

Surgery in Abomasal Disease, Uterine Torsions and Thermal Treatment of Eye Lesions

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Surgery is sometimes a last resort measure used by practitioners. I would like to present two surgical procedures that are simple to complete. They will enhance your reputation as competent veterinarians and also be profitable for your clients. If you share the view that surgery is a last resort measure I hope to change your view point. I hope to convince you to consider surgery as a first alternate in deciding how to handle these situations. Time does not permit an extensive commentary on the three topics I have to cover; therefore, I have not covered every detail and you should keep this in mind as I go through these presentations.

Uterine Torsion

Very briefly, this condition is brought to our attention when a cow has been in labor for over 2 hours. The owner upon checking this cow, finds that he cannot find the cervix or the calf and calls for assistance.

I mention the time factor purposely. We have trained our clients over the years not to let a cow stay in labor beyond two hours. When this occurs they examine the cow themselves and then proceed on a simple, uncomplicated delivery to help the cow. If they find a problem they call us. By using this regime, we usually have a cow and calf presented to us in good condition. This time factor materially affects the outcome of whatever procedure is employed. It also means that we have to be available on a 24 hour basis to help when needed.

Quite naturally when you handle a uterine torsion, early diagnosis is a must for a successful outcome. Some are easy to correct, but others can be very difficult. I am sure that all of you have labored long and hard to correct a uterine torsion. The simple cases we correct manually through the vagina. These are usually torsed about 90 degrees. Those that are torsed approaching 180 degrees or more, are handled surgically. The frustration of trying to cast and roll a cow with a torsion is what led to my use of this procedure.

The cow is sedated very lightly and given an epidural. It is very important that the cow remain standing. We then proceed to do a left-sided laparotomy. The left side is prepared for a C-section and local field anesthesia is used. The incision is made high in the left flank and initially just long enough to permit you to pass one hand into the abdominal cavity. The uterus is turned in the appropriate direction to correct the torsion.

In torsions over 180 degrees the circulation to the uterus is impaired and the uterus becomes edematous very quickly. The integrity of the organ is impaired and it becomes devitalized, causing the uterus to be unable to contract properly. These conditions may not be apparent when you first locate the uterus. However, I feel that they occur to some degree in all cases of uterine torsion. Because of this, a few words of caution are in order at this point:

1. The torsed uterus is very easy to puncture. It should be manipulated using the flat portion of your hand, or the balled fist. Trying to grasp the uterus in your hand with your fingers will result in a puncture into the uterus.
2. Employ a rocking motion to rotate the uterus
3. Before closing the incision site, a vaginal exam to determine that you have completely untorsed the uterus and also to evaluate the condition of the cervix, is in order.
4. Rarely, the uterus cannot be untorsed and in these cases proceed to do a C-section.

In our experience, if the cervix has not dilated, and the cow is in labor, you should handle this situation immediately. Very few cows will dilate any more than they have at this time, and you will not gain anything by waiting 12 to 24 hours. You have 3 options at this point:

1. C-section
2. manually dilate the cervix, or
3. incise the cervix through its dorsal surface.

Evaluate the condition of the uterus and cervix, as well as the cow's general condition, before deciding which procedure to use.

Aftercare in uncomplicated cases consists of keeping the cow on antibiotics for 24 to 48 hours after surgery. Other appropriate measures such as fluids, dextrose and/or calcium may be used if they are indicated.

Abomasal Displacements

Turning our thoughts to abomasal displacements, a typical history for LDA would be that of the animal eating intermittently since parturition, an unresponsive metritis, or

BRIEF SUMMARY

(For full prescribing information, see package insert.)

Lasix® (furosemide)* Powder Packet (2g)

A diuretic-saluretic for prompt relief of edema.

CAUTION: Federal law restricts this drug to use by or on the order of a licensed veterinarian.

INDICATIONS

Cattle:

Lasix* (furosemide) is indicated for the treatment of physiologic parturient edema of the mammary gland and associated structures.

CONTRAINDICATIONS - PRECAUTIONS

Lasix* (furosemide) is a highly effective diuretic-saluretic which, if given in excessive amounts, may result in dehydration and electrolyte imbalance. Therefore, the dosage and schedule may have to be adjusted to the patient's needs. The animal should be observed for early signs of electrolyte imbalance, and corrective measures administered. Early signs of electrolyte imbalance are: increased thirst, lethargy, drowsiness or restlessness, fatigue, oliguria, gastrointestinal disturbances and tachycardia. Special attention should be given to potassium levels. Lasix* (furosemide) may lower serum calcium levels and cause tetany in rare cases of animals having an existing hypocalcemic tendency.

Although diabetes mellitus is a rarely reported disease in animals, active or latent diabetes mellitus may on rare occasions be exacerbated by Lasix* (furosemide).

