

# Equine Abdominal Surgery In General Practice

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Those familiar with the cartoons by Williams entitled "Born 30 Years Too Soon" will probably agree that this article should be labeled "Born 30 Years Too Late."

Progress in medicine and surgery has been remarkable in recent decades, but occasionally we may learn to our embarrassment, that we have allowed false conclusions or other impediments to block our progress in certain fields. In my opinion, surgery on the internal organs of the equine is an excellent example.

It seems to be a universal contention that the equine is particularly susceptible to peritonitis, and therefore laparotomies should not be attempted. This belief is probably the result of faulty technique employed during the dawning days of asepsis when the majority of surgical patients belonged to the horse family.

This idea apparently became such a mental hazard that even such thorough technicians as Dr. H. E. Bemis (I.S.C. '08) and his followers hesitated to challenge it. It seems that had they attempted internal surgery in the equine their success should have been comparable to that seen in other species.

I have no knowledge of the history of equine abdominal surgery or the experiences of others who have attempted it with the exception of a conversation with Dr. N. J. Miller of Eaton Colorado about 8 years ago. At that time, Dr. Miller reported that he had successfully performed a caesarian section on a mare in his practice. Since that time, I have performed 9 such operations with very gratifying results.

The practitioner has no filing clerk so I am forced to rely upon my memory for the case records that I wish to review. This limitation permits me to report only 8 cases at this time. I performed my first laparotomy on a mare with a strangulated loop of small intestine, Nov. 4, 1940. I have since performed 4 other such operations in an attempt to relieve intestinal obstructions and 3 for the castration of cryptorchid patients.

The first case was a draft mare weighing about 1,500 lb. She was found in the morning with severe colic. Rectal palpation revealed a loop of small intestine to be distended and tense as if strangulated. The temperature and pulse were still normal and attempts to give relief by manipulation per rectum were unsuccessful so it was decided that surgery should be performed at once.

The animal was given 1,000 cc of 10 percent chloral hydrate solution intravenously. The right flank was clipped and thoroughly painted with tincture of iodine. The owner brought a tea kettle of boiled water and a cake pan wrapped in clean paper from the house. The instruments were placed in the cake pan. I scrubbed my hands and arms thoroughly and rinsed them with 70 percent alcohol. A 6 in. incision was made in the flank and the left hand inserted. The distended loop of intestine was easily located and the constriction was found to be caused by a band of unidentified tissue. This band was drawn to the incision and severed with a probe pointed bistoury. The band of tissue had not completely halted circulation but the loop of intestine and lost its normal tonus. It remained

distended until it was emptied by manual pressure. The condition of the gut forced me to give an unfavorable prognosis but the operation was completed. The mare regained consciousness and stood up. She was no longer distressed but became very depressed and died 18 hr. later. I was disappointed, but felt certain that she might have recovered if surgery had been attempted before the intestine had lost its tonus.

The second laparotomy was performed on a draft gelding, Jan., 1941. The horse was in such pain that it was necessary to administer chloral hydrate via the stomach tube to permit rectal palpation. Examination per rectum revealed the presence of a long curved mass in the small intestine which exhibited marked sensitivity. Suspecting an intussusception, the patient was completely anesthetized with chloral hydrate administered intravenously. After careful preparation the horse was operated through the right flank. The mass proved to be an irreducible intussusception involving several feet of intestine. Euthanasia was performed by slitting the aorta.

### Third Laparotomy

The third attempt at abdominal surgery occurred Sunday morning, Feb. 9, 1941 and proved successful. A 2 year old draft gelding was in great distress in an unbedded shed. He had rolled until his hair coat was matted with manure. His temperature was 99° F. and the pulse was imperceptible. Restraint was impossible so I put on a rubber obstetrical suit and rolled with the horse while palpating per rectum. A ring of membrane could be detected under the right kidney with a loop of intestine passing through it. This loop of intestine was rather full but neither tense nor distended to any extent. Surgery was suggested as the only means of relief and the owner gave his consent in spite of the low value of the colt.

The chances of obtaining asepsis under these circumstances was remote, but an attempt was made to achieve the best possible conditions. The colt weighed 900 lbs. and was anesthetized with 500 cc of

12 percent chloral hydrate intravenously. The right flank was curried, clipped, scrubbed with soap and water and dried. Tincture of iodine was applied. My hands and wrists were scrubbed and rinsed with 70 percent alcohol. The instruments were placed in an antiseptic solution in a covered pan. The skin was swabbed with alcohol and an incision made which would just admit the left hand through the left flank.

The affected loop of intestine was readily located and the constriction found to be caused by a band of tissue about as thick as the little finger. This band was pulled toward the incision and clipped with a scissors. The tissues slipped from my grasp and I was unable to identify that segment of the gut or to find the stumps of the severed band of tissue. I suspect that the band of tissue was the stem of a pedunculated lipoma on the mesentery as I have twice found such on autopsy.

The incision in the parietal peritoneum was closed with a continuous no. 2 catgut suture. The aponeurosis of the transversus muscle was similarly closed. The oblique muscles were drawn into a position with an X gut suture. The skin was closed with interrupted linen sutures. Except for covering the wound with antiseptic powder, no medication was given.

The third day following surgery, the temperature was 102.4° F. but the pulse, appetite and feces were normal. There was an accumulation of fluid in the incision so the lower suture was removed for drainage. This local infection probably accounted for the rise in temperature. The owner reported that the colt did not rise for 7 hrs. after the operation but exhibited no distress and after the first day ate normally. The skin sutures were removed at a later date.

