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DISPLACEMENTS OF THE BOWELS.¹

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WHEN I promised that I would come to Newcastle and read a paper before the North of England Veterinary Medical Association, I did so without deciding as to the subject that was to be dealt with. After thinking the matter over for some time, and recognising that Newcastle was a busy manufacturing town requiring a large number of heavy horses to convey the raw materials and manufactured articles to and from its docks, wharves, and railway stations, I intimated to the secretary that I would deal with some affections of the bowels. There is little doubt that acute bowel diseases are more common in heavy draught horses than in harness and lighter bred ones. Still, there was a wide range of subjects, and I hesitated to begin. But an article which appeared in a professional journal not three weeks ago assisted me in coming to a decision. It purported to be the narration of a successful case, and was entitled "Obstruction of the Rectum: successful reduction of a twisted colon." That article gave me a title for my paper, or at least a subject to talk about. That will be "Displacements of the Bowels," though it will not be an attempt to deal with the subject fully, but will be mostly confined to cases I have met with in practice, and reflections on the etiology of the lesions.

In the December number of the *Journal of Comparative Pathology and Therapeutics* for 1891, the translation of an article by Professor

¹ A paper read at a meeting of the North of England Veterinary Medical Association, November 1901.

Möller of Berlin was published, on "Torsion of the left half of the Colon in the Horse." This was followed in the same number by a translation of an article on the same subject by Dr Malkmus, of Guben. The latter article had in addition to the same title as the first one,—“and its treatment by Retroversion.” This was followed in the issue of the same journal for the month of June following by an article, entitled “Malpositions of the Colon,” by the late Professor Walley. Since that date very little has appeared in our English journals on the subject.

It was, therefore, with considerable interest that I turned to the report of the case I have referred to. Surely after all those years of waiting here was now some fruit born of these articles previously mentioned. But the result was disappointing. The case bore a great air of unreality about it. Here was a mare which had been ill throughout the day, and by nine o'clock at night seemed hopeless. She was wandering round the box, sweating profusely, mucous membranes much injected, pulse very thready, and eyes amaurotic. It was found that she had an obstruction in the rectum, which was successfully overcome. It had obstructed the passage of one pellet of faeces; otherwise the rectum was practically empty. But this success did not cure the patient. The pain continued, and repeated attempts were made to reduce a right torsion of the left half of the colon, but without effect. At nine o'clock next morning another attempt was made to reduce this twisted colon, and this time successfully. How it was accomplished is not very clearly explained. But the practitioner is to be congratulated on the successful termination of a case which seemed to be *in extremis* twelve hours before the removal of the cause of the illness—the reduction of the twisted bowel—gave relief.

I must confess that I have not been so successful in cases of torsion of the colon, and I have had my own share of them. Some recover, some end in rupture, but more die from pain and exhaustion.

It is exceedingly difficult to explain satisfactorily how the torsion occurs, how the bowels become twisted, and the cause of the peculiar and puzzling positions in which they are often found. So recently as June of last year I made a *post-mortem* examination in a case which had run much the usual course. The animal had lived about thirty-six hours after the first appearance of illness,—longer than the average, but it all depends on the nature of the displacement. In this case the carcase was placed on its back, the abdomen opened, and the lateral walls reflected before the bowels altered their position. The sigmoid flexure of the colon was then pulled out from under the ensiform cartilage. That is to say, had the animal been alive and standing in its natural position, the sigmoid flexure, which normally should be about the brim of the pelvis, towards the upper hypogastric region, was resting on the ensiform cartilage, on the very floor of the epigastric region.

In this case, although there was no complete strangulation of the blood vessels, there was such a general congested condition of the organ as left no doubt as to the cause of death.

Another case met with earlier in the year was opened at the *post-mortem* in the same way, and a most impossible-like position of the organs was revealed. On the removal of the abdominal walls the

great mass of the colon, the first and fourth portions, was exposed at once. But the disposition of the parts was exceedingly abnormal. The origin of the cæcum and colon was so far forward in the abdomen that it seemed impossible for these organs to be in the position they occupied without some rupture or laceration of their attachment in the right lumbar region, but examination failed to reveal any laceration of the peritoneum. Instead of taking a course downwards and forwards, their course was downwards and backwards against the floor of the abdomen. The suprasternal and diaphragmatic flexures were practically effaced, and the sigmoid flexure, with the greater part of the second and third portions of the colon, had to be pulled out of the pelvis. The double colon, instead of being flexed on itself in its middle, formed a long wide curve. In this case death took place more rapidly than in the former one, although the appearance of strangulation was not much more distinctly marked.

