

1

Patient Signalment and History

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Chapter Outline

Importance of the patient's history	1	Exercise regimen, pasture access, and housing	8
Signalment	4	Recent transportation	8
Obtaining the patient's history	4	Geographical areas in which the horse	
Initial history	5	has been housed	8
Specific signs	5	Gastrointestinal parasite control	8
Duration of colic signs	6	Vaccination	9
Reproductive status of mares	6	Medical history	9
Obtaining a more detailed history	6	Previous colic and colic surgery	9
Appetite, water consumption, defecation, and urination	6	Other medical problems and current medication	9
Management	7	Medical problems of other horses	10
Feeding regimen	7	Crib biting or windsucking	10
Water source	7	Application of the patient's history	10

Importance of the patient's history

Obtaining a detailed history provides information that can be used to formulate a differential diagnosis list for the horse with colic, direct treatment, and devise a colic prevention plan. Having a standardized history sheet (Figure 1.1)

as part of the medical record will streamline the history-taking procedure and ensure details are not omitted. Recording the history as part of the medical record is also important to provide accurate information for referral, for reference in the case of future colic episodes, and as part of a preventative medicine program.

(a)



Veterinary Teaching Hospital
Fort Collins, Colorado 80523

Equine Colic History Form

Admit date: _____ time: _____ am / pm

History prior to arrival at CSU-VTH (from rDVM)

1. T: _____ P: _____ R: _____

Client Name: _____

Case #: _____

Signalment: _____

Imprint identification ("blue") card here

♦ Diagnostics and treatment prior to arrival:

- Nasogastric intubation Y / N Reflux: Y / N – amount: _____ given via tube: _____
- Rectal exam Y / N Findings: _____
- Abdominocentesis Y / N _____
- Drugs administered: Y / N Time given, type, route: _____

2. Time from first signs of colic to arrival at CSU-VTH? _____

3. Travel time from point of origin to CSU-VTH? (time in hours / distance in miles) _____

4. If mare, currently pregnant / nursing? (circle all that apply) Days of gestation: _____ Age of foal: _____

5. Currently eating / drinking normally? Y / N Describe: _____

6. Currently urinating / defecating normally? Y / N Describe: _____

Previous History

7. Previous colic episodes? Y / N Describe (include approx. dates): _____

Continued on reverse side ➡

(b)

Previous History - continued

8. In the past 30 days has the horse experienced any of the following?

- ♦ Diarrhea Y / N Describe: _____
- ♦ Laminitis (founder) Y / N _____
- ♦ Temperature $\geq 102.5^{\circ}\text{F}$ (fever) Y / N _____
- ♦ Received antibiotics / analgesics? Y / N Specify type, schedule, & how given: _____
(e.g. penicillin, "bute," banamine, etc.) _____

9. Vaccination: Tetanus / EWE / Influenza / Rhino. / Other: _____ Date given: _____

(circle all that apply) Annual schedule: _____

10. Deworming: Product used: _____ Date given: _____
Annual schedule: _____ Rotate de-wormers? Y / N

11. Coggins: Date of last test: _____

12. Previous medical problems: (e.g. respiratory disease, skin problem – potential for HYPP?)

13. Previous surgeries: (e.g. castration, arthroscopy)

14. Previous trauma: (e.g. wounds, lacerations)

15. Current diet: (circle all that apply)

Grass Hay / Alfalfa / Mix – amount and frequency: _____

Grain / Pellets / Supplement / Other – type, amount, and frequency: _____

♦ Is there potential for sand ingestion in the area? Y / N Describe: _____

♦ Diet change in the past 30 days? Y / N Describe: _____

♦ Water source? (circle all that apply) Well / Municipal / Irrigation / Natural waterway (stream, lake) / Other

16. Primary use of the horse? _____

17. Current housing? (circle all that apply) stall / paddock / pasture / other: _____

♦ Change in housing in the past 30 days? Y / N Describe: _____

♦ Other horses on property: number of adults _____ foals _____

♦ Other horses on property ill? Y / N Describe: _____

18. Travel history in past 30 days: _____

19. Is the horse insured? Y / N Company Agent Phone number
()

Student: _____ **Clinician Signature:** _____

colichx.doc: rev. 07/13/1999

Figure 1.1 Example of a detailed patient history sheet. (a) Front and (b) back.
Source: Courtesy of Colorado State University, Fort Collins, Colorado.

