartum antibiotic therapy, but this could have contributed to the good outcomes.

In both cases that we describe, vaginal swab cultures that were seeded when the membranes ruptured remained negative, possibly owing to overgrowth by the normal vaginal flora.

E. corrodens should thus be borne in mind as a potential opportunistic pathogen in the obstetric setting, as it can be lethal in premature infants. Rapid empirical neonatal antibiotic therapy (Table 1) is the best safeguard.

References