Within a few weeks of the occurrence of this case, I had to make a *post-mortem* on a very different one. The horse was an average-sized cart gelding, rather lean, but in hard-working condition. At no time did he manifest symptoms of very acute pain, although these were worst for ten or twelve hours after the first appearance of illness. He lived a week after that, occasionally passing a little fæces, and at times partaking of some sloppy food.

All the time I was at a loss for a definite diagnosis. The *post-mortem* revealed a torsion of the small bowel; the ileum was twisted and constricted close to its termination at the cæcum. Although the constriction did not altogether obliterate the lumen of the bowel, yet the bowel in front of the constriction was considerably dilated. There was no distinct inflammation, but the twisted constricted portion was red and congested, though not much darker than port-wine colour. The stomach in this case manifested the most distinct hour-glass contraction I have met with in the horse, but I do not think it had anything to do with the horse's illness. Both these organs—the stomach and the twisted portion of the ileum—were preserved, and are now in the College Museum.

Subsequent to these cases, on the 29th September 1900, I made a *post-mortem* in a case which had surprised and disappointed me. The horse had been ill for nearly forty-eight hours on the last occasion I saw him. His pulse about 70 and fairly strong, temperature just under 103° F., and respirations moderate, were by no means alarming, and I had good hopes of his recovery. That was in the evening. There was all the time of his illness some movement of the bowels to be heard. Yet this horse, without manifesting any marked increase in the severity of the symptoms, at least to the day attendants, until just before his death, died between 5 and 6 o'clock the following morning. On making a *post-mortem* I was at a loss to make out at first what was the abnormality existing. The profession is not well situated for a *post-mortem* room in Edinburgh. It is with a grudge that the Sanitary Authorities permit us to open the carcasses of animals so far, without spoiling the hide, as to enable us to make an examination of the abdominal and thoracic viscera. If we require to examine the central nervous system we must drive out to Loanhead, some 5 or 6 miles south of Edinburgh. So there is not the best chance of obtaining a satisfactory *post-mortem*.

In this case, on opening the abdomen and exposing the abdominal viscera there was nothing apparent so distinctly abnormal as to account for death. There was some congestion of the bowels, but not very marked, nor very extensive. The knacker was about to pull the bowels out, but I stopped him at once, and, stripping my arms up over the elbows, set to work to handle the viscera. It soon became evident that the small bowel was drawn together and constricted behind the liver and just under the spinal column. As the carcass was on its back and only the floor of the abdomen reflected, it was with difficulty that the constricted portion could be exposed; but with a little trouble this was done. It was then seen that part of the small bowel had passed through an opening in a direction from right to left and in the position indicated. The bowel was very little constricted, and not very much discoloured, and without the slightest difficulty some 5 or 6 yards of it were pulled back through the opening, passing from left to right. There was really no stricture and no obstruction to the circulation, yet though the bowel was not compressed, and slipped through the opening with the greatest ease, it had evidently caused the horse's death. After it was all pulled out, the opening—the foramen of Winslow—was found to readily admit two fingers, and was quite smooth, without any rupture of the peritoneum permitting of its enlargement.

I was surprised when I learned that this horse was dead, and the surprise was not diminished when I made out the peculiarity of the lesion, the absence of inflammation, of distinct strangulation, and even of very marked congestion.

These are only a few peculiar displacements, perhaps worth putting on record. So recently as the 8th of last month I made a *post-mortem* in a case in which the horse ate his breakfast and went out to his work in the morning apparently all right. He was brought in a few hours later evidently very ill. Soon after 9 o'clock I was called in to see him, and found him practically hopeless. I returned about noon and made the *post-mortem*. There was a twist of the colon, but the cause of the rapid death was an extensive rupture, fully 18 inches long, in the fourth portion, through which a great amount of ingesta had escaped into the peritoneal cavity—shovelfuls of it.

Although I have related two peculiar cases of displacement of the small intestine, there is little doubt that the most common abnormality of position in connection with the small bowel is when it is twisted round the mesenteric arteries as an axis. When the whole of the small intestine is twisted, when the strangulation is sufficient to practically arrest the circulation, death takes place in from four to eight hours.

It is as certain that the most common displacement of the large intestine is torsion of the left half of the colon, and my experience agrees with that of Jelkman, that it is generally twisted towards the right, *i.e.*, the upper or third portion is displaced towards the other half and downwards. But although torsion of the left half is most common, the twist and strangulation occurring at the suprasternal and diaphragmatic flexures, yet it may occur at any part of the free portion. I have several times met with cases where the twist was at the attachment of the organ in the lumbar region, and in these death took place in from four to six hours.

