

Endometritis

Nontraditional Therapies



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KEYWORDS

• Subfertility • Broodmare • Pregnancy • Endometritis

KEY POINTS

- Traditional therapies for endometritis comprise the use of intrauterine and systemic antimicrobial agents, uterine lavage, and ecboic agent.
- Alternative therapies are those using medications or devices in an off-label manner.
- These therapies are used when traditional therapies fail or are no longer viable.

INTRODUCTION

Myriad options, opinions, and even dogmas exist for the treatment of endometritis in the mare. Indications for and success rates of these treatments are variably represented in research abstracts, clinical reports, and anecdotal observations. Traditional therapies typically consist of systemic or intrauterine (IU) antibiotics, uterine irrigation, and ecboics. These can be used in tandem and often prove successful in management of endometritis in most cases. For more thorough descriptions of traditional therapies, the reader is directed to current reviews pertaining to management of the subfertile mare.

However, there are some cases when either traditional therapies fall short or the problem recrudesces. In these instances, nontraditional or alternative therapies may be pursued either as adjunctive or stand-alone measures. A variable body of evidenced-based data exists for many of these treatments. There is also a healthy dose of anecdotal reports that spur the use of many of these modalities. Difficulty

Disclosure/Conflicts of Interest: The author is employed by an equine hospital that is directly affiliated with a veterinary pharmacy. Many of the pharmaceuticals discussed here can be purchased from this and other veterinary pharmacies and distributors. In addition, some treatments listed here have only anecdotal evidence to support their use and/or require the use of compounded medications. Readers are thus cautioned to use the treatments and medications appropriately, judiciously, and ethically. No guarantee and warrantee can be made regarding the efficacy of these treatments; use is at the sole discretion of the clinician administering the medications.

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thus arises when attempting to define or corral the term “alternative.” Such a term is associated with a certain level of mysticism and, at its extremes, may represent generalized quackery by being in direct opposition to Western medicine theories and practices. None of the treatments discussed here fall into that latter category. Instead, the terms “alternative” or “nontraditional” (or other equivalents) are used to refer to treatments considered medical devices or medications used in an off-label manner.¹ The author warns readers that liberty is taken with this definition when discussing certain treatments; nevertheless, all therapies are accompanied by some credible evidence for their use.

Regardless of the treatment, all theriogenologists would agree that no matter how innovative the approach, it is for naught if the underlying causes are not properly identified. It thus behooves the clinician to be thorough and, in some instances, leave no stone unturned before investing in treatment. Methods used to diagnose endometritis are beyond the scope of this article and are discussed elsewhere.² Instead, this discussion reviews traditional and alternative therapies used in cases of endometritis.

PATIENT EVALUATION OVERVIEW

Inflammation of the uterus following breeding is considered a normal yet transient physiologic response.³ Current estimates suggest that 80% to 90% of mares are capable of managing this inflammation with little to no intervention; these individuals are considered reproductively normal or resistant mares. The other 10% to 20% either has or is prone to some type of endometritis and are considered susceptible mares. Causes for susceptibility include:

- Age and parity
- Colonization of the reproductive tract with pathogenic organisms
- Chronic degenerative endometritis
- Anatomic and functional defects
- Aberrant local immune response
- Method of breeding

These causes are not mutually exclusive and can work in tandem to adversely affect mares' reproductive efficiency. Treatment is based on identifying and addressing the sources for the inflammation and/or contamination. Once identified, the clinician can devise and implement a therapeutic plan to maximize the mare's fertility.

Biofilm Infections

Biofilm is a hot topic in equine reproduction and deserves its own section for discussion. As a review, bacteria can exist in one of two states. The first is the free-floating or planktonic state; the second is the biofilm state produced by a community of bacteria. Biofilm is thought to provide an added barrier of protection against the host's immune system and antibiotic agents, thereby causing persistent infections. Research investigating the actual presence of biofilm within the mare's uterus is currently underway, and an experimental model has proven promising in studying this phenomenon.⁴ Nevertheless, there are clinical accounts and anecdotal reports of successful treatment of presumed biofilm infections.^{5,6} Various pathogenic bacteria have been implicated in biofilm formation, including *Escherichia coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, and *Streptococcus equi* ssp *zooepidemicus*. Research is ongoing studying the efficacy of certain agents for combatting biofilm infections in broodmares.

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