Signalment

Knowledge of the patient's signalment, namely, age, breed, and gender, is extremely important during evaluation for colic. While gas colic is by far the most common diagnosis across most age, breed, and gender categories,²⁸ the signalment is critical for forming a differential diagnoses list. Gas colic can be defined clinically by horses with mild to moderate pain that resolves spontaneously or with a single dose of an analgesic drug and accounts for about 70–80% of colic episodes.²⁸ Typical differential diagnoses for equine patients of various signalments are shown in Table 1.1.

Signalment is also important because it may direct the history-taking process. For example,

(1) if you are presented with a mare showing colic signs, the reproduction status requires investigation; (2) if you have an older horse, underlying diseases should be considered; and (3) in the case of a neonate, questions pertaining to parturition, passive transfer of maternal antibodies, and clinical signs shown by other foals on the farm should be asked. Specific questions are addressed below.

Obtaining the patient's history

Obtaining a thorough and accurate yet succinct patient history is one of the most important and perhaps one of the more difficult aspects of evaluating the colic patient (Table 1.2). It involves

Table 1.1 Differential diagnoses other than gas colic for patients of a specific signalment.

Signalment	Differential diagnoses
Neonate (p. 279)	<ul style="list-style-type: none"> • Meconium retention (p. 222, 279) • Enterocolitis (p. 215, 279) • Hypoxic-ischemic syndrome (p. 279) • Jejunal intussusceptions (p. 213, 280) • Jejunal volvulus (p. 212, 280) • Atresia coli or jejuni (p. 280)
Geriatric horse (p. 286)	<ul style="list-style-type: none"> • Strangulating pedunculated lipoma (p. 209) (small intestine or small colon) • Large colon impaction (p. 217)
Pregnant mare (p. 282)	<ul style="list-style-type: none"> • Uterine torsion (p. 282) • Large colon displacement (p. 220) • Large colon volvulus (p. 220) • Uterine artery hemorrhage (p. 282) • Large colon impaction (p. 217) • Parturition • Discomfort associated with pregnancy
Postpartum mare (p. 284)	<ul style="list-style-type: none"> • Large colon volvulus (p. 220) • Postpartum hemorrhage including uterine artery hemorrhage (p. 284) • Intestinal ischemia associated with mesenteric rent (p. 284) • Small colon injury (p. 284) • Uterine involution
Stallion (p. 285)	<ul style="list-style-type: none"> • Inguinal hernia (p. 28, 199)
Miniature horse (p. 287)	<ul style="list-style-type: none"> • Small colon fecalith (p. 287) • Large colon impaction (p. 217) • Trichobezoar (p. 287)
Yearling	<ul style="list-style-type: none"> • Ileocecal intussusception (p. 213)
Weanling (p. 280)	<ul style="list-style-type: none"> • Ascarid impaction (p. 208, 280)

Table 1.2 Pertinent questions to be asked of the owner/caregiver for the equine colic patient.**Initial history**

- What specific signs is your horse showing?
- What is the duration of time over which your horse has been showing these signs? Have the signs changed over this time?
- What is the reproductive status of the horse?

Appetite, water consumption, defecation, urination

- Has the horse's appetite and water consumption been within normal limits?
- Has the horse urinated or defecated recently? When was the last time? What was the consistency of feces?

Management

- What is the duration of time the horse has been under the current ownership?
- What is the horse's current feeding regimen? Dental care?
- What is the horse's water source?
- Is the horse stalled or on pasture?
- What is the horse's exercise regimen? What is the intended use of the horse?
- Has there been any change in diet, water source, housing, or exercise regimen?
- Has the horse traveled recently? Where and when?
- What is the horse's vaccination and deworming history?

Medical history

- Has the horse had signs of colic previously? Previous colic surgery?
- Does the horse have any other medical problems?
- Is the horse currently being treated with any medication? Has any medication been administered for this episode of colic?
- Has the horse had a previous surgical procedure?
- Are the other horses on the farm healthy?
- Does the horse have any stable vices such as crib biting or windsucking?

asking a few initial key questions of the owner/caregiver, keeping the owner/caregiver focused on answering the questions thoroughly and concisely during an often stressful situation, and then recognizing areas of the patient's history that require a more in-depth discussion that may take place following the examination.

