

Practical pain mitigation for castration – effective and efficient relief

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Abstract

Pain management for cattle during veterinary procedures is becoming a strong topic within our industry. In this presentation we will be discussing pain relief pre- and post-castration. Some of the highlights include local nerve blocks, non-steroidal anti-inflammatory, and how to communicate with producers about implementing it within a production system.

Key words: pain, castration, cattle

Introduction

My name is Dr. Maddison Tyrrel, I want to thank everyone who allowed this to happen. It seems crazy to think I would even be mentioned to give a presentation at AABP. A little about me is that I am a mixed animal veterinarian who graduated in 2021. Lately I have been doing only small animal due to a recent injury. But the last 2 years I have been traveling all over southern Iowa and northern Missouri. I have cattle clients who are anywhere from a couple of cows to hundreds of cow-calf pairs. I often see anything from bearded dragons to beef cattle. I am a part of a larger practice style with 5 clinics and 13 veterinarians.

Promoting better castration timeline

Castration earlier in a calf's life should be the number one recommendation when it comes to risk and pain management. If producers can green band or surgical castrate in the first weeks of life are recommended. I've had several clients transition to banding calves at the initial tagging in pasture instead of waiting to the tradition weaning. AABP recommends the first 24 hours to the first 3 months of life in their castration guidelines.¹ Although this would be the perfect recommendation for some, it doesn't work for extensive production systems or bull studs. Throughout this presentation I present about castrating as a veterinarian, but in different parts of the country veterinarians are not performing castrations. This is where we need to play a role influencing standard operating procedures. The biggest mentality that we as veterinarians have to overcome is the saying "this is the way we always do it".

Pain management and calf processing

Pain management is a multi-modal approach that happens at different points in the calf processing. Two areas that I will be highlighting are pre-castration and post-castration. Pre-castration I have utilized different lidocaine blocks and post-castration we are mainly talking about transdermal Banamine®, oral meloxicam, and injectable meloxicam for our northern counterparts.

Local blocks

Local blocks can be utilized when we are performing surgical castration or cutting calves. Local blocks are performed with a local anesthetic or numbing agent. The most often used would be lidocaine. Caudal epidurals can be used to provide pain

control when performing castration. Three blocks that I have utilized in practice would be the scrotal block, scrotal chord block and testicular block. Scrotal block would be placing lidocaine in the bottom third of the scrotal sac. Basically, I place the block where I am going to cut. Scrotal chord block is a placing the lidocaine in the chord of the testicle. A testicular block is placing lidocaine within the testicle. The technique that I have found works for myself the best is combining the scrotal chord block with the scrotal block. I use a bottle-mount syringe with a 100 mL lidocaine bottle attached with an 18-gauge needle and 1 ½" long needle. I place 5 mL of lidocaine in each location. The bottle mount helps speed the process up during calf processing because of the automatic refill.

Lidocaine

Although there are other numbing agents that can be used. Lidocaine, in my opinion, is the most commonly used numbing agent compared to bupivacaine and others. Lidocaine is often sold in 2% solution (20mg/ml). It has a coverage of 90 minutes and takes 2-5 minutes for full effect.² The toxic limit in cattle is approximately 4.5 mg/lb (10 mg/kg).² For these blocks used in castrations we are not close to approaching the toxic limit. Lidocaine can have sting affects – a way to get around this would be mixing bicarbonate into the solution. My hard-learned lesson is if lidocaine freezes at all, it will lose all of its numbing ability.

Lidocaine shortage

As I stand here today as a practicing veterinarian, yes, blocks sound great. But I know lidocaine shortage is on everyone's mind. Especially with recent years, lidocaine has not always been as easy to find. Reports from other practitioners are that you can dilute lidocaine with sterile water to a 1:10 dilution while still having the efficacy of the drug. This would both help conserve your supply of lidocaine as well as you would be able to utilize plastic bottles. Plastic bottles are always nicer to deal when tables are crashed through or syringes are dropped. And at certain points of lidocaine availability, local blocks may not be practical.

Post-castration

The use of NSAIDs or nonsteroidal anti-inflammatory after the castration process can help provide pain control even after we have left the farm. Transdermal Banamine is quick and easy to use pour on product. The cost of transdermal Banamine is \$1 per 100 pounds of the calf. Another option for vets would be to use oral meloxicam. Tablets are often placed in a gel capsule and bolused during castration with a balling gun. It is time consuming and difficult depending on facilities and calf size.

Flunixin meglumine

Transdermal flunixin meglumine or Banamine is a pour-on that is approved for pain control specifically for foot rot.³ When we use it for castration, we are using it in an extra-label manner. It absorbs into blood stream quickly and it is easy to use.

The cost on its use is about \$1 per 100 pounds. I use this product very frequently because its ease of use.

Meloxicam

Meloxicam has been shown to alleviate pain. The injectable and drenchable form has been approved in cattle in Canada. In the United States, we are only able to use the tablet form of the drug. We use the tablets by utilizing them in gel boluses. It is probably the most cost-effective option, but not my favorite when working cattle because you need good facilities and it is very time consuming. The dosage is 45 mg/100 pounds or 3 of the 15 mg tablets per 100 pounds.⁴

Case selection

We need to talk about a very important topics that practicing veterinarians deal with every day. That is case selection, or as I like to call it, farm selection. When introducing or performing extra or technical procedures, facilities are important. Good facilities are key for not getting hurt with different lidocaine blocks. It's never a good day when you show up to a farm where the chute is broken or you have to have the tractor pull the chute in because your truck got stuck. I find the easiest way to start practicing pain management in our calf processing is with small groups especially at our haul-in facilities. I can castrate in my squeeze chute by myself with utilizing the squeeze and block. I have not used the block and cut them with just the squeeze, and it resulted in a few short cords and bleed outs because squeezing them doesn't allow you to assess the amount of bleeding. I also use lidocaine blocks when I don't have much help because it allows me to do more without tail jacking.

Advocating pain management

I love introducing castration pain management after I have already utilized pain management for other procedures such as dehorning. All my dehorns get pain management if there are good facilities, so it was easier to jump into advocating for pain management after castration, too. Anyone can tell calves feel painful after castration because they often have shortened

strides, lay down and stand with raised backs. The biggest hump you as a veterinarian you are going to have to overcome is the money aspect. Because anything you do is going to cost money. I often do not charge for the lidocaine and just absorb the cost. If we utilize transdermal Banamine, the producer will have to cover that charge. But what is going to cost the most to either the producer or you depending how you charge is the time during processing it takes. My average is 20 seconds more per calf; I often do my lidocaine block first then process the calf, then castrate them last. This allows my block to reach its full potential. For 400-pound bull calves, this is going to cost my producer about \$100 more for processing time and \$360 in transdermal Banamine, averaging \$4.60 more per calf than traditional processing. The key is to get in the door and try it (pain management) out enough to pique an interest then let the calves speak for themselves with how they look and return to feed.

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