

AZOTURIA.

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Azoturia is a common and very serious disease which affects horses under certain well defined conditions. It is frequently fatal and always affects the best and most valuable horses and is so very easily prevented that it would seem as though the farmer should be familiar with this disease, and his knowledge should come along other lines than that of sad experience. Farm horses in the northwest do comparatively little work during the winter, and are in high flesh when early spring work opens. This condition, together with the fact that the early spring is necessarily a season of irregular work, will explain why so many cases of Azoturia occur during the spring months. It is hoped that this little bulletin may prove of timely value to the farmers of Minnesota.

Azoturia rarely appears among horses at pasture or among those doing regular work; but almost invariably *during exercise after a period of idleness on full feed which has succeeded a previous period of work.*

This disease is frequently confounded with colic; sometimes farmers call it Spinal Disease, and sometimes it is thought to be an inflammation of the kidneys; but is easily distinguished from any of these by the history, which is very uniform; by the symptoms which appear, and by the condition of the urine.

Parts affected.—This is not a disease of the kidneys as one would naturally think from the color and condition of the urine, but primarily a disease of the muscles, then of the blood and nervous system. The blood is dark and tarry, has a varnish-like gloss and does not coagulate after death. The liver and spleen are engorged and more or less disorganized.

Duration.—Mild cases may recover in three or four days. The more severe cases either die in a few days or there may remain a persistent and more or less complete paralysis of the hind quarters and limbs for several weeks.

Causes.—Predisposing and precipitating.

The predisposing causes are the factors which favor the development of the disease and include the following: high flesh, diet rich in proteid and full feed during a period of rest, following a period of regular work. Most cases appear during the prime of life and mares are more frequently affected than geldings, but all are liable.

The chief precipitating factor is active exercise, following idleness on full feed under conditions above given. It is probable that there occurs an accumulation of surplus proteid matters in the system during the period of idleness, which is rapidly disorganized when exercise begins. Just how this excess of proteid matters in the body serves to develop the disease, and what the close connection between this condition and the symptoms which appear, are matters of interesting scientific speculation but need not be discussed here. What part may be played in this disease by sudden exposures to cold after confinement in warm, damp stables is a point of dispute. Some very good and recent authorities ascribe a very prominent place to this condition among the causes of Azoturia. It is quite possible that the two conditions of accumulated proteids and sudden exposure to cold may be associated in many cases.

Symptoms.—The symptoms appear suddenly with little or no warning and are very uniform. The horse frequently comes out of the stable feeling unusually well, then after going a short distance there is a sudden lameness or stiffness in his hind legs. Sometimes both are affected alike but usually one first and more frequently the left. The horse staggers, is very weak on his hind legs and may fall before he can be unhitched. These patients perspire very freely before and after going down; the muscles over the loins and hips are rigid to the touch, and frequently tender on pressure and may tremble or twitch. The urine is highly colored, varying from red to almost black and is usually increased in specific gravity; *i. e.*, heavier than natural. This abnormal color is due to the presence of the red coloring matter of the blood and voluntary muscles (lean meat), and may be absent in mild cases. The pulse may run up to 60 or 80 per minute (normal 42 to 48); the temperature may be increased to 102 or 104 (normal 101.5), but in many cases the pulse and temperature vary but little from the normal. The bowels may be normal and the appetite fairly good in mild cases. The skin sensation may be diminished as shown by pricking with a pin. The natural peristaltic action of the intestines may be suppressed, but the bowels will usually vacuate under the influence of an injection or other local irritation. A chronic paralysis affecting one or both hind limbs may be a very troublesome factor in the case.

Prevention.—Prevention is simple, easily applied and without expense, and this is the point that should be considered by the farmers rather than treatment, which is frequently unsatisfactory even when the patient recovers; moreover, one attack predisposes to others and a horse that has had Azoturia once is very apt to have it again, and the second attack is more easily brought on than the first. Preventing the first attack may be the prevention of several attacks and of the final death of the horse.

