Streptococcus milleri and second trimester abortion

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SUMMARY  Review of 214 fetal necropsies performed in the department of pathology, University of Aberdeen, showed 40 cases of chorioamnionitis or intrauterine pneumonia, five of which were associated with Streptococcus milleri. In two cases there was good evidence to implicate S milleri as the cause of infected abortion while in the other cases its pathogenic role was less clear.

Patients and methods

Two hundred and fourteen fetuses submitted for necropsy at the department of pathology, University of Aberdeen, between January 1 1983 and April 30 1986 were reviewed. Forty showed histological evidence of chorioamnionitis or intrauterine pneumonia, and five were culture positive for S milleri.

Necropsies were performed within 48 hours of death and cadavers were stored at 4°C until post-mortem examinations could be performed. At necropsy fetuses underwent a macroscopic and microscopic examination with throat or tracheal swabs cultured routinely. High vaginal swabs had been taken 24 hours before delivery, and both maternal and fetal swabs were Gram stained and plated out on defibrinated horse blood agar (Gibco), Gentian violet agar, and MacConkey agar (Oxoid). They were cultured aerobically in a humid 5% carbon dioxide atmosphere and anaerobically at 37°C for 18 to 24 hours. Colonies suspected of being S milleri were identified by the API 20 Strep system (API System SA, Montalieu Vercieu, France).

Accepted for publication 11 September 1986

Results

The table shows clinical and pathological findings of the patients studied. Three patients (cases 1, 3, and 4) had prolonged rupture of membranes (longer than 24 hours); one had an intrauterine contraceptive device (case 5). Case 3 had a cervical suture inserted in this pregnancy after a cone biopsy in 1975, and case 4 had had a previous septic abortion and two terminations. The maternal ages ranged between 20 and 38 years, and abortion occurred between 18 and 23 weeks' gestation. In all five cases there was no systemic evidence of infection in the mothers.

Histological sections (stained with haematoxylin and eosin) of all five cases exhibited chorioamnionitis and in three cases intrauterine pneumonia. Gram stains of placenta and lungs in case 1 showed intra-cellular Gram positive cocci in neutrophil polymorphonuclear leucocytes, and S milleri was also isolated from the maternal high vaginal swab taken the day before abortion. Similarly, in case 2 profuse S milleri was isolated from the maternal high vaginal swab the day before the abortion, but no organisms were seen on Gram staining of tissue sections.

Discussion

Ascending infection is only one of several ways in which the placenta and fetus may be infected7; it is intimated histologically by chorioamnionitis or membranitis in early infection and vasculitis of the cord and suppurative chorioamnionitis in more advanced disease. It is known that the incidence of intrauterine infection and chorioamnionitis increases with prolonged rupture of membranes and is more common in premature delivery. Whether infection follows spontaneous rupture of membranes or whether heavy vaginal colonisation with a particular organism pre-
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Table: Obstetric factors and pathological findings in chorioamnionitis associated with *Streptococcus milleri*

<table>
<thead>
<tr>
<th>Obstetric factors</th>
<th>Pathology</th>
<th>Bacteriology</th>
<th>Fetal swab culture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case No</td>
<td>Maternal age (years)</td>
<td>Parity</td>
<td>Gestational age (weeks)</td>
</tr>
<tr>
<td>Case 1</td>
<td>24</td>
<td>7 + 1</td>
<td>19</td>
</tr>
<tr>
<td>Case 2</td>
<td>21</td>
<td>0 + 1</td>
<td>22</td>
</tr>
<tr>
<td>Case 3</td>
<td>38</td>
<td>4 + 2</td>
<td>23</td>
</tr>
<tr>
<td>Case 4</td>
<td>20</td>
<td>0 + 3</td>
<td>20</td>
</tr>
<tr>
<td>Case 5</td>
<td>26</td>
<td>0 + 0</td>
<td>18</td>
</tr>
</tbody>
</table>

We thank Dr ES Gray and Professor R Postlethwaite for their helpful comments during the preparation of this manuscript.

**References**


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