BACTERIAL VAGINOSIS IN PREGNANCY

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THIS ARTICLE HAS BEEN PEER-REVIEWED

CLIENT SITUATION

DC is a 29 year old G3T2P0A0L2 woman who sought midwifery care for the birth of her third child. During discussions with her midwife regarding routine vaginal swabs, she declined swabs for Chlamydia trachomatis, Neisseria gonorrhea and Trichomonas vaginalis because screening results in her previous pregnancy were negative. She advised the midwife that since she was confident in the monogamy of her relationship, she was not at risk for a sexually transmitted infection in this pregnancy, and further questioned the need for a swab for bacterial vaginosis based on the same reasoning.

RELEVANT INFORMATION AND CONTROVERSIES

Bacterial vaginosis (BV) is the most common vaginal infection in women of childbearing age.[1] It is not a sexually transmitted infection (STI), but is associated with sexual activity because it usually results from a disturbance in normal vaginal flora initiated by sexual intercourse.[2,3,4] Other causative factors include hormonal changes, pregnancy, antibiotic administration, or use of nonoxynol-9 spermicidal products, which have a bactericidal effect on lactobacilli.[3]

While the exact mechanism is not entirely understood, it is believed that the normal acid pH microecosystem in the vagina undergoes a major change from a predominance of hydrogen peroxide-producing *Lactobacillus acidophilus, fermentum, brevis, jensenii, crispatus, casei* and other species, to that of anaerobic bacteria with a loss or reduction in the levels of lactobacilli.[1-9]

The organisms reported to be responsible for BV are Gardnerella vaginalis, Mobiluncus, Mycoplasmas hominis, Porphyromonas, bacteroides, Fusobacterium, Haemophilus vaginalis, Prevoiella, pepostreplococcus, and Atopobium, which function to increase the vaginal pH to an alkaline 5.0 - 6.0[2-4,7-10]

The incidence of BV during pregnancy is difficult to determine since up to 40 percent of women are asymptomatic. The research literature estimates the incidence between 10 to 50 percent because of variation among populations. The highest rates are among women of African ethnicity and lowest in women of Asian Pacific background.[1,2,4,7,8,10,11] The signs and symptoms of BV, where present, are: scanty, thin, homogeneous, milky, grey or white, malodorous, fishy-smelling discharge that may be copious, with an alkaline pH (>4.5), and may cause vaginal irritation and burning, pruritis, or vulval pain.

A diagnosis of bacterial vaginosis is made when three of the four following characteristics are present:

1. A homogeneous white to grey discharge that adheres to vaginal walls.
2. A pH >4.5 of the anterior fornix or lateral vaginal wall.
3. The presence of clue cells–desquamated epithelial cells with adherent bacteria, which differ from the translucent and clearly demarcated border of normal epithelial cells–along with a lack of lactobacilli and very few white blood cells.
4. The "whiff" test–a fishy odour detected when vaginal fluid is mixed with 10 percent potassium hydroxide [KOH].[3,4,7-9,11]

An acceptable diagnostic alternative that has a high sensitivity and specificity is the use of Gram stain of a vaginal swab, with positive results indicated by large numbers of Gram negative/Gram variable bacilli.[4,8] A culture and sensitivity is not as useful as the whiff test.

Reported complications from BV include pelvic inflammatory disease and endometritis after invasive procedures such as IUD insertion, endometrial biopsy and therapeutic abortion. Bacterial vaginosis is reported to increase susceptibility to STIs such as Chlamydia, gonorrhea, and HIV.[1,3,9]

In pregnancy, bacterial vaginosis has been implicated in spontaneous abortion, ectopic pregnancy, vaginosis, prelabour rupture of membranes, preterm labour, preterm birth, postpartum endometritis and wound infection following cesarean section. Possible neonatal sequelae includes prematurity and neonatal septicemia.[3,5,8-11] Some researchers claim that the infection is merely *associated* with such adverse pregnancy outcomes. BV may be an early infectious marker rather than a direct cause. It is unknown why these effects occur in some women with BV but not in others, or how the organisms associated with the infection effect the initiation of preterm labour.[4,6,12]

Treatment of bacterial vaginosis in pregnancy consists of administration of oral metronidazole (Flagyl), clindamycin, ampicillin or amoxicillin. One study reported the use of erythromycin. Most researchers concur that while the use of antibiotics is effective in eradicating BV, there is no improvement in adverse pregnancy outcomes in populations of pregnant women other than those with a history of preterm labour.

