Colic: When Surgery/Referral Isn't an Option

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JT Vaughan Equine Conference

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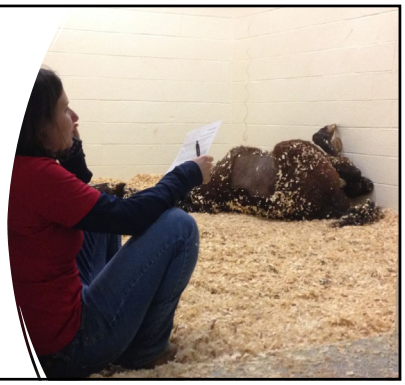
Outline

- Treatment vs. Euthanasia
- Tools/Techniques
  - Trocarization
  - Rectal Fluids
  - Analgesics – Beyond Banamine



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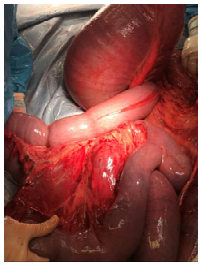
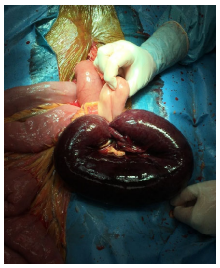
Treatment vs. Euthanasia

Sometimes treatment should not be an option without referral





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Treatment vs. Euthanasia

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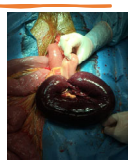

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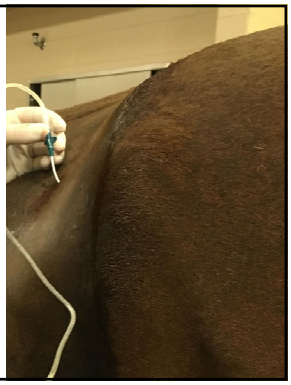
Large Intestinal Trocarization



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Trocarization

- Trocarization in horses - use of a needle or trocar to decompress gas from the cecum or large colon.
- Large intestinal tympany can be primary or secondary
  - Primary: Abnormal bacterial fermentation leads to accumulation of gas
  - Secondary: Tympany is secondary to another condition (impaction, displacement, volvulus).

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Trocarization

- Trocarization of the large colon or cecum may resolve primary gas tympany of these structures.
- Trocarization of the large colon or cecum may resolve/reduce gas distension enough to promote resolution of a displaced colon.
- Trocarization may decrease morbidity and mortality associated with severe intra-abdominal hypertension.

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Trocarization – Case Selection

- Usually this is performed on horses with moderate to severe large intestinal gas distension that is not resolving with routine medical management (and do not have a surgical option).
- Patients need to have gas distended bowel that is adjacent to the flank.
  - If the gas distended bowel is not accessible trocarization will not be useful
- Sometimes I will perform this procedure prior to surgery in cases where I worry their respiratory function is severely compromised from the distension.

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Trocarization -Supplies

Supplies
- Clippers
- Sedation (alpha-2 agonist + opiod)
- Materials for sterile scrub (chlorohexidine and alcohol-soaked gauze sponges)
- Local Anesthetic
- 14-gauge catheter
- Extension set
- Aminoglycoside (3-5 mL of Gentamicin or Amikacin)
- Cup of water

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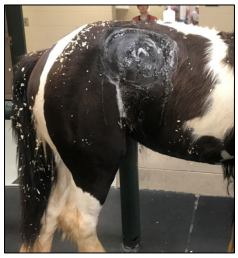
Trocarization - Technique

1. **Patient Restraint**
   - Sedation, +/- restraint in stocks, +/- twitch
2. **Site Selection**
   - Usually on right side, but may also be performed on left
   - Site selection determined by percussion, rectal palpation, abdominal ultrasound or a combination of these techniques.
   - Site is usually approximately halfway between last rib and tuber coxae within paralumbar fossa.
3. **Preparation of the site**
   - Clip, aseptic preparation, local block



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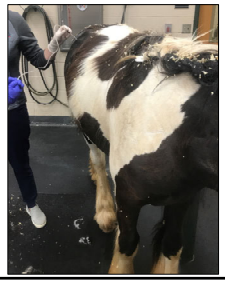
Trocarization - Technique

4. **Insertion of catheter**
   - Catheter (including stylet), is inserted through bleb and directed approximately 10-15 degrees cranioventrally until a rush of gas is appreciated.
   - The stylet is partially or completely withdrawn (to prevent inadvertent trauma to bowel wall) and an extension set is attached.
   - The free end of the extension set is placed in a cup of water. The position is maintained until gas ceases to escape (the bubbles stop).
5. **Removal of Catheter**
   - Extension set is removed
   - Catheter is flushed with 3-7mL of an Aminoglycoside during removal.



