

## CASE REPORT

# Spontaneous midgestation abortion associated with *Bacteroides fragilis*: A case report

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### Introduction

Intrauterine infection underlies many spontaneous mid-gestation abortions. We present a case of mid-trimester abortion, where *Bacteroides fragilis* was the sole pathogen that could be cultured.

### Case report

A 31-year-old primigravida consulted her gynaecologist in the casualty department of a private hospital in Belgium (Imeldaziekenhuis Bonheiden) with intermittent contractions presenting as lower back pain, vague hypogastric cramps and vaginal discharge of blood and mucus. She was 19 weeks and 3 days pregnant according to dates of conception and an ultrasound at 7 weeks. Her medical history was unremarkable. Serology for CMV IgG, Hepatitis A IgG, Hepatitis B surface antigen and Hepatitis C IgG was negative and there was no immunity for Toxoplasmosis. Routine ultrasound at 18 weeks was unremarkable.

A few days prior to her admission in the hospital she recalled vague flu-like symptoms and diarrhoea. Before these symptoms started she had eaten cheese, made with non-pasteurised milk.

On admission she had no fever, her abdomen and uterus were soft, non-tender and adequately sized for 19 weeks gestation. A sterile speculum examination revealed bulging membranes and a bloody discharge. Fetal membranes were intact.

An ultrasound showed an anatomically normal, very active fetus, with biometry compatible with 19 weeks gestation, normal amount of amniotic fluid, and normal placenta. On abdominal ultrasound the cervix appeared to be 3 cm dilated and fully effaced.

The C-reactive protein (CRP) was normal (0.92 mg/dl) and the leucocytosis was up to 19300/mm with 85% neutrofiles. Urinary culture was negative.

Based on the patient's history, chorioamnionitis, possibly due to *Listeria monocytogenes* from the cheese, was assumed. Because of the infectious risk, the decision was made not to administer tocolysis, nor to perform a cervical cerclage. Amoxicilline-clavulanic acid was administered IV 1 g every 6 hours. Despite this treatment the patient developed 38.4°C fever and uterine contractions within 12 hours. The CRP had risen to 2.78 mg/dl with a leucocytosis of 20500/mm (80% neutrofil count). Vaginal GBS swab cultured on a GBS selective medium was negative and aerobe and anaerobe blood cultures remained negative as well.

A male fetus with Apgar 0 was promptly delivered.

Anatomopathological examination showed an immature placenta with intervillous microabscesses containing necrotic debris. The membranes showed severe signs of chorioamnionitis. The fetus showed no congenital abnormalities and no signs of pneumonia.

Cultures taken from the placenta and the fetus both showed infection with *B. fragilis*.

The patient recovered quickly and was discharged from the hospital on day 4 on oral antibiotic treatment, without a fever.

### Discussion

The role of ascending genital infection, leading to amniotic fluid infection and preterm labor is well recognized in midtrimester miscarriages [1–10]. Prior rupture of membranes is not necessary for

development of ascending amniotic infection [11]. It has been established that subclinical intrauterine infection may occur, even with intact membranes, leading to the absence of clinical signs of infection, despite clear histological signs of chorioamnionitis [12]. Micro-organisms can be recovered from the retro-chorioamniotic space in cases with preterm labor at early gestational age and histological chorioamnionitis can usually be demonstrated [6]. Furthermore, the earlier the gestational age, the higher is the rate of histological chorioamnionitis and amniotic fluid infection [11].

There are two likely mechanisms of fetal loss associated with infection in midgestation and both are similar to those operating later in pregnancy. First, there may be bacterial invasion of the amniotic cavity or fetoplacental membranes, stimulating labor and delivery of a pre-viable fetus, and second, there may be intrauterine infection of the fetus presumably from swallowed and inhaled infected amniotic fluid, leading to fetal pneumonitis and/or septicaemia [12].

McDonald (1991) demonstrated preterm labor to be associated with the recovery of bacterial micro-organisms in the vagina during labor. Both microorganisms linked to bacterial vaginosis (*G. vaginalis*, *Bacteroides*) and aerobic organisms (*E. coli*, group B streptococci) were involved [5]. *Bacteroides* sp. were shown to be significantly associated with PROM, whereas no such relationship was present with *G. vaginalis*. [5]. Minkoff et al. (1984) demonstrated that women colonised with *Bacteroides* had a relative risk of 2.8 for PROM compared with non-carriers [13].

The role of vaginal microorganisms in late miscarriage was also demonstrated in a study of 783 women screened in early pregnancy, showing a 7 fold increased risk of preterm birth and late miscarriage (16–24 weeks of gestation) in women with abnormal vaginal flora compared to normal flora [14]. As most of these midtrimester abortion cases had rather intermediate flora (mixed anaerobic-aerobic flora) than full blown bacterial vaginosis, it led our group to propose a revision of the current opinion of the pathogenesis of infection-related preterm birth [15]. Indeed numerous studies now relate anaerobic [8,14] bacterial vaginosis and not aerobic vaginitis to early pregnancy losses, whereas in the second half of pregnancy, preterm birth is rather associated with aerobic vaginitis than with uncomplicated anaerobic bacterial vaginosis [12,16,17].

Later in pregnancy, at 24–32 weeks, not infrequently the aerobic group, B streptococci, with or without *Candida albicans* are the sole organisms found, and in a recent study on the preterm birth risk early in pregnancy, it could be confirmed that not the anaerobic bacterial vaginosis at first prenatal visit matters so much for a preterm delivery between 20

and 34 weeks, but rather aerobic vaginitis due to group B strep, *E. coli* and other aerobes [16].

## Summary

A midtrimester pregnancy loss, due to *B. fragilis* is described. We hypothesize that in early pregnancy anaerobic bacterial vaginosis has the greatest pathogenicity, while an intermediate (mixed) flora is most dangerous in midtrimester miscarriages, and that aerobic vaginitis is more dangerous than anaerobes towards the second half of the pregnancy. Unfortunately, no screen and treat policy has yet been proven to be sufficiently powerful to prevent the vast majority of infection-related prematurity.

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