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.

There has been considerable interest in the role of Lancefield group B streptococci in neonatal infection and infected abortion. Group B streptococci are also normal commensals of the female genital tract.1 2 Streptococcus milleri, a Gram positive coccus, is not only carried as a commensal in the vagina and cervix but also in the upper respiratory tract.3 4 It is associated with wound, dental, and sinus infections and more serious disease such as liver, brain, and abdominal abscesses; peritonitis; pyometrium; and endocarditis.1 5 6 We report five cases of histologically confirmed chorioamnionitis from which S milleri was isolated.

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 intimiated histologically by chorioamnionitis or membranitis in early infection and vasculitis of the cord and suppurrative 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-
disposes to rupture and preterm labour is not known.

Many bacteria isolated from cases of chorioamnionitis are also commensals of the bowel and vagina—
for example, Streptococcus faecalis, Escherichia coli, Proteus, Klebsiella, Gardnerella vaginalis, Candida albicans, Bacteroides, and Peptostreptococcus species. The latter two anaerobic bacteria are often found in mixed infection, as in case 3.8

S milleri is a known vaginal commensal and is also
found in the faeces of 5% of normal puerperal
women.9 It has also been reported as a cause of sep-
ticaemia and pneumonia in premature neonates.10 It
has not, however, been associated with chorioamnion-
itis and intrauterine pneumonia in abortion.

There was good evidence to implicate S milleri as a
cause of septic abortion in cases 1 and 2. In each case
a profuse growth of S milleri was obtained from a
maternal high vaginal swab collected prior to abortion
and from a swab taken at necropsy from the fetal
airways. There was also histological evidence of
chorioamnionitis and intrauterine pneumonia with Gram
positive cocci identified in the tissues of case 1.

The importance of the isolation of S milleri in cases
3, 4, and 5 is doubtful as high vaginal swab culture
was unhelpful and S milleri was isolated with other
organisms associated with chorioamnionitis. Never-
theless, these observations suggest that S milleri can
act as a pathogen in the female genital tract and cause
infected abortion.

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