

Common Diseases of the Equine Alimentary Tract

** Isaac E. Hayes, D.V.M.*

POSSIBLY NO ONE disease syndrome has received so many pages of description in our literature as have the so-called colics of the horse, and surely no one medical term has been used so loosely as the appellation "colic," save possibly the indefinite term of "ileus" in human medicine. However, in this paper, only the most common disturbances will be considered. The more definitive diagnosis and treatment of parasitic conditions and those requiring major surgical interference will not be discussed.

No case which the veterinarian is called upon to treat can be more intriguing or baffling than the so-called colics, and, to be able to render an absolutely correct diagnosis perhaps seventy percent of the time, means that one has reached the status of an expert. A feature that often adds to the handicap is that a condition correctly diagnosed can, within a few minutes, take on an altogether new aspect as it transposes itself or develops into another type of disturbance.

Choke

Although apples, small nubbins, carrots, and the like, are reported as causing this condition, by far the commonest cause of choke in the equine is the hurried eating of dry grain. Certain animals are prone to repeat even though a careful physical examination reveals no physical abnormality such as a stenosis or jabot.

* Dr. Hayes graduated from Iowa State College in 1927. He is in practice in Waterloo, Iowa.

Greedy animals and those of middle and old age are commonly affected. The location of the choke can vary from the post-pharyngeal to the stomach region of the esophagus, but the commonest is the posterior third of the cervical region at about where it enters the thorax.

Even though the nervous or frantic animal will often eat after the choke has occurred, he does not eat with relish and usually does not even swallow the food, but holds it in his mouth to let it dribble from the commissures of the lips. If the patient tries to drink, the water will return through the nostrils. Often he tries to eructate and a low hollow-sounding cough is common. The absolute diagnosis is established when passage of the stomach tube is stopped at the mass.

Many different cures have been propounded as being absolutely specific for the relief of this condition. Obviously, should the offending mass be a solid object (apple, nubbin or carrot), the treatment would vary from that where an accumulation of small grain was the cause. The location of the choke must also receive prime consideration. Hard objects are usually found in the anterior regions of the esophagus and, with an intravenous anesthetic and dental speculum, they can be relieved with a loop of wire, long forceps or homemade hook of heavy wire. Should this fail, before oesophagotomy is attempted, an effort to push the mass downward should be effected. To loosen or soften a mass of small grain, the classic procedure used for years is to pass the

stomach tube, then affix the patient's head at a low level to something solid and to slowly pump warm water onto the mass, thereby trying to soften the mass and wash out the particles. Here, care must be used, and the procedure must not be hurried.

Many practitioners use a capsule of soda, some employ arecoline, and others, the opposite-acting atropine. The author has been well satisfied with the use of apomorphine hydrochloride, 0.1 gr., when used with morphine sulfate, 0.5 to 1.5 gr. Because of the possibility of an unusual side action of morphine or its derivatives on the equine, it is well to have the patient tied securely. Another treatment, identified by its relaxing effect, is to simply anesthetize with chloroform. As a last resort, oesophagotomy can be used; this operation is well described by our surgeons.

After-treatment should consist of feeding a moist, succulent grain, and all effort should be directed toward hindering the gluttonous horse by putting large stones or a wire screen in his feed box. This condition will recur, often the next day or two after its first occurrence.

Gastric Dilatation

Gastric dilatation is characterized by its acuteness, and, although a fermenting mass is the primary cause, the distention is caused by gas. A noteworthy exception is that reported by Hallenborg (12), in which he recorded a case of chronic dilatation of the stomach which, with its contents, weighed 171 pounds on post mortem. Miller (19) has described what he terms "an acute hydrogastritis," which is identified by enormous amounts of water in the stomach, so distending the organ that it also causes a backwash into the esophagus. Apparently, this condition is indigenous to that particular area of Colorado, for it has not been reported, to my knowledge, elsewhere.

Although some individuals may have a particular susceptibility to this type of disease, the cause is best defined by Udall (24) as being faulty food or improper

feeding. Quite contrary to the protestations of the loyal skinner, mules can and do become affected, for they will eat too much and too rapidly when tired, particularly if they are fed where there are many animals eating at the same time. This condition many times brings out the greedy makeup of an animal. It is of highest incidence in the warmer months when animals are worked and fed most, and attacks usually follow a meal. A radical change in feed, mouldy feed, extreme fatigue, excessive watering followed by an engorging feed, or perhaps faulty teeth can be blamed. As suggested by Larsen (17), gastrophilus may be a common cause.

