Mycoplasma genitalium has recently been shown to be strongly associated with non-gonococcal urethritis (NGU) in developed and developing countries, and increasing evidence supports the role of this organism in the aetiology of NGU. This pathogen has also been detected by polymerase chain reaction (PCR) in the lower genital tract of 7–20% of women attending sexually transmitted diseases (STD) clinics. M genitalium was found in seven (6.6%) of 106 women with chlamydia negative cervicitis or adnexitis but in none of 80 pregnant asymptomatic women. The involvement of M genitalium in pelvic inflammatory disease (PID) remains unclear: it adheres to fallopian tube epithelial cells in culture and produces salpingitis in animal models, but more studies in women are needed.

The role of M genitalium in maternal infections and its impact on the outcome of pregnancy has only been sparsely evaluated. The first published study conducted among pregnant women failed to detect this organism by culture and PCR in 232 samples of amniotic fluid collected at the time of caesarean delivery. More recently, M genitalium was found in only 5/124 women who delivered prematurely and its presence in the vagina at mid-trimester was not found to be associated with subsequent spontaneous preterm birth.

We have developed a modified version of Jensen's PCR method for the detection of M genitalium to study the aetiology of urethral discharge in sub-Saharan Africa. To elucidate the potential contribution of M genitalium to adverse outcomes of pregnancy, we used the same PCR assay to detect the presence of M genitalium in cervical secretions of women who had participated in a study initially designed to assess the impact of syphilis and HIV-2 on the outcome of pregnancy in west Africa.

METHODS

From June 1997 to April 1998, we conducted an unmatched case-control study to assess the impact of syphilis and HIV-2 on pregnancy outcomes in Bissau, Guinea-Bissau. The inclusion and exclusion criteria, the demographic information pertaining to the study participants, and the laboratory methods have been previously described. Briefly, women living in Bissau who gave birth or aborted at the Simao Mendes Hospital obstetrical ward were invited to participate in the study within 24 hours of delivery or abortion. Controls were women who had delivered a term neonate with a birth weight over 2500 g. Cases were classified into four groups of mothers according to the outcome of pregnancy: stillbirths, spontaneous abortions, premature deliveries, and small for gestational age (SGA) babies. Informed consent was obtained, and women were interviewed by midwives for demographic information and sexual, medical, and obstetric histories. They were examined by a physician, blood was collected for syphilis and HIV serology, and a cervical swab was obtained. Seven days later, when the mothers came back to obtain the results of the syphilis serology (and treatment when required), a vaginal swab to identify Trichomonas vaginalis (wet preparation) and a second cervical swab were obtained. The cervical swabs were stored at 4°C in Amplicor transport medium (Roche Diagnostic Systems) until transportation to the University of Sherbrooke, Canada, where the first and second swabs were pooled together and submitted for PCR detection of N. gonorrhoeae.

The same pools of first and second swabs were later (after 24–28 months of storage) used for the detection of M genitalium, using a seminested PCR procedure adapted from Jensen et al. The details of the protocol used for amplification and the primers’ sequences have been described elsewhere. Of the 1341 women who participated in the original study, cervical samples for PCR detection of M genitalium were available for the first 1014 women enrolled (June-December 1997), as the last specimens obtained were destroyed during the civil war that broke out in Bissau in June 1998. Data were entered on the EPI-INFO 6.0 package and analysed with EPI-INFO and STATA 5.0. Proportions were compared with the χ² test or with Fisher's tests if numbers were small. The sample size achieved was sufficient to detect a 2.3-fold increased risk of prematurity among women infected with M genitalium (β=0.2; α=0.05).

RESULTS

Among the 1014 women included in this study, 6.2% were infected with M genitalium. The prevalence of M genitalium according to demographic, behavioural, clinical or laboratory characteristics is presented in table 1 for the entire group of women for whom cervical samples were obtained (controls and all categories of cases). Among women in the control group, 6.2% were infected with M genitalium.
group (n=600), 6.0% were infected with M genitalium, and M genitalium infection tended to be more common in the presence of maternal HIV-1 infection (either single or dual): 20.0% (3/15) of HIV-infected women were infected with M genitalium as opposed to 5.9% (33/555) of HIV negative women (odds ratio 3.95; 95% confidence interval 0.68–15.61; p=0.06). The prevalence of M genitalium, and M hominis infection suggested that if this organism was involved in adverse outcomes of pregnancy, it would probably do so by invasion of the upper reproductive tract of only a subpopulation of those colonised in the lower tract. This phenomenon might occur with M genitalium as well and could explain the absence of correlation with adverse outcomes of pregnancy in our study population since chorioamnion infection was not assessed.

We observed a trend for M genitalium being more frequent in HIV-1 infected mothers than among their seronegative counterparts in the control group. This association has also been observed in a smaller case-control study using PCR detection of M genitalium in urethral specimens of asymptomatic male patients. It deserves additional studies especially since M genitalium has been identified recently as a potential cofactor of transmission of HIV among American discordant couples.

In conclusion, although M genitalium is now considered an aetiological agent of male urethritis rather than an innocent bystander co-transmitted with a true pathogen, M genitalium appears not to have a deleterious impact on the outcome of pregnancy. However, its role in cervicitis and PID, as well as its association with HIV, need further investigations.

### ACKNOWLEDGEMENTS
This study received the financial support of the Canadian International Development Agency through its scholarship programme administered by the Canadian Bureau for International Education.

### CONTRIBUTORS
ACL, JP, EF, and ACA conceived the study; ACL and APM carried out the fieldwork while ACA was the field supervisor; SD and EF carried out laboratory analyses; ACL and JP performed the statistical analyses; ACL wrote the first draft of the manuscript, and all authors were involved in discussion of the results and assistance in writing the paper; JP supervised all steps of the project.
Mycoplasma genitalium is not associated with adverse outcomes of pregnancy in Guinea-Bissau

Authors’ affiliations
A-C Labbé, J Pépin, Centre for International Health, University of Sherbrooke, Canada
E Frost, S Deslandes, J Pépin, Department of Microbiology and Infectious Diseases, University of Sherbrooke, Canada
A P Mendonça, A C Alves, Simao Mendes Hospital, Bissau, Guinea-Bissau

Correspondence to: Dr Annie-Claude Labbé, Département de Microbiologie, Hôpital Maisonneuve-Rosemont, 5415 boulevard l’Assomption, Montréal, Québec, Canada H1T 2M4; labbeac@yahoo.fr

Accepted for publication 11 April 2002

REFERENCES
Mycoplasma genitalium is not associated with adverse outcomes of pregnancy in Guinea-Bissau

A-C Labbé, E Frost, S Deslandes, A P Mendonça, A C Alves and J Pépin

Sex Transm Infect 2002 78: 289-291
doi: 10.1136/sti.78.4.289

Updated information and services can be found at:
http://sti.bmj.com/content/78/4/289

These include:

References
This article cites 11 articles, 4 of which you can access for free at:
http://sti.bmj.com/content/78/4/289#BIBL

Email alerting service
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Topic Collections
Articles on similar topics can be found in the following collections

Pregnancy (472)
Reproductive medicine (1356)
Ethics of abortion (38)
Ethics of reproduction (58)
Child health (458)
Infant health (51)
Drugs: infectious diseases (3182)
Epidemiologic studies (760)
HIV / AIDS (2514)
HIV infections (2514)
HIV/AIDS (2514)
Syphilis (793)

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/