

# Urogenital Surgery Performed with the Mare Standing

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## KEYWORDS

• Urogenital tract • Surgery • Mare • Standing

## KEY POINTS

- Urogenital surgery of the mare can be performed safely with the mare standing.
- Ovariectomy performed using laparoscopy is safer than ovariectomy performed using conventional methods and allows the mare to return more rapidly to its normal function.
- Reproductive abnormalities commonly corrected by reconstructive surgery performed with the mare standing include cervical lacerations, perineal injury, pneumovagina, and urovagina.
- Uteropexy is a recently reported technique that may prolong the fertility of aged, multiparous mares.

## SEDATION AND LOCAL ANESTHESIA

One of the many benefits of performing surgery with the horse standing is that general anesthesia is avoided. To achieve compliance by the horse and to enhance the safety of the surgeon when performing surgical procedures with the horse standing, the horse should be sedated and the site of surgery desensitized by using local or regional anesthesia. The horse can be sedated by using a combination of an alpha-2 agonist and an opioid. This combination can be administered as needed or by continuous, intravenous infusion. Continuous intravenous infusion results in a longer, more constant level of sedation when performing long procedures. Detomidine hydrochloride (20 mg/L) and butorphanol tartrate (10 mg/L) in a 1-L bag of isotonic saline solution has provided a consistent level of sedation for standing procedures for the authors. A constant state of sedation can be maintained for most horses by administering the solution at 1 to 2 drops per second.

Caudal epidural anesthesia should be considered when performing surgery of the perineum and caudal portion of the urogenital tract with the mare standing. It not

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only provides analgesia of the perineal region, it also prevents contamination of the surgical site by preventing the horse from defecating during the procedure. An alpha-2 agonist is often combined with the local anesthetic agent to provide longer and more profound analgesia. The use of caudal epidural anesthesia is described in more detail elsewhere in this issue by Vignani and colleagues. **Table 1** represents the various drugs or drug combinations for use in epidural anesthesia for most urogenital surgeries performed with the mare standing.

## PERIOPERATIVE MEDICATIONS

Mares undergoing urogenital surgery while standing should receive flunixin meglumine (1.1 mg/kg orally or intravenously) or phenylbutazone (2.2–4.4 mg/kg orally or intravenously) before surgery and every 12 to 24 hours for 2 to 4 days. The duration of administration depends on the time for which the mare is expected to be in discomfort.

Most mares undergoing urogenital surgery while standing should also receive perioperative antimicrobial therapy. Because laparoscopic procedures are minimally invasive and clean, antimicrobial therapy is not necessary if no breaks in sterility are expected. Procedures that involve the vestibule and perineum should be considered to be contaminated procedures, and therefore, when performing these procedures, perioperative antimicrobial therapy should be administered to decrease the likelihood of dehiscence of the repair from infection. Administering trimethoprim-sulfa (20–30 mg/kg) orally for 7 to 10 days may prevent delayed healing of a repair in the caudal aspect of the tubular portion of the urogenital region.

<b>Table 1</b>			
<b>Drugs and drug combinations that can be used for epidural anesthesia for most urogenital surgeries performed with the mare standing</b>			
<b>Drug</b>	<b>Dose</b>	<b>Quick Dose (500-kg Horse)</b>	<b>Comments</b>
Lidocaine	0.22 mg/kg	110 mg	—
Xylazine	0.17 mg/kg	85 mg	Induces analgesia sufficient for perineal surgery
Detomidine	0.03–0.06 mg/kg	15–30 mg	Can result in systemic sedation Variable degree of analgesia and sedation
Morphine <sup>17</sup>	0.1 mg/kg	Diluted to 6–8 mL with PSS	Pruritus
<b>Drug Combinations</b>			
Lidocaine + xylazine <sup>35</sup>	0.22 mg/kg + 0.17 mg/kg	110 mg + 85 mg (6 mL volume)	—
Morphine + detomidine <sup>35,36</sup>	0.2 mg/kg + 0.03 mg/kg	—	Less predictable local anesthesia; better for pain management
Neostigmine + lidocaine <sup>37</sup>	1.0 µg/kg + 0.2 mg/kg	—	—
Bupivacaine + morphine <sup>38</sup>	0.02 mg/kg + 0.1 mg/kg	—	—

*Abbreviation:* PSS, physiologic saline solution.

*Data from Refs.* <sup>17,32,35–38</sup>

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