

The Triple Drip as an Anesthetic in Cattle

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General anesthesia is not usually a requirement when performing many procedures in the bovine, but it can be a useful tool when complete restraint is required. Triple Drip anesthesia is simple, uses no schedule drugs, is relatively safe and provides adequate levels of analgesia to facilitate any procedure. Personnel administering the triple drip should be experienced both in administering anesthetics and in patient monitoring techniques.

The Triple Drip anesthetic protocol has been used in many equine practices over the years. It is most often used for procedures requiring one hour or less. The ingredients for the "cocktail" are: 5% quiafenesin solution (made with 5% dextrose in sterile water), xylazine, and ketamine. Dosages of both xylazine and ketamine vary according to the weight and disposition of the animal. A 1000 pound animal is usually given a combination of 100mg of xylazine and one gram of ketamine in a liter of 5% quiafenesin. Cattle greater than 1000 pounds are given 200mg of xylazine and two grams of ketamine in one liter.

The animal is restrained in lateral recumbency and sedated with xylazine. The xylazine is dosed at 10mg per 100 pounds up to 500 pounds, over 500 pounds increase with 5mg per 100 pounds body weight above 500 pounds. No other preanesthetics are utilized. Often after sedation occurs the animal can be intubated. Those

animals that do not easily allow intubation after sedation are subjected to anesthesia before intubation is attempted a second time. This is accomplished by placing an intravenous catheter and administering a bolus dose of the Triple Drip solution to effect. When adequate relaxation is achieved, a maintenance drip is established at approximately five milliliters per minute. At this time the animal should be monitored closely as some do develop a respiratory apnea. Evidence of decreased respiratory effort should be addressed by decreasing the volume of anesthetic administered and supplementing with a low flow of oxygen into the endotracheal tube. The apnea is usually transitory in nature and will subside within five to ten minutes. Proper attention should be paid to positioning of the animal as well as ample supportive padding in order to aid in prevention of post-operative myositis.

Anesthetic reversal is accomplished by the use of tolazoline HCl given intravenously at 100mg per 500 pounds body weight. If complete reversal is not achieved within five to ten minutes a second dose may be administered.

This anesthetic protocol has been used successfully in cattle for the past fifteen years with no adverse reactions. Technicians become quite comfortable with the Triple Drip procedure after limited experience.

Physics in Veterinary Practice – Loading Cadavers

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Physics was a very difficult subject in my preveterinary curriculum. It almost kept me from getting into veterinary school. I wondered why we were required to have physics courses. Was it to keep the applicant pool narrowed down? Later I thought it might be to help us understand the principles of radiology. I

sure don't understand how radiographs work. I barely have enough imagination to see the fracture that I knew was there before I shot the picture.

It was years later that I realized that physics play a large role in bovine practice. What is the principle of the calf jack? It has a lever and fulcrum, and when

needed and properly applied this effect is compounded. Wrapping of a prolapsed cervix that is markedly enlarged with an elastic wrap and suspending it above the vulva will cause the cervix to shrink in size thus allowing it to be replaced with less effort. These and other things that we do regularly are applications of physics.

Dead cows at a veterinary clinic are always a bad situation. They remind us of our human limitations. They usually die in an area that is hard to get them out of. It usually occurs at a time when there are many curious onlookers. There is never a tractor with a front

end loader. We end up dragging them into a trailer that is at least a foot or more off the ground. Backing the trailer into a low spot to expedite the loading process often results in getting stuck in the mud. Apply physics to loading the dead cow. Put a halter on the cadaver and run the lead through the side of the trailer as high as possible. This should be close to the back of the trailer.

This will cause a lifting of the animal as well as a forward pull. This will reduce the problem associated with getting the head and the fore quarters to load into the trailer.

The Overdue Calf Delivery

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In the typical bovine practice, the overdue calf delivery occurs all too often, with the calf having been dead from a few minutes to a few weeks when presented for delivery.

Since we are dealing with a salvage situation, the welfare of the heifer or cow and cost to the owner are of primary consideration.

Routine use of shoulder-length OB sleeves with exam gloves pulled on over the hands for added protection is a must in these cases and also makes cleaning up much easier.

Proper lubrication cannot be over-emphasized for the overdue calf delivery. The water-based lubricants are soon diluted by the uterine fluids and are not very effective. White petrolatum is the most lasting lubricant on a difficult delivery. Heavy mineral oil pumped in on a dry calf may also be very helpful.

I like to use a double-jack, butt-plate type calf puller, not so much for the extra power but for the extra options it gives me on a difficult delivery.

A thorough knowledge of and frequent use of fetotomy is essential in any bovine practice. Many C-sections can be avoided with a fetatome. An excellent book title *The Technique of Fetotomy in Large Animals* by Drs. Bierschwal and deBois is out of print but will be very helpful if one can be found.

In my experience, the overdue calf can be placed roughly in one of three categories:

1. The calf that is "relatively" fresh:

For the calf that is "relatively" fresh, the options

are fairly favorable:

- a) You may be able to lubricate and manipulate it and do a routine delivery.
- b) A partial or complete fetotomy may be required.
- c) If the calf is too big and still pretty fresh, a C-section may be best.

2. The dry, emphysematous calf:

The dry, emphysematous calf that is immovable, with any attempt at traction, mutation, or fetotomy at high risk of rupturing the uterus leaves us with a few good options:

- a) Salvage through slaughter
- b) A C-section with a very low survival rate
- c) Euthanasia
- d) If the owner does not buy a, b, or c, give the cow a few days for the calf to melt down and try her again, if she survives.

3. The remains of a calf:

The remains of a calf — hide, bones, and a greasy, putrid mush, with lubrication, manipulation, and gentle traction, (always with the owner's help), these can usually be delivered a piece at a time.

Aftercare should include antibiotics, oxytocin, tetanus antitoxin, and fluids if indicated.

Finally, if at your clinic, when it is all over, load EVERYTHING back into the owner's trailer and send him home.