As mentioned above, the syndrome is one of acuteness, and the entire symptomatology is one signifying distress. Eructations are noticeable and even emesis, with the aliment being projected thru the nostrils. The patient may be just uneasy in mild cases, but more often shows violence and is frantic for relief. Sitting up in dog fashion for just a few minutes, then thrashing around to fall to the ground only to rise again, and continuing these maneuvers endlessly is often the animal's method of trying for relief. Breathing is increased in rate, but seldom in depth, and the pulse rate is fast and wiry, when this symptom is able to be carefully examined. The temperature is extremely variable. Diagnosis is established by use of the stomach tube.

The first treatment "must" is to stop the animal's violence and, most often, intubation does this at least temporarily. This must be accomplished to prevent rupture of the stomach. Glenny (10) had a horse die after considerable violence, the stomach was entirely torn from the duodenum. After passing the tube, it is well to make a few pumps of warm water as the tube is worked back and forth, thereby discharging any aliment that may be stopping the tube. Although somewhat unpleasant, it may be expedient, when the tube seems stopped, to orally blow into it, thus dislodging an offending object.

When temporary relief is effected, all effort should be directed toward emptying

the stomach and in controlling fermentation. Lavage with a pail of warm water to which two ounces of soda are added is in order, but caution must be observed and the treatment unhurried. This treatment should be prolonged, as the author found it necessary to intubate a horse for four hours, when he felt the stomach was empty, only to have the animal die of a ruptured stomach a few hours later.

After the stomach has been emptied, the use of antiferments is in order. One-half ounce of salicylic acid, 1.0 to 2.0 oz. of Turcapsol, 0.5 oz. of creolin, or 1.0 oz. ether in water are all beneficial. The tube can be removed and the patient watched for the return of symptoms. Should these reappear, the use of the tube is again indicated. After an interval of approximately half an hour and the patient appears normal, the tube is again passed. However, if the stomach appears normal, it is a temptation to use no more medication, particularly if one feels he is absolutely correct in the diagnosis. This is wrong for the offending material must be removed and a laxative must be administered. Mineral oil in doses up to five quarts is the favorite laxative; salines are not used since their tendency is to dehydrate. Since the work of the French on histaminic substances, it is felt that oils may inhibit the absorption of toxic materials. Covault's (4) advice not to use arecoline, barium chloride, or eserine in these cases should be observed.

Stomach Rupture

Rupture of the stomach, once seen, is never forgotten as it reveals a picture of an extremely sad and dejected patient as he awaits his only possible relief. By his expression, his attitude, and actions, or lack of them, he demonstrates his extreme abjection and presents a picture of collapse. The temperature is sub-normal, the pulse wiry and fast; there is a cold sweat, along with a peculiar sidewise drooping of the ears, and the patient prefers to stand and be left alone. These features are diagnostic. Passage of the stomach tube is accomplished with dif-

iculty wherein the oesophagus seems to have become sluggish and seems to collapse on the tube. The author has never diagnosed a rupture of the stomach in which the patient did NOT resent oral blowing of the breath into the tube. Rectal examination demonstrating the presence of fibrous material on the serous surfaces of the viscera confirms the diagnosis.

Intestinal Indigestion

This disease, or complex of diseases, is confined to the small intestine and includes most of those in which an absolutely definitive type of diagnosis is impossible. Those mild cases of colic that the veterinarian is called to see are in this general classification. Often the symptoms are mild, but they can exacerbate at any time and almost instantaneously.

Any of the causes enumerated under the etiology of stomach disturbances can also be blamed here; however, the general nervous makeup of the patient is more often manifested by disturbances of the small intestine than of the stomach. Regardless of the attempt of physicians to eliminate the term "nervous indigestion," that name seems to best identify many of these upsets. In considering this syndrome, the nervous factor must receive cognizance. The ingestion of spoiled, mouldy, or frozen food, along with the combination of fatigue and ravenous eating, plus the presence of individual tendencies, nervous indigestion, and abnormal teeth are all factors, alone or in combination. Animals recently admitted to a new group or shipped long distances are often victims. It is a common complication following a hard show by a nervous horse. The so-called "colt colic" of brood mares, often brought on after drinking heavily of cold water, must be included.

