

fering with the blood clotting mechanism. Or the liver may have been previously damaged to the extent that it was not forming and storing other clotting factors, viz., prothrombin, and vitamin K.

The enteritis and the otitis media, although definitely pathological, were minor lesions compared to those mentioned above.

Bacteriological cultures from the liver and kidney proved negative.

This case well illustrates the importance of the following:

1. Not spaying bitches in heat. If the owner insists, be sure he realizes the possible consequences.
2. Securely placed ligatures
3. Thorough physical examination of the patient before surgery. (Unfortunately, this is neither practical nor economical in every case.)

Donald A. Fuller, '50

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### Chloroform Anesthesia in the Castration of Boars.

The office of the ambulatory clinicians of the veterinary clinic at Iowa State College received a call on Jan. 21, 1950, from the college swine herdsman concerning the castration of five mature herd boars. The following equipment was prepared:

1. Large, flat, stainless steel pan
2. Bard-Parker handle and hooked blades
3. Emasculator
4. Hard twist manila rope, ½ in. x 12 ft.
5. Large turkish towel
6. Chloroform, three ¼ lb. bottles

Each boar was crowded with a panel, and a running noose slipped over his upper jaw. The rope was then snubbed around a stout post and the boar pulled up until he had about 18 in. of play in the rope. The towel was wrapped (single layer) about his snout and over his nostrils, and then secured with a single wrap of baling wire.

Approximately 1 fl. oz. (1/16 lb.) of chloroform was applied to the towel over the nostrils, and the anesthetist stepped back. Each boar very rapidly entered the delirious stage and threw his head back

and forth in a pendulous motion at the rope's end. This action was violent, dangerous, observed in all five boars, but was of short duration. As soon as this violence ended the anesthetist again started to apply chloroform to the towel over the nostrils, but slowly, while observing the depth of anesthesia. In general, another fl. oz. (1/16 lb.) was so used, making a total of approximately 2 fl. oz. (1/8 lb.) for each boar.

As each boar lost consciousness, he sagged back against the rope and was finally pushed to his left side. The rope was quickly removed from the snubbing post and hitched to the right (upper) rear leg at the level of the hock. The leg was drawn up and forward out of the field of operation, exposing the scrotum.

The scrotum was brushed as clean as possible, but no liquid antiseptic was applied. The surgeon stood with his left foot and leg against the boar's rump and haunch, his right foot and leg back out of possible danger. The primary incisions were made parallel to the median raphe of the scrotum, and about ½ to 1 in. from it. The incision was free, through the skin and tunica dartos, and extended far enough forward to insure good drainage, but was not through the tunica vaginalis. The scrotal fat and fascia was broken down manually, freeing the testicle enclosed in the tunica vaginalis, except for the anterior and posterior attachments (spermatic cord and gubernaculum testis). The gubernaculum testis was ruptured with manual traction, and the spermatic cord withdrawn as far as possible and freed of all clinging tissue. The emasculator was set about the cord as close to the body wall as practical, and the testicle, with its tunica vaginalis, removed. The emasculator was left in place for a few seconds, then removed and the stump observed for excessive hemorrhage. The scrotum was then examined for any blind tissue pockets, which were incised. The primary incisions were extended forward, until they nearly met on the abdominal midline, to insure adequate drainage.

The baling wire and towel were re-

moved as soon as the castration was complete, the rope was then removed and the stag allowed to remain quiet. In all but one instance the stag was on his feet immediately, although still showing incoordination. The one stag that failed to immediately arise was larger and more obese than any of the other four, but he was on his feet before the next castration was completed.

The apparent disadvantages of chloroform anesthesia in castration of boars are as follows:

1. Increased cost
2. Increased time (questionable)
3. Increased risk (questionable)

The advantages are as follows:

1. Increased humanity
2. Increased professional appearance
3. Increased exact technique
4. Increased control of patient
5. Decreased travail of restraint.

R. J. Cowles, '50

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**Habitual Bloat in a Bull.** A 2-year-old Angus bull was referred to Stange Memorial Clinic on Dec. 24, 1949, with a history of having been bloated for the past six days. He had been unsuccessfully treated on the farm with mineral oil and antiferments.

For the next two weeks, the bull was treated daily with one or more of the following: carminatives, ruminatorics, rumen transplants and antiferments including the newly developed methyl silicone compound. In the meantime, his condition was studied in attempt to learn the cause. Medicinal treatment was completely unsuccessful since it was necessary to relieve the bloat almost daily, and sometimes twice daily, by means of the stomach tube. Following relief of the bloat, rumen motility always returned to normal.

Laboratory examination of the blood showed no significant changes, but a liver function test indicated that there was some reduction in functional capacity. The urine was of a very low specific gravity—1.001 as compared to a normal

of about 1.030. It was also acid in reaction having a pH 6 instead of the usual alkaline pH 8 of normal bovine urine. A bacterial culture of the urine yielded *Proteus* species which may have been contaminants.

The Kingman tube was readily passed indicating that there was no marked stricture or other obstruction in the esophagus. Rectal palpation indicated a slight enlargement of the left kidney with an abnormal softening near the hilus.

Since nothing definite could be determined by the above means, an exploratory laparotomy and rumenotomy was indicated. After the laparotomy incision was made, the peritoneal cavity was manually explored. It was noted that the liver seemed enlarged and displaced to the left, and that the left kidney was enlarged and somewhat softened. A rumenotomy was performed immediately. Four pieces of baling wire were found free in the reticulum, but none could be found penetrating other organs through the reticular wall. After the operation, the bull was given 1 million O.U. of procaine penicillin in oil and wax intramuscularly followed by 50 Gm. of sulfanilamide daily for five days as a prophylactic treatment. Recovery from the operation was uneventful, but the bloat continued.

Since it was presumed that the enlarged liver interfered with regurgitation and eructation, the bull was discharged with the recommendation that he be slaughtered since nothing further could be done for him.

The bull was slaughtered Jan. 23, 1950. At the abattoir, time did not permit a careful autopsy, but there were multiple abscesses throughout the liver with extensive adhesions to the diaphragm. Both kidneys showed multiple abscesses with more extensive involvement of the left kidney.

Further discussion of the case with the owner indicated that while the bull was in moderately good condition upon entering the clinic, he had never been a normally thrifty individual. It is quite probable that the infection causing the abscesses had been acquired as a calf and had