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THE MADIGAN SQUEEZE

Left: The Madigan Squeeze mimics the compression a calf receives during normal Stage 2 labor, inducing the wake-up call. The technique uses a soft rope to wrap three concentric loops around the calf's thorax.

veterinarians believe some dummy calves suffer from neonatal maladjustment syndrome (NMS) — a condition more often associated with horses. An estimated 3%-5% of newborn foals are affected, exhibiting symptoms similar to those of dummy calves.

A treatment was developed by University of California–Davis (UC–Davis) equine veterinarian and researcher John Madigan. Believing NMS resulted from chemical effects on the nervous system, he pioneered a technique that, in oversimplified terms, reboots the brain. The technique has since been dubbed the “Madigan Squeeze.”

Madigan first hypothesized that sedative-like compounds called neurosteroids were responsible for keeping an unborn foal in a languid state and relatively immobile during the birthing

process. He theorized that physical compression of the foal's torso as it passes through the birth canal prompts a release of hormones that turn off the neurosteroid-induced

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— Tera Barnhardt

Here's a novel treatment for dummy calves.

by Troy Smith, field editor

If you've been a hands-on cow person for any length of time, you've probably had to deal with heifers and cows that experienced dystocia. Maybe you've had to contend with dummy calves, too. One sometimes leads to the other.

Because oxygen deprivation, acidosis and hypothermia frequently accompany delayed or difficult births, dystocia ranks high among the causes of so-called dummy calves. More correctly, it's called weak-calf syndrome — a condition that may have many causes.

Nutritional deficiencies because the dam's diet was lacking in protein or energy, or certain

minerals and vitamins, can make calves weak at birth. Infectious disease, such as bovine viral diarrhea (BVD) or leptospirosis, might be to blame. These factors can individually or collectively compromise calf health and vigor.

Calves suffering from weak-calf syndrome typically are lethargic and may refuse to stand and nurse. They often fail to exhibit the

suckling reflex. Some calves will stand, but stumble about aimlessly, unable or unwilling to find the dam's udder. In cowboy lingo, they just don't have any “try.”

Affected calves seemingly lack the will to live. Many do not. Survivors typically owe their lives to the patience and persistence of caregivers. Success often depends on a producer's willingness to devote the time and expense of extra-special care, which may include intravenous (IV) therapy and long-term feeding through an esophageal tube.

Feeling the squeeze

A growing number of

somnolence and bring about full consciousness.

Discovering that newborn NMS foals had high levels of neurosteroids in their blood, Madigan suspected these foals did not receive sufficient compression during birth to flip the biochemical switch that brings them fully awake.

The Madigan Squeeze mimics the compression a foal receives during normal Stage 2 labor, inducing the wake-up call. The technique uses a soft rope to wrap three concentric loops around the foal's thorax. The first loop is placed between the front legs and



over the withers, followed by two half hitches pulled snugly around the rib cage. Moderate pressure [10 to 20 pounds (lb.)] is then applied to the free end of the rope, compressing, and basically immobilizing, the foal for a period of 20 minutes. The rope is then removed, and the foal is allowed to get up on its own.

Does it always work? The Madigan Squeeze is not effective each and every time. However, UC-Davis data show that foals receiving the squeeze treatment had faster and higher recovery rates. Surveys of veterinarians suggest that foals receiving the squeeze were 15.1 times more likely to recover within one hour than foals not squeezed. Foals receiving only the squeeze treatment were 17.5 times more likely to recover within a 24-hour period than foals receiving medical therapy only.

What about calves?

According to Johnson City, Kan., veterinarian Tera Barnhardt, bovine practitioners are increasingly adopting this novel treatment for dummy calves. She considers it a viable treatment and eagerly teaches producers how to apply the Madigan Squeeze technique.