Etiology.—The cause of these displacements of the bowels is by no means clear. One reason for their greater frequency in heavy horses compared with light ones is probably to be found in the nature and quantity of the food. The heavy horse, as a rule, is accustomed to coarser and more bulky food, and the bowels are more voluminous, more capacious even comparatively. The abdomen, as a whole, is therefore larger. There is greater strain on the abdominal muscles of the heavy horse in starting a heavy load than in those of the light horse in moving himself rapidly. Greater care is also taken not to ask the light horse to exert himself severely with a full stomach and abdomen; very little attention is paid to this with the slow heavy draught horse. Much greater pressure can be brought to bear on the abdominal viscera when the abdomen is large and the line of the abdominal muscles considerably curved, than when the abdomen is small and the muscles acting on a nearly straight line. Although this easily accounts for hernias, the bowels, when exposed to great pressure, tending to escape in the direction of least resistance, it does not so readily explain those displacements that take place within the abdominal cavity. In the articles already referred to—translations from the German—the displacements of the colon seem to be mainly ascribed to sudden lateral movements of the animal. It is pointed out that, suppose a horse to be lying on his right side, the third portion of the colon is filled with more solid and heavier ingesta than the second, and that if he were to rise suddenly, it is quite conceivable that the third portion might slip down between the second portion and the fourth and first portions, and that if the second portion was much lighter there might be some difficulty in these parts regaining their normal position. But this does not explain those extensive backward and forward displacements which are to be met with, nor does it explain twists of the colon which extend beyond the suprasternal and diaphragmatic flexures. Yet in these latter, or even once a twist begins on the colon at its pelvic flexure, there is a possibility of it running to its lumbar attachment.

However, I feel convinced that in a normal condition, with the abdominal viscera only moderately filled, and the vermicular motion actively going on, were an accidental displacement to occur, the natural movement of the bowels would soon cause their return to their normal position; and that it is only when the organs are too full, unequally filled, subjected to severe strain, and severe pressure from the abdominal muscles, that displacement is likely to occur. In that condition, when the viscera are too full, or unequally filled, the abnormal position may be sufficient to arrest or modify the vermicular motion, so that there is little tendency for the bowels to return to their normal position.

This takes us to the second point, viz., that, after all, the great majority of these displacements are due to errors in dieting. There is no doubt that colic cases, stomach and bowel affections, are far less common since more care has been given to the feeding of horses, since less boiled bulky food has been used, which horses, as a rule, swallowed much too rapidly, and since horse-owners began to have a better appreciation of a rational method of feeding and watering.

That these dietetic errors lead to colic there is no doubt, and once a horse begins to roll and dash himself about, no one need be surprised

at displacements of the large bowels. The first and fourth portions are generally very much the heavier, and cannot but displace the lighter bowels when a horse dashes himself about, or rolls on his back. Then, if owing to inflammation or any other cause, there is any interference with the nervous stimulus, and the vermicular motion is arrested, it is not surprising if each successive tumble and roll displaces the bowel farther in the same direction.

I made a *post-mortem* in a very instructive case only this week. The horse showed some symptoms of colic one morning. The horse-keeper gave him an anodyne draught; he apparently recovered all right, and was sent to his work. In the evening the symptoms of pain returned, and he was treated with anodynes, purgatives, enemata, and hot fomentations. He settled through the morning, and remained practically quiet until about 7 P.M., when symptoms of acute pain returned, from which he never got any relief until he died about midnight. The *post-mortem* revealed a fairly acute gastritis of the pyloric portion of the stomach—not the whole, but about one third of it; an appearance of enteritis of the large bowels, the cæcum being darkest in colour, about claret colour, and the third portion of the colon least discoloured; and there was a partial twist of both cæcum and colon. When the abdomen was opened, and the abdominal walls reflected, the first and fourth portions of the colon were exposed; the other portions were partly hidden by the cæcum and small intestines, but it was the third portion that came first into view, not the second. And the second and third portions were to the right—had the horse been standing—of the first and fourth, but higher in the abdomen. That is to say, the cæcum and colon had together undergone a half twist. As already mentioned, the cæcum showed the most distinct appearance of strangulation. The practically fluid contents were evidently mixed with blood, the walls, in some parts, from a half to three-quarters of an inch thick, and blood infiltrated into their coats. In the colon this appearance was most distinct close to its attachment, and it got gradually less discoloured towards the pelvic flexure, save that the third portion was less discoloured than the second.