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Trocarization - Technique

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Trocarization – Other Considerations

- Extension set can be attached to suction (which may significantly shorten length of procedure).
- The procedure may be repeated if needed (though increasing number of trocarization procedures is associated with non-survival).
- Consider placing the patient on broad spectrum antibiotics following procedure.

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Trocarization Literature

Outcome and complications following transrectal and transabdominal large intestinal trocarization in equids with colic: 228 cases (2004–2015)

Angelika Schoster PD, Dr Med Vet, PhD, DVSc
Nicole Altermatt Med Vet
Paul R. Torgerson PhD, VetMB
Andrea S. Bischofberger Dr Med Vet, PhD

JAVMA | JULY 2020

- Retrospective study evaluating 228 equids with colic that underwent large intestinal trocarisation
- No patients died or were euthanized from complications of large intestinal trocarisation.
  - 20% of equids that received medical treatment only had had clinically relevant peritonitis following trocarization.
- Non-survival associated with increasing number of trocarizations.

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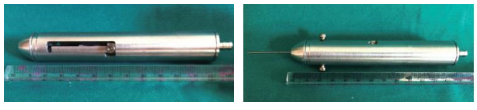
Trocarization Literature

Equine Veterinary Education
184
EQUINE VETERINARY EDUCATION
Equine vet. Educ. (2013) **25** (4) 184–188
doi: 10.1111/j.2042-3292.2012.00445.x

Original Article

Transrectal decompression as a new approach for treatment of large intestinal tympany in horses with colic: Preliminary results

G. B. Scotti, S. S. Lazzaretti, D. D. Zani† and M. Magri‡*



Transrectal decompression device (TDD) used by authors to perform transrectal decompression.

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G. B. Scotti, S. S. Lazzaretti, D. D. Zani† and M. Magri‡*

- A total of 33 transrectal decompressions were performed on 17 different horses for treatment of tympany.
- The authors report that no horses developed short-term or long-term complications from the procedure.

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Transrectal Fluids

Tap water administered per rectum may be an inexpensive and safe alternative to I.V. or nasogastric fluid administration

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Transrectal Fluids Literature

Equine Veterinary Journal

Equine Veterinary Journal ISSN 0425-1644
DOI: 10.1111/evj.13113

Continuous fluid infusion per rectum compared with intravenous and nasogastric fluid administration in horses

A. KHAN[1], G. D. HALLOWELL[2], C. UNDERWOOD[1] and A. W. VAN EPS[1]*

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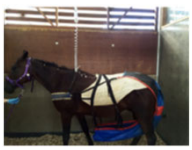
[2]School of Veterinary Medicine and Science, the University of Nottingham, Leicestershire, UK.

*Correspondence email: vaneps@upenn.edu. Dr A. Khan's present address: Faculty of Veterinary and Agricultural Sciences, the University of Melbourne, Werribee, Victoria, Australia. Dr A. Van Eps's present address: Department of Clinical Studies, New Bolton Center, School of Veterinary Medicine, University of Pennsylvania, Kennett Square, Pennsylvania, USA. Received: 05.06.18; Accepted: 15.03.19



Images of transrectal fluid setup from paper (Khan et al.)

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A. KHAN[†], G. D. HALLOWELL[‡], C. UNDERWOOD[†] and A. W. VAN EPS[†]*

Randomized controlled experimental trial involving six clinically normal Standardbred geldings in a 4-way cross over study (control, IV fluids, nasogastric fluids, transrectal fluids).

Hemodilution achieved with tap water administered transrectally at a rate of approximately twice maintenance was comparable to that achieved by both IV and nasogastric tube.

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Transrectal Fluids – Case Selection

- Transrectal fluid administration is not appropriate by itself for patients that need rapid volume resuscitation.
- Transrectal fluid administration is not an effective administration route for electrolyte supplementation.
- The major benefit of transrectal fluid administration is a reduction in cost compared to IV fluid therapy. It may also be a better alternative to fluids via nasogastric tube in cases of simple small intestinal obstruction where enteral fluid therapy may not be tolerated.
- Authors of paper have administered tap water per rectum as a CRI for up to 3 days without apparent complication.