Electrolyte balance should be monitored prior to surgery in patients receiving Lasix* (furosemide). Imbalances must be corrected by administration of suitable fluid therapy.

Lasix* (furosemide) is contraindicated in anuria. Therapy should be discontinued in cases of progressive renal disease if increasing azotemia and oliguria occur during the treatment. Sudden alterations of fluid and electrolyte imbalance in an animal with cirrhosis may precipitate hepatic coma; therefore, observation during period of therapy is necessary. In hepatic coma and in states of electrolyte depletion, therapy should not be instituted until the basic condition is improved or corrected. Potassium supplementation may be necessary in cases routinely treated with potassium-depleting steroids.

WARNINGS

Lasix* (furosemide) is a highly effective diuretic and, as with any diuretic, if given in excessive amounts may lead to excessive diuresis that could result in electrolyte imbalance, dehydration and reduction of plasma volume, enhancing the risk of circulatory collapse, thrombosis and embolism. Therefore, the animal should be observed for early signs of fluid depletion with electrolyte imbalance, and corrective measures administered. Excessive loss of potassium in patients receiving digitalis or its glycosides may precipitate digitalis toxicity. Caution should be exercised in animals administered potassium-depleting steroids.

Sulfonamide diuretics have been reported to decrease arterial responsiveness to pressor amines and to enhance the effect of tubocurarine. Caution should be exercised in administering curare or its derivatives to patients undergoing therapy with Lasix* (furosemide) and it is advisable to discontinue Lasix* (furosemide) for one day prior to any elective surgery.

CATTLE: Milk taken from animals during treatment and for 48 hours (four milkings) after the last treatment must not be used for food. Cattle must not be slaughtered for food within 48 hours following last treatment.

Lasix* (furosemide) is not indicated during the second trimester of pregnancy.

DOSAGE AND ADMINISTRATION

The usual dose of Lasix* (furosemide) is 1 to 2 mg/lb body weight (approximately 2.5 to 5 mg/kg). A prompt diuresis usually ensues from the initial treatment. Diuresis may be initiated with Lasix* (furosemide) Injection 5% and maintained by oral treatment following a 12-hour interval.

DOSAGE:

Oral: CATTLE

The contents of 1 packet (2g) per cow daily to be administered with the animal's individual concentrate ration. **Treatment not to exceed 48 hours postparturition.**

Parenteral: CATTLE

The individual dose administered intramuscularly or intravenously is 500 mg (10 ml) once daily or 250 mg (5 ml) twice daily at 12-hour intervals. **Treatment not to exceed 48 hours postparturition.**

HOW SUPPLIED

Parenteral:

Lasix* (furosemide) Injection 5% (50 mg/ml)

Each ml contains: 50 mg furosemide as a diethanolamine salt preserved and stabilized with myristyl-gamma-picolinium chloride 0.02%, EDTA sodium 0.1%, sodium sulfite 0.1% with sodium chloride 0.2% in distilled water, pH adjusted with sodium hydroxide. Available in 50 ml multidose vials.

Oral:

Lasix* (furosemide) 2g Powder Packet

Each packet contains 2g of furosemide: 4-chloro-N-furfuryl-5-sulfamoylanthranilic acid plus inert ingredients.

Available in boxes of 12 packets each.

NOW Lasix® (furosemide) Powder Packet (2g)



A new way to treat udder edema in cows.

Safe - No risk of abortion.

Effective - Two-day therapy rapidly relieves edema, thereby lessening the risk of permanent udder damage.

Convenient - Empty contents of one packet per cow daily for two days as a top dressing on grain mixture.

Palatable - Readily accepted by cows.

Economical - No stress and associated milk loss with a feed top dressing. Milk production maintained following "milk-out" period.

AVAILABLE ONLY FROM LICENSED VETERINARIANS

Lasix* (furosemide)
2g Powder Packet
Manufactured By:
Hoechst-Roussel
Pharmaceuticals Inc.
Somerville, N.J. 08876

Lasix* (furosemide)
Injection 5%
Manufactured By:
Taylor Pharmacal Co.
Decatur, Illinois 62525

Manufactured expressly for:
National Laboratories Corp.
Subsidiary of American Hoechst Corporation
Somerville, New Jersey 08876

*U.S. Patent 3,058,882

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pyometria, and low grade ketosis. Many times the failure to use auscultatory percussion as part of the diagnostic procedure on an animal with history will result in several trips to treat the animal with only a partial unsatisfactory response from each treatment. This condition occurs most frequently within two to six weeks following parturition, but may occur at any stage of the lactation or during the dry period, and can occur in male cattle.

RDA's are a more acute condition. Typically, these animals go off feed suddenly and completely. As the abomasum begins to distend with fluid and gas, this animal becomes dehydrated and toxic very rapidly. They are a surgical emergency if the animal is to be saved.