Meticulous medical records need to be maintained with the historical information. Having a standardized history sheet for horses with colic can assist in obtaining a complete history with each case. Further, owners may be able to complete some parts of the history form while the physical examination is being performed (Figure 1.1).

While history taking is traditionally incorporated into the first part of the patient evaluation, it is important to recognize that the entire history does not need to be obtained prior to examining the patient particularly if the patient is showing severe colic signs. However, there are a few very pertinent historical facts that may alter your initial approach to patient care:

- Specific signs being demonstrated by the patient
- Duration of colic signs
- Reproductive status of mares

Initial history**Specific signs**

The owner/caregiver should be able to describe specifically the signs being demonstrated by the horse or foal. The term "colic" is often used to describe any equine patient that is "not quite normal". Recumbency and signs of dull mentation and inappetence are often described as colic. While these signs may be associated with colic, other disease processes should also be considered. Persistent recumbency is more typical of a horse with neurological disease (e.g., equine herpes virus, botulism, or cervical spinal cord injury), severe laminitis, trauma with musculoskeletal injury, debility, or shock from other causes (e.g., blood loss). Dull mentation and inappetence can be associated with any systemic disease process (e.g., colitis,

pleuropneumonia, hepatic or renal disease) as well as problems of the head and neck regions.

Signs specific for the horse with colic include pawing at the ground, flank staring, kicking at the abdomen, and rolling. If the horse is not showing any of these signs, the horse is likely to have another problem rather than colic. Colic signs are often described as mild, moderate, or severe:

- Mild colic signs include intermittent flank staring and kicking at the abdomen, inappetence, lying down, and occasional rolling.
- Moderate signs include more persistent rolling but the horse can be distracted and remains standing when walked. The horse may be sweating.
- Severe signs of colic are persistent rolling and thrashing, with difficulty keeping the horse standing when it is walked. The horse is generally covered in sweat and often has multiple abrasions to its head, tuber coxae, and limbs.

Clinical signs shown by the horse should also be interpreted with regard to any analgesic medication (i.e., flunixin meglumine, phenylbutazone, meloxicam, firocoxib) the owner may have administered to the horse that may alter the degree of pain.

The change in clinical signs over time should also be noted, for example, horses with large colon volvulus (p. 220) may have a history of several hours of mild to moderate colic that has recently become markedly more severe; horses with a nephrosplenic ligament entrapment (NSLE) (p. 219) often have periods of moderate pain intermixed with periods of comfort; a horse with an ileocecal intussusception (p. 213) may have a history of chronic intermittent colic with an acute colic episode; and horses with gastric or cecal rupture (p. 206, 215) may have had a history of variable degrees of pain that has progressed to no further signs of pain and shock (sweating, muscle fasciculations, reluctance to move). See Chapter 2 on Physical Examination (p. 12) for further discussion on pain assessment.

Duration of colic signs

While the owner/caregiver can rarely give an accurate time of when the colic signs actually

began, they should be able to tell you (1) when the signs were first observed and (2) when the horse or foal was last observed to be normal. Knowledge of at least an approximate duration of signs is important when performing a differential diagnosis list, for example, mild colic for 24 h may indicate a large colon impaction (p. 217) whereas a strangulating lesion (p. 209, 220) may be higher on the differential diagnosis list for horses showing acute severe colic for 1–3 h despite administration of analgesia.

Duration of colic is also vital for determining a diagnostic and treatment plan including the use of diagnostic tests such as abdominal sonographic and radiographic examination in horses with chronic intermittent colic signs, route of fluid therapy (e.g., a horse with a prolonged duration of colic may benefit from intravenous (IV) fluids), and whether or not to refer the horse or manage the horse surgically versus medically (e.g., a long duration of moderate colic that is unresponsive to analgesia is more likely to require surgical management). While other clinical findings, such as heart rate and packed cell volume, are likely more predictive, duration of colic can provide the owner with some information pertaining to prognosis.