The general picture is one of uneasiness and pain to a varying degree. Here a problem arises in a mean or irritable animal in assessing just how much of the symptoms are due to the sickness rather than to plain cussedness. The classical colicky symptoms of kicking, tenesmus, looking

back at the side, lying down and attempting to lie on the back, then arising, are symptoms of this disease. The pulse and temperature are usually not increased enough to cause alarm. The conjunctiva can become congested, but seldom does, for the course of the disease is seldom of long enough duration for this symptom to become established. Barbo-rygmus nearly always exists, except where flatulence is extreme.

When the complication of tympany has become established, the abdomen is enlarged, the breathing becomes rapid, and pain seems unbearable. This is easily confirmed by rectal examination for, at this time, the inflated small intestine can be felt, sometimes just inside the pelvis. Catarrhal enteritis (uncomplicated) is impossible to recognize for, by the time this exudate has made its appearance, the acute attack of the disease has passed.

Here again, before examining the patient, the stomach tube should be passed. Ferguson (6) offers good advice in doing this for should the stomach be dilated along with the intestine which is often the case, trocarization of the intestine may reduce the volume of the abdomen enough to permit immediate rupture of the stomach. The prime consideration is to ascertain the presence of gas in the stomach, and, if present, to empty that organ. The next obligation is to reduce the pain in the small intestine by drugs and/or trocarization. The third aim is to remove the offending material responsible for the trouble.

Fowler's (8) rule to trocarize wherever swelling exists should be followed. Usually the animal has become quite dirty from his rolling and trocarization should be attended to most carefully. A problem that has defied a satisfactory solution to the author is to find a suitable way to carry a trocar and canula. If boiled or autoclaved, it can be carried a reasonable length of time and can be expected to remain sterile, but it can offer a mechanical problem when needed, for the corrosion or rust will make it quite troublesome. If carried in oil, it is ever ready for use from the mechanical standpoint, but is not sterile. To avoid em-

barrassment, it is best to carry it oiled, and, if possible, boil it immediately before use; but, should time not permit, clean and sterilize with a chemical solution, rinsing with sterile saline solution. In case the area to be trocarized is woefully dirty and an emergency exists, Moles (21) cleans it as well as possible, then paints with a topical antiseptic. He makes a small incision with a scalpel, and an assistant gapes the incision with his thumbs, following which he then trocarizes through the incision, thereby not touching the contaminated skin with the trocar. Lawrence (18) always injects 15 cc. of creolin into the trocar before withdrawing, but cautions that this should not be done if there is any chance that the intestine could have collapsed off the trocar. Close observation of asepsis when trocarizing a horse is a must, but it should be tempered with common sense should the life of the animal be in immediate peril. It is well not to do any rectal palpation following this operation.

The drug of choice in quieting the bowel is atropine, and it is usually recommended in doses of from 0.5 to 1.5 gr., but the author prefers to use 0.25 gr. and repeat, as necessary, to effect. This method eliminates many of the much maligned "side effects" of the drug, which, in themselves, mean little. After the patient has become quieted, the temptation is to leave, but this is inadvisable. A laxative must always be given, and the choice is mineral oil, two to five pints. The addition of turpentine in the amount of 1.0 oz. or of 0.5 oz. creolin is indicated. Since atropine dries the secretions, two or three gallons of warm water should be added. Allow the patient's alimentary tract to rest for a few hours by withholding all food. The use of novocain intravenously has been reported, but the relief seems to be transient according to Brion (3). One can always leave the patient as soon as he starts to pass gas, for such an indication means the battle has been won.

Intestinal Impaction

Impaction or the accumulation of a mass of aliment is nearly always confined

to the large intestine; however some cases, most of which were fatal, have been reported as having occurred in the small intestine. Fincher's (7) case of impaction of the terminal end of the ileum lived but 24 hours. Hudson (13) had over thirty cases in three years and many died. Here again, the general rule of disturbance of the small intestine being of an acute and painful nature as compared to a more chronic and less painful manifestation in the large intestine is verified.

This disease most often occurs in the winter months, often when animals are on coarse feed. It is most often found in patients in the second decade of life onward and is associated with a sedentary existence. Coarse fibrous feed of low nutritional value seems to contribute. Brown (2) of North Carolina finds it often when horses are fed peanut vines, Kerman (14) of Idaho blames pea straw while Miller (20) and Kingman (15) of Colorado finds alfalfa often the causative factor. The lack of free water causing animals to get their moisture from eating snow may also contribute.