Treatment of LDA follows either conservative or surgical means. You are all familiar with conservative treatments.

1. hauling the animal in a trailer over rough roads for five to ten miles in hope that the bouncing will allow the abomasum to reposition itself
2. rolling the animal over on its back with the same idea in mind
3. mild laxatives combined with stiglyin or similar type drugs
4. withholding all feed for 48 hours, allowing the animal only water to drink, and treating the ketosis and metritis

Surgical procedures are abomasopexy, omentopexy and a blind suturing technique.

In deciding how to handle LDA cases, an evaluation of the economic potential of the animal is considered. An older animal, or one in the lower half of the herd production, would be treated conservatively or sent to slaughter. Associated conditions such as mastitis indicate conservative treatment or sale. In our experience about 25% of the animals treated conservatively respond satisfactorily. About 25% to 30% respond temporarily and then reoccur. Response to surgery has been very good, approaching 100% with the use of the abomasopexy procedure. Omentopexy has been used on pregnant animals which needed surgery. I do not use the blind suture technique.

I would like to recognize the help of my two associates in practice, Dr. Carl Keller and Dr. Allen Roussel, as well as the assistance of Mr. Paul Ledford and Dr. Hillman of LSU's School of Veterinary Medicine in preparing this film.

Abomasal displacement is diagnosed by the use of Abdominal Mediate Auscultatory Percussion. A dotted line drawn from the olecranon to the tuber coxae shows the area that should be percussed. Percussion should be done in a systematic manner beginning at the olecranon and proceeding up toward the tuber coxae. Both sides of the animal should be percussed. A metallic echo or "ping" is heard when a displacement is present. This contrasts with the dull thuding sound heard when no displacement is present. Percussion should be done before any rectal or vaginal exams are made.

Many times the area pinging may be small and for this reason a thorough examination is necessary.

The area pinging corresponds to the amount of trapped gas in the displaced abomasum. The sound is diagnostic but not pathognomonic. Similar sounds may be heard in the rumen if a large amount of liquid is present with gas entrapped on top. Pneumoperitoneum will also cause a similar sound. The same is true of a right displacement, but a ping heard high on the right side would need to be differentiated from a distended cecum or possibly air in the rectum.

The animal is tranquilized or sedated prior to surgical preparation. We use 100 to 150 mg. Xylazine intravenously.

We have adopted this rather unique way to use our table. The cow is cast, hobbled, and rolled on her back and secured to the table by ropes. You do not have to use an operating table. The cow can be rolled on her back next to the stanchions in a dairy barn or next to a solid corral fence.

The use of an endotracheal tube may not be necessary on most LDA surgery because the rumen contents are usually rather dry. However, we have found that an occasional cow will regurgitate and on the few that do, it is very nice to have the cow intubated to prevent inhalation pneumonia. On RDA's, the very fluid condition of the rumen makes intubation a very necessary part of successful surgery. The metal horse speculum facilitates insertion of the endotracheal tube, which is sometimes a difficult procedure.

The approximate location of the incision site is three fingers caudal to the sternum and approximately three to four fingers to the right of the midline. The mammary vein varies in location in relation to the midline, but the incision should be between it and the midline. Consideration must be given to the rather large collateral mammary veins usually present and an appropriate area selected in order to transect as few of these large vessels as possible.

The basic surgical instruments are all that are necessary for this procedure.

Scalpel, scissors, hemostats and needle forceps will usually suffice.

The incision site is shaved and washed using PVP iodine soap or other appropriate surgical scrubs. After being thoroughly cleansed, a Betadine prep is used.

The incision area is anesthetized using local field anesthesia. Plain Procaine is injected. Procaine with additives such as epinephrine should not be used because use of large volumes of epinephrine can cause local ischemia and may even cause local necrosis which can lead to poor healing of the incision.

Draping is useful in preventing contamination of the incision and suture material while closing the incision. Draping has reduced post operative abscess formation.

An incision long enough for the surgeon to work through comfortably is made, usually 6 to 8 inches long. Post operative edema can be controlled to a large degree by tying off major vessels as they are encountered in making the incision. The peritoneum should be incised carefully to

prevent opening underlying organs. Gas accumulation in the abomasum and intestines will have these organs pressed close to the peritoneum on some animals even though they are positioned on their backs.

On some animals the abomasum will be visualized as soon as the peritoneum is opened. On most, the abomasum will be found as a gas filled organ located between the rumen and the abdominal wall to the left of the midline as illustrated. When it is located, gentle traction is exerted to bring it to the incision. If difficulty is encountered because of gas accumulation in the abomasum, it is drawn out through the incision and evacuated of some of its gas content using a needle attached to a length of I.V. tubing to carry the gas and fluid contents away from the incision area. If uncertainty exists as to which organ you are feeling, and this does happen with a greatly distended abomasum, locate the duodenum and follow it forward to establish that you actually have the abomasum. Handling the abomasum by grasping it with a gauze wipe will reduce the trauma inflicted.