Reproductive status of mares

Knowledge of a mare's reproductive status is critical because management of colic in periparturient mares can be particularly challenging from a diagnostic and therapeutic perspective. Specific questions pertaining to the pregnant mare are in Table 1.3. See Chapter 21 on Special Considerations (p. 278).

Obtaining a more detailed history

Appetite, water consumption, defecation, and urination

Whether or not the horse has been eating, drinking, defecating, and urinating can provide an overall impression of general well-being of the patient. This information may not be available if the horse resides at pasture, particularly if the horse is at pasture with other horses.

The owner/caregiver should be asked about the horse's recent feed intake, whether or not the

Table 1.3 Specific history questions pertaining to the broodmare.

- Is the mare pregnant (yes/no)?
 - Days of gestation?
 - Estimated due date?
- Have there been any problems during this pregnancy (yes/no)?
 - If yes, what problems?
- Have there been problems with previous pregnancies (yes/no)?
 - If yes, what problems?
 - Number of previous pregnancies/foals?
- Has the mare recently foaled (yes/no)? When?
- Was parturition normal (yes/no)?
 - If no, what were the problems?
- Did the mare pass her placenta normally (yes/no)?
- Was the foal normal (yes/no)?
 - If no, what were the problems?
- Has the mare had previous colic associated with pregnancy or the periparturient period (yes/no)?
 - If yes, what was the cause?

horse's appetite has been normal and whether or not the horse has been drinking an acceptable volume of water.

Nutritional needs of horses are extremely variable and observation of body condition score (p. 15) is likely the best way to determine the adequacy of nutrition. Whether the horse's appetite has changed and any associated changes in body condition as well as the period of time over which this has occurred are important to note.

Water consumption is variable and dependent on the body weight of the horse, ambient temperature, type of feed (i.e., higher water consumption with hay compared to pasture), activity level, and reproductive status (i.e., pregnancy and in particular lactation increase water requirements). Typically, an adult horse will consume 35–70 L of water a day or about 7–15% of their body weight. Horses require 2–3 L of water per kilogram of dry feed intake. See also Water source.

The last observed defecation amount (e.g., several piles overnight) and consistency (e.g., firm and dry vs. soft or liquid) should be noted. Normal fecal output in an adult horse is 6–8 piles of soft to firm formed feces a day. Whether or not the horse has been observed to urinate or there were several wet areas in the stall should be determined and used to assess hydration status and renal function.

Management

Feeding regimen

Type of feed provided, method of feeding, frequency of feeding, and if there has been any change in feeding regimen should be ascertained and may be related to the colic signs.²

Specific hay types have been associated with certain types of colic: Coastal Bermuda grass hay that is fed in the southeastern USA has a strong association with ileal (p. 208)¹⁷ and possibly cecal (p. 214) impactions; enterolithiasis (p. 218) has been associated with feeding alfalfa hay;^{7,10,11} and poor quality hay and hay in round bales have been associated with colic.^{13,14} Other examples of relationship between feed type and colic include the association between colic and feeding high levels of concentrate (e.g., >2.5kg/day dry matter),^{6,14,29} which alters the contents of the colon and may increase tympany and colonic displacements;¹⁸ equine gastric ulcer syndrome and high concentrate diets;⁴ and sand colic (p. 217) that has been associated with feeding on the ground in areas with sandy soil (e.g., Arizona, California, Colorado, Delaware, Florida, Michigan, and New Jersey).

Horses typically graze for about 18h each day and management practices of many horses do not necessarily mimic the horses' natural grazing habits. Many studies on colic have found an association between colic and less pasture time.^{12,13,29} Alteration in diet and feeding practices (e.g., more time at pasture) may be necessary to manage gastrointestinal problems in some horses.

In several studies, an association between change in feed or feeding regimen and signs of colic has been identified.^{3,6,12,13,29} Supporting these findings is the overall higher incidence of colic in the spring and possibly autumn months that tend to be associated with a change in feed particularly for pasture-fed horses.^{3,30} Therefore, any change in diet should be made gradually in an attempt to avoid colic signs.