This patient is seldom violent but shows a general malaise with a slowing down of all body processes. Some eat considerably after the impaction has started to form so this must not confuse the veterinarian as well as the fact that they may defecate sparingly for 36 hours after the impaction has become established. If the equine species is given to headaches, they surely have them when impacted. Some of these cases will show congested membranes with some icterus. They often look back at their sides and make feeble to strong straining efforts. Although tympany can be a complication it seldom is, and by the second day there is a reduction in the size of the abdomen. The temperature is most often normal or not high, respirations are normal or nearly so except in the terminal stages, and the heart does not cause one to be alarmed. The three "P's" as advised by Covault (5) in attempting to ascertain a diagnosis and prognosis of (1) Pain, (2) Peristalsis, and (3) Pulse are nearest normal in this disease as in any of the abdominal diseases save the second. Peristalsis is always re-

duced. The author has never seen a case of impaction in which all peristalsis is absent.

Most of the impactions of the horse can be diagnosed per rectum save those in the diaphragmatic flexure and some of those are palpable. If not palpable, the general fecal content or absence of same in the rectum is at least so indicative that diagnosis is easy. Consideration of the three "P's" along with the rectal examination will definitely differentiate this condition from any of the more serious diseases requiring surgical intervention, namely volvulus, torsion, incarcerated hernia, or intussusception.

Here reams and reams of paper could be used for favorite formulas and manipulations. Quitman's (23) caution to never use a death dealing drug is good and can also be followed as regards the use of a manipulation that might cause death. The disadvantages in treating these cases are: (1) Often the treatment is a drawn out affair and the value of the animal may not warrant such a course of treatment. (2) The patients are often aged and debilitated — many are repeaters. (3) Pregnancy. (4) An old animal with pulmonary emphysema. (5) The condition has often gone too long before professional help has been summoned.

The practice of rectal massage and breaking down of the fecal mass where within reach has been used by many. Fuller (9) "grooves" the mass and suggests casting the horse onto his left side to facilitate grasping the mass; he uses one hand in the vagina in mares. Kingman (15), in a series of over a hundred cases of impaction of the floating colon, massaged per rectum and had 90 percent recoveries with little other treatment. His report did not state whether or not any deaths were caused by his treatment. Since there is little chance to develop an unusual efficiency in this method of treatment it is suggested that all manipulations be gentle and mild. Another surgical treatment is that of Behrens (1) who uses a flank incision on the males and a vaginal incision on the females, permitting him to insert his hand to massage the mass loose. He reports good results. Kippen (16) devised a

long needle which was stuck into the impaction from the flank with one hand while the other hand in the rectum held the mass steady and against the flank. Then a Shikles syringe was attached and an epsom salt solution was injected into the center of the impaction in an attempt to soften the mass and also to administer a laxative agent at the seat of the trouble. His method, although originally tried by Molnar (22) in 1927, seems too dangerous. Gratzyl (11), in a very comprehensive report of the cases of impaction of the cecum in the Veterinary High School of Vienna, proved that enemas can be given in quantity, and it is possible to push fluids clear to the cecum. This process takes approximately two days and requires many treatments to remove all the fecal matter and dilate the bowel up to that point. He indicated that it was most tedious when done with the comparatively handy facilities in a college clinic. The general use of enemas is not recommended except to make rectal examinations easier for both the patient and veterinarian.

As the patient is usually dehydrated the use of a saline laxative is not indicated; but mineral oil up to five quarts and, if thought needed, the addition of a pint of castor oil should be first used. Also, as much as a bucketfull of warm water given slowly should be an adjunct. The oils should never be repeated oftener than once daily, and it is well to examine the patient carefully every day before medicating, for an extra dose of a laxative agent given to a horse that is already beginning to break up and move is unwise. In old, weak patients, should the three 'P's' permit, general stimulants are indicated. The use of stimulants once daily is advised against but their steady use three times daily is recommended. The favorite is fluid extract of nux vomica, 2 to 4 drams three times a day. Because of the possibility of superpurgation, linseed oil should not be used unless the combination of mineral oil and castor oil has been proven inadequate. It should not be administered in quantities greater than one quart daily. Walking of the patient has always been a custom of the laity but it's

use is of doubtful value if not even detrimental.

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