In our Louisiana area we frequently find sand in the abomasum. After the abomasum is externalized and before suturing begins, the abomasum is opened and the sand removed. Any quantity over an estimated pint is considered a large quantity.

The omasal-abomasal attachment is located and positioned so that only a small amount of tension is on the abomasum in the incision site. The white line formed by the reflection of the omentum off the abomasum is located at the same time and the abomasum is sutured in the incision site just lateral to the white line. The location of the suture in relation to the white line is not as critical as is the location of the suture in relation to the omasal-abomasal attachment.

We recommend the use of interrupted sutures in attaching the abomasum to the incision site. The abomasum is sutured to the incision for at least 4 to 5 inches, beginning at the cranial end of the incision. In most cases we suture the abomasum the entire length of the incision.

The interrupted sutures are placed through the middle and transverse abdominal muscle, the peritoneum and through the musculature of the abomasum, then continue out through the peritoneum, internal, transverse abdominal and tied. In this fashion an adhesion is created between the abomasum to the incision. Failure to securely anchor the abomasum to the incision can result in the abomasum becoming disengaged from the incision with reattachment in another location causing undesirable results. For this reason you must pass your sutures through the muscle of the abomasum and not just through its serosal layer.

The rectus abdominal and external abdominal sheath are closed using interrupted sutures. The use of a continuous suture pattern would speed up closing the incision, but we feel that the interrupted pattern gives more security to the incision.

We use interrupted mattress sutures to close the skin. The first suture is put in place, tied leaving one end long. The

remainder of the sutures are put into place in a continuous manner, leaving the suture pattern loose as illustrated. When all are in place, you proceed to tie and cut in such manner as to form individual mattress sutures. This procedure speeds up skin closure. This pattern is applicable to any skin closure on large animals. Suturing and tying in this manner was first presented to us in a meeting conducted by Dr. Dan Anderson.

We keep the animals in the clinic until they are eating and then send them home with the following instructions:

1. For two weeks following surgery the animal should be kept away from the herd. This is done to give the incision time to heal.
2. A moderate amount of grain should be fed twice daily. If the cow does not eat immediately, the grain should be left with her so that she can nibble at it all day. Many cows will eat their entire ration if given enough time even if they only eat a small amount at any given time. This also means that she should be kept where no other animals will eat her feed before she can.
3. Hay and water should be provided free choice.
4. Salt should be available to the animal. This is very important. Occasionally these cows will eat dirt to try to get salt, especially if they are not consuming much grain.

Last, we leave instructions with the owner to call us immediately if the animal has any problems.

Bovine Cancer Eye

I would now like to turn your attention to the thermal treatment of Bovine Cancer Eye.

We look on this method as an alternate to cryosurgery. It is not a substitute, because thermal treatment is more applicable to small lesions, while cryosurgery can be used more effectively on large lesions.

Western's L.C.F. Mega-Therm instrument is an outgrowth of the device developed and tested at the Los Alamos Scientific Laboratory in New Mexico.

At a February 1978 Symposium at New Mexico State University, Las Cruces, and a August 30, 1978 Symposium on the management of Bovine Cancer Eye at Colorado State University, hyperthermia was indicated as the treatment of choice in many instances. This methodology has the advantages of speed and simplicity of operation, equipment portability, superior cosmetic appearance over surgery, and a high percentage rate of successful treatment.

While treatment of bovine cancer eye is the only known, fully-documented, use for the instrument, much experimentation and research is currently being done on other uses. Many other tumors and ulcerations, acute or chronic, on many species may respond to this treatment. A

veterinarian's professional knowledge and experience is indicated.

The Mega-Therm instrument employs a localized current field, generating a two megahertz radio frequency to precisely heat tissue around the probes. The instrument reaches and maintains a temperature of 122 deg. F penetrating approximately 3-5 millimeters. This temperature has been found to alter the nature of cancerous tissue with minimal damage to surrounding normal tissue, provoking the animal's own defensive mechanisms to cause the tumor to recede and disappear. This approach to cancer treatment is not new, but never before has the equipment been available economically to the veterinary field.

This type of cancer on the third eyelid is common in our area.

It occurs in cattle with black eyes, but as in other breeds, it is more common in white-eyed cattle. I know that you can remove cancers at the third eyelid surgically, but in operating a third eyelid with a large cancer, it must be almost completely removed.

By the use of the thermal treatment the normal tissue is preserved. Cancerous plaques on corneo-scleral junction or on the cornea itself may also be safely treated.

The machine probes must have a moist surface to conduct over. A dry lesion should be moistened with saline before the probes are applied.