Now there can be no doubt that this displacement was not there when the horse was first observed showing symptoms of pain, more than forty hours before his death. Whether the pain had been due to the gastritis or to some other cause, I am not prepared to say. As already mentioned, the torsion had disguised any appearance of enteritis that might have existed in the large bowels. Nor do I believe that the torsion existed through the first night, the greater part of which he was manifesting pain; otherwise he would not have continued quiet for some twelve hours throughout the day. Possibly the action of the purgative on an already inflamed stomach and, it may be, bowel, had created some pain, which caused the horse to roll, and the displacement took place. From that moment he never obtained any relief.

There is here, then, an almost practical demonstration, that a twist may take place when an animal is rolling in pain; and an indication to the practitioner of the necessity for arresting that pain as soon as possible. But rolling will not account for those cases in which a horse feeds all right and goes out to his work to all appearance in perfect

health, and in the course of an hour or two is seized with an attack of violent pain while in harness, is with difficulty got home or into some convenient place, and never gets any relief until death. I cannot help thinking that, in these cases, the unequal fulness of the bowels, often with somewhat coarse food, and the great pressure they are subjected to when the horse is straining to start a heavy load, are accountable for the displacement.

Diagnosis.—As to our methods of diagnosis in cases of twists and displacements, they can only be characterised as most unsatisfactory. Although it is now nearly ten years since those articles I referred to appeared in English veterinary literature, I must say that I have never once been satisfactorily convinced in my own mind of the direction or character of a twist or displacement of the bowels during life. Yet in these articles it was referred to as if it were as easily made out as the presentation of a fœtus in the uterus after the os has dilated. Perhaps I have been unfortunate in meeting with difficult or unusual cases, or it may be that my manipulative and tactile abilities are of a low order. But in the majority of the cases I have been quite unable to make out the pelvic flexure of the colon at all. It is quite different from manipulating a healthy horse with the organs in the normal position.

I have relied mostly on the acute, almost continuous pain; on the rapidly increasing frequency of the pulse; the almost entire absence of any sound indicating movement of the bowels; and, when the colon is extensively twisted, very often tympany. In addition, as a rule, there can be made out, on examination per rectum, a tense band, referred to by Jelkman, passing downwards from the lumbar region towards the floor of the abdomen, pressure on which causes pain.

Treatment.—The mechanical treatment of these cases has been in my hands perfectly useless. It could not well be otherwise when a definite diagnosis cannot be made. But even were a satisfactory diagnosis made, although only the left half of the colon is twisted, *i.e.*, the second and third portions, if there is a complete twist at the suprasternal and diaphragmatic flexures sufficient to cause strangulation, it seems absolutely impossible that any man could reduce it by manipulation with his hand in the rectum. At anyrate, if these portions are moderately full of ingesta, and the animal is one of our heavy horses, it could not be done. If only the posterior half of these portions is twisted, *i.e.*, about as much as is connected by the racket-shaped web of mesentery, it might be done. Several years ago, after lecturing on this subject to my students, one of them suggested to me, quite modestly, that he thought I was too sceptical regarding the possibility of reducing a twist of the colon in the living animal. Only a short time after, I took him with me to see a *post-mortem* in which I expected torsion of the colon. The carcase was turned on its back, the abdomen opened, the lateral walls reflected, and there was the torsion complete and quite evident at the suprasternal and diaphragmatic flexures. I asked him to try and reduce it. Although he was a man of good physique, he completely failed. He might have torn pieces out of the walls of it, but to turn it without taking it practically out of the abdomen, he was quite unable.

Of course, in the living animal, at least before there is much inflammation present, the tissues are softer and more pliable, the surfaces

smoother, better lubricated, and they slip easier on each other. But I would have much more faith in rolling the horse to effect reduction if an accurate diagnosis could be made. But that seems to me, as a rule, an insuperable difficulty. I have heard of a man who could examine the abdominal cavity so thoroughly that he was able to reduce a diaphragmatic hernia with his hand up the rectum. I rather think that was in America. But, although I have at least an average length of arm, I cannot claim such a marvellous power of abdominal exploration. And, as already mentioned, I never once, in the living animal, managed to satisfy myself, without any doubt, of the direction of a twist of the colon.