Screening for BV in asymptomatic pregnant women without such a history is discouraged.[2-4,6,9,13] Kekki et al, however, report a statistically significant difference in the probability of peripartum infections and postpartum complications between BV-negative and asymptomatic, BV-positive, untreated women (10.7% vs 19.1%) in their study evaluating the cost effectiveness of screening and treatment in early pregnancy.[11] They conclude that such screening would produce, at the same cost, more health benefits in terms of fewer peripartum infections and postpartum complications and that this strategy may be cost saving in clinical settings where the rate of preterm deliveries is higher– greater than three percent–than that of the setting used in the study (Finland).

There is some conflicting data with regard to screening and treatment of BV-positive women who have experienced preterm delivery in a previous pregnancy. For the most part, such a protocol is recommended and is reflected in provincial and international guidelines.[2-4,6,9,13,14] In their evaluation of metronidazole as an effective medication for the prevention of adverse pregnancy outcomes in women with asymptomatic BV, Carey et al support the results of other studies that found treatment with metronidazole does not reduce the risk of preterm delivery in women at low risk of such an outcome, but contradict those studies by concluding that neither does treatment with this medication reduce the risk of preterm delivery in women at high risk.[12] They report it did not reduce the occurrence of hospital admission for preterm labour or preterm prelabour rupture of membranes, receipt of tocolytic medications, vaginal or intra-amniotic infections, postpartum endometritis, passage of meconium, fetal or neonatal death, admission to neonatal intensive care, or the presence of neonatal sepsis.

IMPLICATIONS FOR MIDWIFE AND CLIENT

The midwife could educate DC as to the cause of bacterial vaginosis and could explain that since BV is not an STI, DC's monogamous relationship since her last pregnancy does not prevent her from contracting the infection. The midwife could inquire about any symptoms of bacterial vaginosis. If DC has no symptoms, in light of current recommendations and community standards of practice, the midwife could support DC's decision to decline screening for BV, since DC's previous two pregnancies reached full term and she did not experience prelabour rupture of membranes.

If DC had given birth preterm with one of her earlier pregnancies, despite some conflicting data regarding the effectiveness in preventing adverse pregnancy outcomes by screening and treating asymptomatic women with such a history, the midwife could recommend DC have a vaginal swab for bacterial vaginosis, and refer her to a physician for treatment of the infection. The midwife should also be aware of the possibility of recurrent infection following treatment. Reevaluation of infection status is recommended[8,9,12]

If the midwife has a client with a history of preterm labour and birth, the client herself could administer

the swab rather than the midwife if the client felt more comfortable in doing so. Diagnosing BV via a self-administered swab has been demonstrated to be as reliable as when administered by a caregiver.[7]

Finally, the midwife may be interested in the use of probiotics for the treatment of bacterial vaginosis. Many commercially prepared so-called probiotic preparations have dead or unreliable contents and "true" probiotics do not include milk, yogurt, acidophilus, or kefir. The administration, orally or intravaginally, of the lactobacilli *L rhamnosus* GR-1 in combination with *L fermentum* B-54 and RC-14 has been shown to be safe and to reduce the risk of BV as well as urinary tract infections and yeast vaginitis. Several of these probiotic strains are currently under investigation for BV therapy. However, no true probiotic products are currently available in Canada.[8]

AUTHOR BIOGRAPHY

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