There is but slight danger of Azoturia for the horse that is thin and weak, for the young colt or for the aged, for this disease usually affects the best horse in the barn, one in good flesh and in the prime of life. When such a horse has been working on full feed for a time and must then stand idle for a few days or even twenty-four hours, *make a very large reduction in the grain ration* or stop all the grain if the horse is quite fat, for a fat horse needs but little grain when standing idle under any conditions, and especially is this true if he has recently been at work. Allow plenty of water and turn out in the yard every day if possible. It would be still better if the horse could be continued at light work. When such a horse has been standing for some time after previous exercise, and the grain has not been reduced as it should have been, the next best thing is to give a single dose of some medicine for a decided cathartic effect; *e. g.*, a quart of raw linseed oil thirty-six hours before hitching, and then work very moderately the first day, for quick or violent exercise seems more liable to bring on an attack than slow and gentle use. This should be borne in mind when taking any horse out for the first time after a period of idleness.

Treatment.—This part of my subject is approached with great reluctance, because these are difficult cases to treat and this part of the work should be done by competent veterinarians whenever such are accessible. The treatment of Azoturia is frequently unsatisfactory even with the most skilful practitioners in charge. The principle purpose of this little bulletin is to direct the farmer's attention to prevention and not toward treatment, but cases will arise through the hired man's anxiety to have his horses look well when the owner is in no wise to blame, and these cases will occur, too, in parts of the state where competent veterinarians are not located.

If not voided naturally, means should be taken to draw the urine as soon as possible after the disease appears, and three times daily thereafter, if there is any one at hand who can do this. This is an important feature in the treatment of severe cases. The Azoturia patient has a much better chance for recovery if he can be kept upon his feet a portion of the time at least, and it is very desirable that this be done for several reasons; but slings should not be used unless the patient can support a portion of the weight upon the

limbs. When the patient is unable to do this put him in a clean, dry stall with plenty of bedding and turn him three times daily until he can stand with the aid of a sling.

The central purpose in treatment is to stimulate the excretory organs and thus secure rapid elimination of the abnormal and injurious matters in the blood. Cases that show difficulty in breathing with full pulse should be bled from two to five quarts, depending on the condition of the pulse while blood is being removed, then give one quart of raw linseed oil, or better, give one ounce of Aloes Barb. with two drams ginger made into a pill with a little molasses; encourage the horse to drink as much as possible, and, if he will not drink freely, he should be drenched often with water or be given weak salt brine to make him thirsty. The more he drinks within reasonable limits the better. If restless and violent, the patient should have a sedative; *e. g.*, one ounce Bromide of Potassium with three drams Fluid Extract of Gelsemium, given in half a pint of syrup. The muscles of the hips and loins should be fomented with hot water twice daily, two hours each time during the first three days of the illness, and after this a stimulating liniment should be used over these muscles twice daily until the patient has recovered.

One or two hours after the physic and sedative dose two tablespoonfuls of the following prescription may be given in half a pint of cold water or syrup, every two hours, till all is given:

F. E. Colchicum Sem.,	1 oz.
F. E. Pilocarpus,	3 "
Spirits Aeth. Nit.,	6 "

The purpose of this prescription is to stimulate and assist the kidneys and skin to excrete rapidly. When chronic paralysis remains after the acute stage has passed, Nux Vomica should be given. Give one to two drams Fluid Extract Nux Vomica or one to three grains Strychnine Sulphate twice daily in feed, beginning with small doses and gradually increasing until there appear symptoms of nervousness and muscular twitching, when the dose should be discontinued or rapidly reduced.

Estimates of results must be given with great caution, for sudden and unexpected changes may occur. Perhaps 40 to 60 per cent. die in general practice. Prognosis is bad, when complete paralysis occurs; when the disease develops violently from the start, the horse going down at the beginning and soon losing control of the hind limbs or when the patient grows more and more restless during progress of the disease, or is unable to stand or support part of the weight in the sling, the prognosis is bad and the patient is apt to die. But if patient can stand alone or can stand fairly well when assisted by sling the prospects are favorable.

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