Regarding the medicinal treatment to be adopted in these cases, I am sorry that I have nothing new or very encouraging to bring forward. Certainly no uniform treatment can be adopted, and one must be guided by the conditions met with in each particular case. Anodynes are always needed. I am mainly guided in the administration of purgatives by the pulse being fairly strong and not very frequent, the mucous membrane not much injected, and the temperature not very high, with some intermission in the paroxysms of pain, and an indication of a full quantity of ingesta in the abdominal viscera on physical examination. For tympany I sometimes use eserine, occasionally with success, sometimes without. But if a full dose does not give the desired relief there is little use of repeating it. Some state that it should never be given without giving a dose of pilocarpine about ten minutes before it to increase the intestinal secretions. I have no experience of giving them in that way, and have often seen good results from eserine alone. But it is a very expensive drug, and I don't know any medicine in common use regarding which more care is required to obtain it thoroughly good and reliable. I have been unfortunate enough to use what I trusted was a solution of it when I might have as well used distilled water. Turpentine is a very useful if old-fashioned remedy in tympany. If the tympany is in itself sufficient to be causing distress I never hesitate to tap. There cannot be much chance of the reduction of a torsion if tympany exists and the abdominal cavity is packed full, and if there is any chance it is certainly much greater where the tympany is relieved and the tension relaxed.

There is really no risk in tapping with a proper trocar and ordinary antiseptic precautions. There is neither time nor convenience for shaving the spot; sometimes it is clipped, sometimes not. But it should be soaked with a strong reliable antiseptic, and the skin pressed firmly down to the abdominal wall while the canula is being withdrawn.

I have tapped, or rather inserted the trocar, in the right upper flank without any gas escaping, although the bowels were tympanitic, and on inserting a long probe through the canula withdrawn it moist but without a single speck of blood on it. I had simply passed between contiguous folds of bowel. I have tapped repeatedly on one side, I have tapped on both sides, and only once saw the slightest evil result from it. That was a case occurring in the country some twenty years ago, which had to be tapped with an old cattle trocar, or left to die. As it was, he ultimately died from a localised suppurative peritonitis. And I have tapped the same horse repeatedly. I met an old friend

at his work to-day,¹ a seventeen-hands lorry horse, which has been tapped at least half-a-dozen times and during several different attacks. At a *post-mortem* I made some years ago in a case of twist, I was very much surprised to find that the third portion of the colon had been tapped—punctured by the trocar—from the right upper flank, although it was almost at the other side of the abdomen on the *post-mortem* being made. That case was made clearer to me at the *post-mortem* I made this week than ever it was before. In this case the third portion of the colon was certainly nearer the right upper flank than the first or second, and in the former case it must have been the same when the horse was tapped, but the horse living a few hours longer, instead of becoming reduced, the twist had become more pronounced, until the third portion was again turned away from the right side.

I have never attempted to roll a horse for torsion, but could I satisfy myself as to the direction of the twist I would not hesitate a moment. It would not be always successful even were the diagnosis correct and the horse rolled in the proper direction. But it would have reason to recommend it. A full colon is not easily turned, and it might require some violence, or rather some sharpness in the turning, before it could be made to alter its position in the abdomen. Just as in torsion of the uterus, in which cautious turning is usually recommended, I have oftener than once found turning of no use until I used sharp, sudden jerks. After all they are nothing to the jerks a horse gives himself in dashing about, or the sharp, spasmodic act by which a horse while lying flat on his side will sometimes attempt to throw himself on his back.

Experience has shown me that there is a real risk of a horse producing twist while rolling in colic, and it has also shown that a horse may reduce a twist by rolling. I have repeatedly seen cases in which a horse after rolling almost in agony has risen and not shown any more symptoms of acute pain. So, once conviction is brought home to my mind that a twist exists, I prefer to allow a horse freedom to roll, and I believe that had horses larger boxes or paddocks to roll in, once they are affected with twist, there would be fewer deaths from that cause.

CONTAGIOUS PUSTULAR DERMATITIS OF SHEEP.

By ARTHUR H. BERRY, F.R.C.V.S., London.

General.

CONTAGIOUS pustular dermatitis, although perhaps more familiar to the shepherd than to the veterinarian, has, under the name of contagious dermatitis, or orf, in sheep, been the subject of attention by the late Professor Walley, by the late Professor Williams, under the name of crusta labialis, by the late Professor Robertson, under the name of carbuncle of the coronary band, and by Mr Clark, F.R.C.V.S., of Coupar Angus. It has also been designated "hair and hoof disease," and "mouth and foot disease."

The disease has been seen from time to time in many parts of

¹ 13th October 1901.