

Navels

What's Normal and Abnormal?

- **What is normal at birth and for very young calves?**
- **What is abnormal at birth and for very young calves?**
- **Preventing infections**
- **Diagnosing and treating infections promptly** . 88% of the navel infections were neither diagnosed nor treated by the owners! (reference below)

Preventing problems with navels among newborn calves makes a lot of sense. Treating infections is time consuming and drugs cost money.

In a university study of navel dipping, calves with non-dipped navels had an 18% death rate compared to calves with dipped navels having 7% mortality.

Calves with untreated navel infections gained an average of 5.5 pounds less by 3 months of age than calves without infections (within-herd comparisons done by Cornell College of Vet. Med.).

So, what's "normal" and "abnormal" and what can we do to prevent problems?

What is normal at birth and for very young calves?

The calf's umbilical cord is a lifeline prior to birth. It goes through the navel. Blood goes both to and from the fetus to the placenta. Urine travels from the bladder to the placenta for elimination.

Normally at birth, when the umbilical cord ruptures, the internal parts of the umbilical cord retract into the abdomen. Those parts are the 2 umbilical arteries, the umbilical vein and the tube leading from the bladder (urachus). Inside the abdomen they are better protected from the environment. In only a few days these arteries, vein and urachus will all shrink.

In a normal calf the blood vessels are just a thread by a couple of weeks. The urachus shrinks to a very small ligament.

The hole through which these pass in the stomach wall is the navel. It will gradually close during the first 2 months of life. The ruptured umbilical cord, what we normally see outside the calf's body, extends at birth through the navel. It should be essentially an empty tube.

Two to 6 inches of umbilical cord are often left hanging from the calf's belly. It will shrivel and dry up during the 7 to 10 days of life as long as it is neither infected nor repeatedly sucked on by another calf. At that point the navel opening is no longer needed and it continues to close.

What is abnormal at birth and for very young calves?

It's possible to have either partial or complete failure of retraction. That is, 1 or 2 arteries, vein or tube fails to pull up fully into the abdomen at birth. That does not mean that they won't begin to shrink in size normally inside the body cavity. It does mean that their exposure to physical damage and infection is much higher than normal. Infections frequently create fluids that may delay this shrinking process.

It's also possible to have either an excessively long or short external umbilical cord. Extra-long ones are pretty easy to cut off. Less desirable are cases where the cord breaks off even with the calf's belly at the navel. With no external cord at all, the calf has a higher than normal exposure to bacteria.

In a few cases the tube from the bladder (urachus) may not close off entirely. Thus, urine will drip for several days from the umbilical cord keeping it damp and open to infection.

The opening in the abdominal wall, navel, may not close completely. We call this opening a navel hernia. The tendency for closure failure may be partially traced to the calf's parents. In addition, infections of the navel area are often associated with failure to properly close the opening.

Preventing infections

Clean calving areas help lower exposure to germs (bacteria) through the navel and umbilical cord. And, of course, clean and dry bedding for the calf's individual or group pen promotes good calf health.

Prompt treatment of the navel area and umbilical cord with 7 percent tincture of iodine solution (often called navel dip) is an important step in prevention of infections. When used properly, the solution is applied liberally to both the umbilical cord (part that hangs down) and the navel area (opening in stomach wall where the cord comes out of the body).

Navel dip solution is an alcohol solution and smells that way. It contains a lot of iodine and stains everything brown. In an emergency, rubbing alcohol may be used until regular navel dip can be purchased.

Never substitute teat dip for navel dip. Teat dip contains a very low concentration of iodine. And, rather than drying up the umbilical cord, teat dip contains substances that prevent the desired drying.

This dipping process prevents infections 3 ways.

- First, it washes away dirt and infection-causing germs.
- Second, the strong iodine alcohol solution kills germs on contact.

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- Third, the alcohol base of the dip helps dry up the umbilical cord preventing germs from going up the cord into the calf's body.

Diagnosing and treating infections promptly

During a study involving 18 farms, college staff examined 410 heifer calves weekly. They felt of each navel area once a week for 8 weeks in a row. They were looking for painful navels and/or thickening of the abdominal wall. Thus, they found that 57 calves had navel infections (14 percent).

In the study it was the owners' responsibility to diagnose and treat sick calves. Of these 57 calves with navel infections, owners diagnosed and treated only 7. That's correct. **Eighty-eight percent of the navel infections were neither diagnosed nor treated by the owners!**

Our challenge, therefore, is to identify these calf navel infections early – better to do this before abscesses form. Diagnose infections consistently and early. One way to spot an infected navel is to watch for the umbilical cord to dry up and fall off. Any cord that is slow to shrivel up and fall off is suspect.

Further, if an infection begins very frequently there will be some fluid discharge. I always kept an eye on the bellies of calves in that less-than-two-weeks-old group – I was watching for signs of bedding sticking to the navel area. That was almost always a tip off that there was fluid discharge from an infection.

Always work with the herd veterinarian to use the correct protocol for treatment of navel infections on your farm. The vet will provide recommendations for the drug to use as well as the route of administration, injection site, dose, and duration of treatment. Remember to record these treatments as you do all antibiotic use on the dairy.

Reference: A.M. Virtala, G. D. Mechor, Y.T. Grohn and H.N. Erb, "The effect of calthood diseases on growth of female dairy calves during the first 3 months of life in New York State." *Journal of Dairy Science* 79:1040-1049.