“I like to use the technique as my first line of defense for treating weak calves, calves that had hard or premature births, and especially for calves that were delivered by cesarean section, since they never experienced the thoracic pressure that occurs when traveling through the birth canal,” says Barnhardt. “After 20 minutes of squeezing with 20 pounds of pressure, most calves will stand, bawl and begin to suckle.”

Barnhardt says the success rate will depend largely on the cause of calf weakness. If a calf is weak because of exposure to nasty weather, a squeeze won't replace warmth and nourishment. It's not a remedy for weakness related to

Fig. 1: The Madigan Squeeze

The technique uses a soft rope to wrap three concentric loops around the calf's thorax. The first loop is placed between the front legs and over the withers, followed by two half hitches pulled snugly around the rib cage. Moderate pressure (10-20 lb.) is then applied to the free end of the rope, compressing the calf for a period of 20 minutes. The rope is then removed, and the calf is allowed to get up on its own.



disease. Neither will it fix weak calves born to thin dams that have received inadequate nutrition.

However, when there is no apparent reason for a calf to be born weak, it could be NMS, and Barnhardt advises producers to try the Madigan Squeeze.

Sooner is better than later, according to Barnhardt. She recommends using the squeeze as soon after birth as possible. The

objective is to get the calf up and nursing so it can consume colostrum within the first 6 hours of age.

“If you need to tube-feed the calf to get that accomplished, that is the priority. Then you can try the squeeze,” Barnhardt advises. “I have seen squeezes be effective several days after birth, but I recommend using it earlier if you can. When you first find a weak calf, you need to know where your squeeze rope is.”

Ready your rope

Rope-savvy producers can make a suitable squeeze rope by tying a honda knot in a 15- to 16-foot length of $\frac{5}{8}$ - or $\frac{3}{4}$ -inch (in.) rope. Inexpensive polybraid or twisted rope will do. Barnhardt uses the commercially available E-Z Squeeze Foal Rope™ marketed by Animal Reproduction Systems Inc.

“I like it because it's soft, it's the correct length, it has the honda already tied in it, and it comes with an instruction page,” explains Barnhardt.

Veterinarian Laura Hancock first saw the Madigan Squeeze applied

to NMS foals while serving an internship at Virginia-Maryland College of Veterinary Medicine. She and her colleagues also tried it on dummy calves — with considerable success. As a partner in Animal Clinic Ltd. of Winner, S.D., Hancock continues to use the technique.

“I use it, and I recommend it to producers for any calf that won't stand and nurse or won't recognize its dam,” states Hancock, who is convinced that some dummy calves likely experience NMS, much like foals. She advises clients to give the squeeze technique a try. They have little to lose.

“It's noninvasive, and it takes just 20 minutes,” says Hancock, “and if it does work, it's far better than having to tube-feed a calf for days on end.”

In Hancock's experience, the squeeze usually works quickly. In most cases, there is noticeable improvement soon after pressure is released. However, some calves may still show signs of depression and detachment. Producers shouldn't give up too quickly.

Hancock has found that some calves need more than one application. In these cases, calves showed further improvement after the squeeze was applied on two or three consecutive days. While Hancock agrees that it's best to use the technique as soon as possible after birth, she has used the squeeze successfully on calves as old as 10 days.

“This is a great tool for producers to employ themselves,” reiterates Barnhardt. She does warn those who find it necessary to use the Madigan Squeeze on many calves (high incidence of dummy calves) may have other problems causing weak calves.

“You probably have a bigger issue, and need to invite your veterinarian out for a visit sooner rather than later,” advises Barnhardt. “Don't think the Madigan Squeeze will replace basic husbandry skills. It's just one tool.”



Above: This photo shows how a honda knot is tied in the end of a piece of $\frac{5}{8}$ -in. yacht-braid rope. The overhand knot in the rope's end keeps the fixed loop from pulling out.

Below: An alternative to the typical honda knot uses a bowline knot to fashion the small fixed loop in the end of a squeeze rope.



Editor's note: Troy Smith is a freelance writer and cattleman from Sargent, Neb.