Ultrasound Illustration of the Connectedness of the Upper and Lower Reproductive Tracts

Introduction

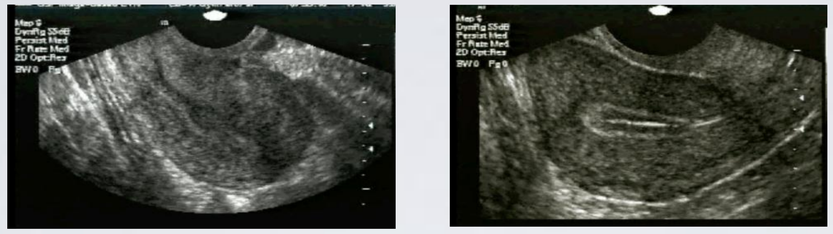
Bacterial infections are increasingly recognized as a cause of human stillbirth and severe or fatal perinatal infections. They may arise from bloodbourne infections (hematogenous), ascending infections, vaginal infections, iatrogenic infections, or zoonosis.

Objective

To better understand the pathobiology of intrauterine infections before, during, and after pregnancy and to develop preventative strategies.

Methods

We performed timed vaginal ultrasound observations using Albuminex™ ultrasound contrast media shaken to form microbe-sized bubbles which were then placed in the vaginas of both a pregnant and a nonpregnant woman.

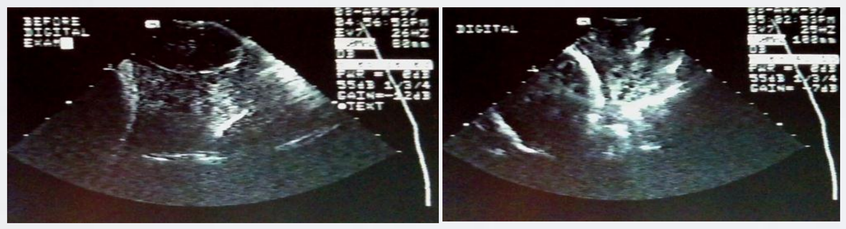


Baseline **Two Hours**

24 year old woman at day 14 of her ovulatory cycle

Results

Active transport of contrast media into the uterine cavity was demonstrated within two hours. Transport was associated with rhythmic antegrade and retrograde “to and fro” movement into the uterus, corresponding with similar studies using various particle and other media.



Before Digital Exam **After Digital Exam**

28 year old woman at 38 weeks gestation with intact mucous plug and membranes

Results

Prompt spread of contrast media into and through the cervix was shown along with extensive transport of vaginal contrast media into the lower uterine segment and placental membranes after digital examination.

Conclusion

These studies suggest mechanisms by which cervical vaginal microbes such as group B strep, sexually transmitted infections, or HIV may be transported to upper genital tract sites of potential infection.

Significance

Membrane stripping can massively transport infectious microorganisms into the lower uterine segment potentially causing intrauterine infection and even death in unborn babies.

Relevance for Patient Management

Care providers should avoid membrane stripping and other iatrogenic procedures which can aid in causing intrauterine infection and fetal demise.

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