

Endometritis

Diagnostic Tools for Infectious Endometritis



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KEYWORDS

• Bacterial • Fungal • Endometritis • Diagnostics • Interpretation

KEY POINTS

- Detection of infectious endometritis is challenging.
- No single diagnostic test is capable of detecting all cases of infectious endometritis.
- A guarded swab and cytology brush can be used as initial screening diagnostics to be analyzed by microbial culture and cytologic evaluation diagnosis of infectious endometritis.
- If results from the initial screening testing are negative for mares with clinical signs suggestive of infectious endometritis, additional samples collected by small-volume lavage or uterine biopsy should be submitted for microbial culture and cytologic evaluation.

Infectious endometritis is among the leading causes of subfertility in the mare.^{1,2} However, the best way to reliably diagnose these cases of infectious endometritis can be confusing to the veterinary practitioner. The goal of this article is to describe how to perform various sample collection techniques, what analysis can be performed on these samples, and how to interpret the results of these analysis. Additionally, future technologies will be presented that are not currently used in equine reproduction practice.

INTRODUCTION

Infectious endometritis is reported as among the top problems equine practitioners face in clinical practice.¹ Risk factors for developing infectious endometritis include

- Failure to become pregnant or donate an embryo after 3 breeding cycles to a fertile stallion
- Less than two-thirds of the vulva below the brim of the pelvis
- Poor or decreased muscular tone to the vulva

The author has nothing to disclose.

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Vet Clin Equine 32 (2016) 481–498
<http://dx.doi.org/10.1016/j.cveq.2016.08.001>
0749-0739/16/Published by Elsevier Inc.

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- Poor conformation to the perineum
- Cervical abnormalities (trauma, adhesions, fibrosis)
- Abnormalities of the vulva (trauma)
- Decreased uterine contractility
- Exposure to pathogens during breeding
- Chronic intrauterine antibiotic administration
- Pendulous uterus
- Windsucking—aspiration of air into the reproductive tract
- Equine pituitary pars intermedia dysfunction
- Poor body condition (body condition score <4 out of 9)

Normally, the mare's uterus can rapidly clear infections if exposed to bacteria or fungal organisms. However, any breakdown in the defense mechanisms of the reproductive tract will predispose a mare to a uterine infection such as

- Conformation—abnormalities of the perineum, vestibulo–vaginal seal, or cervix may allow increased numbers of pathogens to reach the uterus
- Uterine clearance—decreased ability of the mare's uterus to contract, reducing clearance of fluid and contaminants from the uterus
- Innate immune system—breakdown in the response toward pathogens in the uterus
- Exposure during breeding to a venereal pathogen

During routine evaluations of the mare, the mare common findings that strongly suggest infectious endometritis and warrant additional diagnostics include

- Large volume or echogenic fluid in the uterine lumen during estrus³
- Excessive uterine edema
- Any fluid present in the uterine lumen in diestrus
- Hyperemic cervix with or without a discharge from the cervical os

Once a case of infectious endometritis is suspected, the next decision facing the equine clinician is what samples to collect and what analysis to perform on the collected samples. Commonly, a review of uterine culture and cytology is performed, evaluating the uterus for the presence of infectious organisms (**Box 1**), common organisms cultured from the equine reproductive tract, or white blood cells (WBCs) in the uterine lumen. Additional advanced or confirmatory tests can be performed such as a small-volume lavage or uterine biopsy.

The equine clinician relies on the diagnostic techniques to determine if a particular mare is affected by infectious endometritis. These diagnostics are routinely performed in practice to both diagnose and rule out infectious endometritis as a cause of the observed subfertility.

Collection of Samples from the Equine Uterus

Preparation of the mare

The tail of the mare should be wrapped and held out of the way to minimize contamination potential of the mare's reproductive tract and the collection sample. The perineal area should be washed with a nonresidual soap and rinsed with clean water a minimum of 3 times or sufficiently to remove all external debris. The region should be dried with disposable paper towels. A small moist piece of paper towel should be used to gently wipe the inside of the vestibule to remove fecal material and debris that could otherwise be inadvertently transferred into the uterus during sample collection. This should be performed from the dorsal to ventral commissure to prevent contamination from the clitoral fossa.

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