Dental care is also thought to be important in the prevention of colic with an increasing time from last dental care being associated with colonic impactions.¹²

Water source

The water source should be determined, for example, stream, pond, or water bucket. Access to ponds is associated with a decreased risk of colic

compared to other water sources.⁵ A decrease in water consumption¹⁴ or lack of access to water²⁴ is also associated with colic. Owners should be aware of the potential consequences of a freezing water source during the winter months. During autumn and winter and early spring, the water source may not necessarily freeze but become cold. Water temperature was found to affect consumption during cold but not hot weather.^{16,21} During cold weather, horses with only warm water available drink a greater volume each day than if they have only icy cold water available; however, if they have a choice between warm and icy water simultaneously, they drink almost exclusively from the icy water and drink less volume than if they have only warm water available. While the higher incidence of horses with small (p. 221) and large colon (p. 217) impactions during the winter months³ may be associated with housing and diet, inadequate water intake during these months may also be a contributing factor. Mineral content of water should also be considered in areas where horses are predisposed to enterolithiasis.^{10,11} All horses should have a readily available source of fresh, palatable water available and water intake monitored when possible.

Exercise regimen, pasture access, and housing

An increase in the number of hours in a stall and decrease in exposure pasture and recent change in exercise regimen increased the risk for colic and simple colonic obstruction and distention.^{12,13} Horses that are housed for 19–24 h a day are at a particular risk for colic compared to horses at pasture.^{5,6,12,13} On the other hand, access to pasture and duration of access have been associated with increased risk of equine grass sickness (p. 209) in certain geographical regions.²⁰ Large colon (p. 217) and cecal (p. 214) impaction are particularly associated with recent stall confinement. For example, a horse that is normally in the pasture and is stall confined because of an injury is predisposed to cecal impaction. Appetite and fecal output should be monitored closely in these horses.

Recent transportation

Recent transportation has been associated with colic. Horses that had a history of travel in the

previous 24 h had an increased risk of simple colonic obstruction and distention compared to horses that had not been transported.¹² Stress, change in diet and water consumption, and possibly restricted movement are likely related to the association between travel and colic. Horses may come into contact with infectious disease during transportation particularly in association with shows or events. There has been also been an association between transportation and salmonellosis: (1) transportation had a major role in reactivating *Salmonella* sp. infection in carrier ponies²² and (2) horses with a travel time to the hospital >1 h were at an increased risk for shedding salmonella compared to horses with a shorter travel time.¹⁵

Geographical areas in which the horse has been housed

While there may not be an association between geographical region and occurrence of colic,³⁰ specific types of colic tend to occur in different regions:

- Equine grass sickness (p. 209) occurs predominantly in the UK, Northern Mainland Europe, and South America.²⁰
- Enterolithiasis (p. 218) is particularly common in California.^{10,11}
- Ileal impaction (p. 208) is typically associated with horses residing in the southeastern USA.¹⁷
- Sand colic (p. 217) occurs in horses residing in regions with sandy soils such as Arizona, California, Florida, New Jersey, and Delaware.²
- Proximal enteritis (PE) (p. 207) is reported to occur more frequently and with more severity in certain regions. California has a lower incidence of PE compared to other regions and the disease seems to occur with greater severity in the southeastern compared to northeastern USA.^{8,9}

It is, therefore, important to know where the horse has previously resided as well as when and for how long the horse was in that region.

Gastrointestinal parasite control

Detailed information is in Chapter 24 on Gastrointestinal Parasitology and Anthelmintics (p. 316). The history of anthelmintic therapy needs to be obtained including the anthelmintic(s) used,

frequency of administration, and results of monitoring of parasite burden.

While historically *Strongylus vulgaris* (large red worm) was associated with colic, with the development of ivermectin-based anthelmintics the role of *S. vulgaris* in colic has diminished.² *Anoplocephala perfoliata* (tapeworms) have been associated with many forms of colic including gas colic (p. 45), ileal impaction (p. 208), ileocecal, cecocolic, and cecocolic intussusceptions (p. 213, 214), and cecal impaction (p. 214).^{2,19,23} Therefore, treatment with praziquantel tartrate or pyrantel pamoate should be part of the anthelmintic regimen. Cyathostomes (small red worms) have been associated with large colon lesions^{2,31} and *Parascaris equorum* (round worms) have been associated with intestinal obstruction, rupture, peritonitis, intussusception, or abscessation in foals.^{2,25} Monitoring of resistance of these parasites to routinely used anthelmintics such as ivermectin is recommended.