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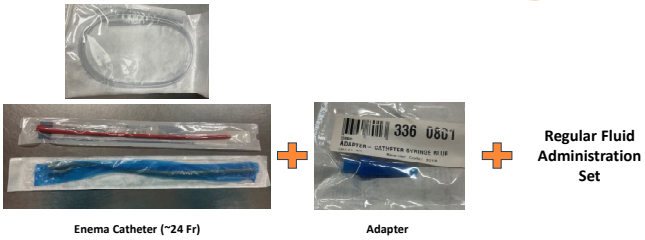
Transrectal Fluids –Set up



Enema Catheter (~24 Fr)

Adapter

Regular Fluid Administration Set

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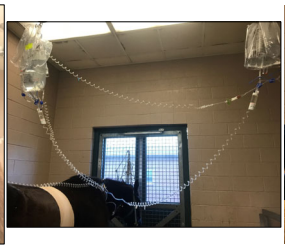
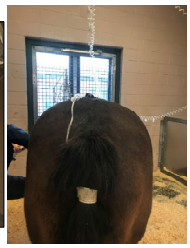
Transrectal Fluids –Set up

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Analgesia

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Analgesia and Colic

Banamine: 1.1 mg/kg IV

Alpha-2 Agonist in combination with opiod.

- Detomidine: 0.01-0.03 mg/kg IV or IM
- Butorphanol: 0.01-0.03 mg/kg IV or IM
- *Effect of this therapy must be considered in subsequent evaluations*

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Analgesia and Colic

Dipyrone: 30 mg/kg IV or IM
- *Modest analgesic effects*

Buscopan: 0.3 mg/kg IV

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Analgesia and Colic Constant Rate Infusions (CRIs)

Lidocaine
- 1.3 mg/kg loading dose
- 0.05 mg/kg/min

Butorphanol
- 0.013 mg/kg/h

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Lidocaine CRIs

- Intravenous lidocaine as a CRI has potential for analgesic, anti-inflammatory, and prokinetic effects.
- Clinical studies on its use have resulted in conflicting results.
- In our clinic it is most commonly used for the management of post-operative colic cases or in horses with inflammatory gastrointestinal lesions (i.e. enteritis).

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Butorphanol CRIs

J Vet Intern Med 2004;18:555–563

Effects of Continuous Rate Intravenous Infusion of Butorphanol on Physiologic and Outcome Variables in Horses after Celiotomy

Debra C. Sellon, Malcolm C. Roberts, Anthony T. Blikslager, Catherine Ulibarri, and Mark G. Papich

Butorphanol CRIs in the immediate post-operative period resulted in lower plasma cortisol concentrations and improved behavioral scores.

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Analgesia and Colic Ketamine Stun

Adding small doses of ketamine to injectable cocktails can dramatically improve systemic analgesia

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Ketamine

- NMDA Receptor Antagonist
- Can be a potent analgesic at sub-anesthetic doses
- Ketamine boluses (“Stun”) at 0.22 mg/kg IV or IM (approximately 100 mg/450 kg) can be given “to effect”
  - More conservative doses should be used if patient must remain standing.

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Ketamine
Additional considerations

Use in combination with other sedative
- I personally only use it in combination with alpha-2 agonist and opiod (detomidine and butorphanol).

Even at sub-anesthetic doses it can induce recumbency

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Case Example

14 Year Old Quarter Horse Gelding (~1000 pounds) presented for colic signs of ~6 hrs duration. No improvement after full dose Banamine
- PE: Pulse 60 bpm. Gums WNL. – actively colicing (pawing) admission
- Nasogastric Intubation: No reflux
- Ultrasound: Multiple distended loops of small intestines – 6 cm diameter
- Rectal: Multiple distended loops of small intestines
- Abdominocentesis: Grossly normal

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Case Example - Continued

Assessment: Suspect ileal impaction. Recommend medical management

Initial Treatment
- IV Fluid Therapy
- NPO - Regular gastric decompression
- Analgesia – **5 mg Detomidine and 5 mg Butorphanol IV**

Case Progress
- Patient develops moderate signs (pawing/flank watching) of colic **2 hours** later. Pulse is 56 bpm, gums WNL, no reflux.
- Administer another **5 mg Detomidine and 5 mg Butorphanol IV**

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Case Example - Continued

1.5 hours after second round of sedation patient is down and rolling and profusely sweating. Pulse is 84 bpm and 4 liters of reflux is obtained.

Repeat Colic work up

- Ultrasound: Distended loops of small intestines – 7.5 cm diameter
- Abdominocentesis: Unchanged, grossly normal

Recommended Surgery. Declined by owner.

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Case Example - Continued

Treatment (back in patient's stall):

- 5 mg Detomidine and 5 mg Butorphanol IV
- 5 mg Detomidine and 5 mg Butorphanol IM
- 100 mg (1mL) Ketamine IM

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Questions

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