The fourth laparotomy was done as a last resort. In February, 1942, I was called to see an 800 lb. saddle mare. Rectal palpation revealed no abnormal position or condition of the intestine. I gave the mare a purge at 7:30 p.m. and again at 10:00 p.m. but when I returned

at 1:00 p.m. peristalsis had practically ceased. The pulse was weaker and she was very depressed. I suspected a kink in the intestine which was too far forward to be palpated per rectum, and recommended surgery.

After entering the abdominal cavity I failed to find anything wrong, but in moving the filled colon in the course of my search I may have corrected something. The prognosis was very grave and I did a quick and somewhat careless job of suturing the incision. No medication was given. The animal seemed unimproved for about 36 hrs. and then started to eat. Except for an abscess in the flank wound the mare made an uneventful recovery.

My last attempt at surgical correction of an intestinal malposition failed because of procrastination. I was called to see a popular saddle mare with a 2 month old foal, Aug. 24, 1947. She was found rolling at 2:00 p.m. I treated her at 3:00 p.m. and again at 5:00 p.m. I was unable to palpate any abnormality response to stimulants (nux vomica, ammonium carbonate, and  $\frac{1}{4}$  gr. of arecoline hydrobromide) was of short duration. At the

time of the latter examination, the small intestine seemed to be filled with fluid but no stoppage could be detected. I passed a stomach tube and siphoned off the fluids on the assumption that reverse peristalsis might be filling the stomach.

I returned at 10 p.m. and the animal was very ill. She appeared to be more depressed and peristalsis had ceased. The pulse was imperceptible. A laparotomy was performed in desperation.

A loop of small intestine which had somehow become herniated through a rent in the mesentery was located. The pressure produced by this ring was so slight that the intestine was easily withdrawn with the one hand. I was unable to locate any other abnormality but I am not satisfied that this was the cause of the condition.

The animal lived only a few hours and an autopsy was performed the following morning. The only pathological evidence found was a section of the small intestine which was discolored and appeared to have been strangulated. I feel certain that early surgical intervention would have saved the animal's life.



Fig. 1. 2-year old recovering from Laparotomy for removal of undescended testicle.

The first cryptorchid which I recall castrating through the flank was a 3 year old animal, in 1943. Two years earlier I had failed to locate his right testicle during a routine castration. It was a windy, dusty day so when I failed to find the gubernaculum testis on one entrance through the inguinal region, I filled the wound with sulfanilamide powder and released the animal. The animal developed a mild peritonitis but recovered.

When the flank operation was performed in 1943, the colt was given 1,000 cc of 10 percent chloral hydrate intravenously and operated on the right side just above the ridge made by the internal oblique muscle. The testicle was located in front of the right kidney, drawn into the incision, and removed with a regular emasculator. It was unusually large for a cryptic testicle as it was 4 x 2½ in. in size. The incision was sutured and the patient made an uneventful recovery.

May 1, 1944, a similar right flank operation was performed on a 5 year old that had been scarred by an unsuccessful attempt to locate the testicle in the inguinal region several years before. Following operation through the flank the animal was put to work in a few days and recovered without incident.

My last flank castration was on a 2 year old, June 15, 1946. I had failed to find the testicle during a routine castration a year earlier. This time I operated through the left flank and found the flabby little testicle in the inguinal region but lacked any apparent gubernaculum.

Several years ago I failed to find one testicle in a 2 year old, he never developed the normal male characteristics so I assume that he was a monorchid. I have seen this condition in pigs rather frequently.

### Discussion

1. Surgical intervention for the relief of so-called colics in the equine is seldom indicated, but when indicated should be done promptly, carefully and with confidence in its success.

2. It is indicated most frequently in cases presenting a strangulated section of the small intestine or small colon which can not be corrected by manipulation per rectum.

3. It is possible that a twist or malposition of the large colon or caecum could be corrected by a laparotomy, but due to the size and weight of these organs their thin walls might be perforated or torn if manual correction were attempted.

4. Occasionally it might be practical to perform a laparotomy and reduce an impaction by direct massage of the organ if rectal manipulation is impossible.

5. Skill in rectal palpation is a prerequisite to successful surgery.

6. When any portion of the gut is strangulated or mechanically occluded, any treatment other than surgery is a waste of drugs and inhumane. It is well to remember that he who hesitates is lost.

7. The castration of cryptorchids, equine or other species, *via* laparotomy, is relatively safe and simple.

8. Castration through the flank is indicated in all cases where previous attempts through the inguinal region have failed.

9. In routine castrations, if the tail of the epididymis has not descended into the inguinal canal, it may be easier and safer to operate through the flank than to break through the abdominal floor.

10. It is well to remember that monorchids do occur, so postponement of castration of a cryptorchid testicle may be justified.

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### Blackleg Vaccine

Early in 1897, the Pathological Division of the Bureau of Animal Industry began the manufacture and distribution of a vaccine for immunizing susceptible cattle against blackleg. This undertaking grew rapidly until in 1917, more than 6 million doses were supplied yearly to cattle raisers. The use of this vaccine brought marked relief to cattlemen who had become greatly discouraged owing to the heavy losses they had sustained. The preparation and distribution of the vaccine was discontinued June 30, 1922, by act of congress.