Horses that were not treated with an ivermectin- or moxidectin-based anthelmintic within the previous 12 months¹² or were not on a regular deworming program⁶ were predisposed to colic and horses recently administered an anthelmintic were at a decreased risk of colic.¹³ Recent anthelmintic administration, however, within 7–8 days was associated with colic⁶ and ascarid impaction.²⁵

Vaccination

Vaccination history is also important particularly in cases where it may not be clear that the horse is showing signs of colic. Diseases for which clinical signs can be mistaken for colic and vaccination is available include botulism, rabies, and other neurological diseases. There has only been one study associating vaccination (Potomac horse fever) with colic signs.²⁰ Research is currently being undertaken to determine the possibility of an equine grass sickness vaccine.²⁹

Medical history

Previous colic and colic surgery

Horses that have had previous colic surgery and previous episodes of colic are predisposed to colic.^{5,6,12,24,29,30} Horses with a large colon volvulus and displacement necessitating surgical correction

were significantly more likely to colic after surgery if they had more than one episode of colic prior to the one necessitating surgery.^{26,27}

The specific diagnosis and procedure performed during a previous colic surgery often provides an indication of the cause of colic: for example, colonic displacements (NSLE and right dorsal displacement) and large colon volvulus have a tendency to recur; horses with small intestinal and small colon lesions are predisposed to adhesions; and a previous history of jejunocecostomy may be associated with stenosis at the site of an anastomosis. Often owners/caregivers may be aware of previous colic or colic surgery but with no knowledge of the cause. Owners/caregivers should be encouraged to keep records of the horses under their care so that this information is readily available to the attending veterinarian.

The frequency and severity of previous colic episodes should be recorded. Recurrent intermittent colic warrants a more in-depth diagnostic workup including gastroscopy, radiography (p. 149, e.g., sand or enterolithiasis), sonographic examination (p. 116), and abdominocentesis (p. 87, e.g., neoplasia).

Other medical problems and current medication

Knowledge of current or recent medication including dose rate, route, and frequency of administration that the horse is or was receiving is critical so that

- treatment can be continued should the horse become hospitalized (e.g., administration of antimicrobial drugs for treatment of a wound);
- drug toxicity that may be manifest as signs of colic can be identified (e.g., nonsteroidal anti-inflammatory drug toxicity can manifest as right dorsal colitis and amitraz toxicity can manifest as ileus and impaction); and
- treatment for the signs of colic with potentially toxic drugs (e.g., nonsteroidal anti-inflammatory drugs (NSAIDs) and aminoglycosides) does not result in drug toxicity.

There are certain causes of colic associated with a particular medical history. Acute colitis should be considered in horses with a history of antimicrobial

drug administration. Horses with colitis can initially show signs of colic that progress to dull mentation and diarrhea. Colitis should be considered particularly in horses with a fever. Cecal impaction should be considered in horses with a history of recent surgery or stall confinement for an injury. Recent lameness has been associated with colonic impaction.¹²

Whether or not the owner has administered any medication for the current episode of colic, including the route of administration, dose rate, and frequency, should be noted.

Medical problems of other horses

Knowledge of recent medical problems of other horses stabled at the same location may be useful to determine a diagnosis and assist with recommendations for prevention and treatment: for example, in the case where several animals have had problems with colic following treatment with the licide amitraz; on a farm that has had a problem with strangles, abdominal abscessation should be considered; ileocecal intussusception should be considered on farms with a suspected high incidence of tapeworm infection; and sand colic should be suspected in horses residing in areas particularly if there is a problem with sand colic on the farm.

Crib biting or windsucking

Stable vices, such as crib biting or windsucking, have been recently associated with colonic colic⁹ and epiploic foramen entrapment.¹

Application of the patient's history

Clinical scenarios 1–3, located in Appendix A, are examples of cases where case history is important in determining a tentative diagnosis and case management. Further discussion on the integration of patient history into case management is included in Chapter 8 on Referral of the Horse with Colic (p. 71) and Chapter 15 on Medical versus Surgical Treatment of the Horses with Colic (p. 164). Quizzes for each chapter, additional clinical scenarios, and video demonstrations of surgical procedures are available online at www.wiley.com/go/southwood.

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