

Practical palpation tips and tricks for cow-calf

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Objective

Palpating cows takes time and practice; however, consistent use of these tips and tricks will leave you guessing less and feeling more confident behind the cow. This session is designed to bring back a practical and systematic approach to palpating cows no matter their stage of gestation.

Introduction

I imagine my story is much like many of you, I grew up on a farm with cattle all my life and developed a love for them at a young age. I also became familiar with their “good” and “bad” sides. I was not however familiar with “vetting” our cows. My family never called the vet for ANYTHING. LOL It was not until my first job shadowing experience with a local large animal veterinarian where I first experienced palpation/pregnancy checking, vaccinations, deworming or any type of cattle processing. Their behavior, attitude, flight zone, temperament, compassion for each other as a herd and hardiness have always interested and entertained me. So, at 15 years old I began palpating cattle. Learning from hands on experience has been my secret weapon and I hope that I can share with you the little tips and tricks that have helped me become proficient, efficient and of course accurate in determining pregnancy diagnosis in the cow.

Safety

Numero Uno

I cannot stress enough the importance of safety while working cattle. I tell producers often “they may never ____ (insert companion animal behavior of obedience, LOL) but I guarantee they will when I stick my arm in there.” I often get a humorous yet affirming “you’re probably right, Doc” type of response which I quickly follow with a kind but direct assessment of the working facilities necessary to perform rectal palpation on their cattle. Look, you only have 2 arms and you need to protect yourself so make these non-negotiable facility requirements. Never take for granted IF an injury COULD happen, but rather WHEN the injury is going to happen. You are your only and best advocate, so do not hesitate to request more facilities or equipment to get a job done safely.

Minimum requirements

As a practice owner, I require my staff to discuss with producers the types of facility slotted for use or needed in reference to the type of procedure or service being requested before an appointment or emergency is even created. If there is a mismatch in expectation, then it is addressed up front before you as the veterinarian even arrive. A head catch or form of head restraint such as a halter is always necessary, and some type of chute or side movement minimizing equipment (i.e. panels or a lane) is a must to keep the cow from moving too much during ANY procedure, let alone palpation. I am personally not a fan of putting

boards, pipes or bars behind the back legs of cattle. Anatomical construction how God made the cow makes it very hard for them to actually kick directly behind them (calves have different agility until they reach a larger, more mature size); however, they can sit down if they want to while they are being palpated, and if a solid structure is there and you can’t remove it from the rectum fast enough, then SNAP, game over. Maybe you want to take that chance, but I’m only getting older and my reflexes are losing their vitality.

God’s creation

Understanding and remind producers that cattle are a prey animal, meaning that they naturally do not like to be touched, poked or prodded in any way, is helpful. They are always in defense and sympathetic mode, looking for the next thing to “kill” them. I often explain to producers that for many, if not all cows, the palpation experience is often very scary for them. They are in a defensive mode, so safely get them in and out in a timely manner and understand the cows are going to pick a side 1) flight or 2) fight. So, for this reason always have something between you and the cattle such as panels, lanes, a hand-held stick or paddle for noise and gentle pressure. Give cattle a clear line of sight to where you want them to go, and remember from school Temple Grandin’s diagrams for forward and backward movement. God made them a very simple creature and often we take for granted this knowledge we hold, but it is our job to explain them to producers for our safety and theirs, but also for the sake of the cow.

Hands-in

Say “Hey”

How would you feel if a complete stranger came up to you and just grabbed your hand without saying anything at all? Their intentions may or may not have been good, but you were not given the opportunity to concede to this interaction. Welcome to the world of cow palpation. Be respectful and say hey. A simple and quick scratch on the tail head, pat on the rump or verbal “hey” goes along way. I find I startle cattle much less and their reaction or lack thereof is a tell-tell sign of how the rest of the palpation experience is going to go.

KISS it

Know what you know and keep the basics simple in your “mind’s eye”. Often, we get lost trying to figure out what we are feeling with our hands that we become overwhelmed. If and when this happens to you, simply go back to a structure that you know without a shadow of a doubt like the pelvis. Don’t want to start with the pelvic rim? Then feel the sides and walk your hand down to the pelvic floor then move forward, deeper into the cow until you reach the rim. Forget about trying to find the reproductive structures you’ve probably danced around. Just go where you know what you’re feeling and reset your mind’s eye. KISS it – Keep It Simple Sweetheart.

The cervix does feel like a chicken neck – I don't care what anyone tells you. It's that simple but here is the reality though, it's not always located on the pelvic floor. Sometimes it is, but sometimes it and the entire reproductive tract is within the pelvic cavity. The number one mistake new graduates do is blow right past the entire reproductive tract. Make a sweep along the pelvic rim and if it's there, great. If not, come back and take a feel around – you might just find that “open”, 30-90 days uterus right there waiting on you to grab it. If it's not there then recognize that you could have a cervix beyond the pelvic rim and further out of your reach.

The road map of the cow's reproductive tract looks something like this: enter the vaginal vault, through the cervix, open up to the uterus then split the bifurcation and decide if you're going to enter the right or left off ramp of the uterine horns. Keep going and you'll end squeezing through the oviducts and landing on the ovary which is right beside the cervix, practically where you started. Rams horns are the best way I can help you visualize this path, but understanding how “normal” is supposed to look in your mind's eye is very helpful when you're navigating abnormal.

Body condition score and age of the cow make a difference. You will get better and better at subjectively aging cows based on how their reproductive tracts feel, but a tell-tell sign that you have an “older” girl is how deep her cervix is within her abdominal cavity. Older cows are going to have laxity in the supportive ligaments that suspend the pregnancy, making the entire reproductive tract regardless of stage of gestation deeper and harder to find. In addition to age, extra visceral fat surrounding the uterus and uterine horns adds up in overall tract weight, again making the entire reproductive tract harder to reach. So if you can't find the cervix, try going a bit deeper beyond the pelvic rim and feeling around it could be there in heavy gestational length, fat or older cows just waiting for you to grab it.

Positive signs of pregnancy

There are 4 major positive signs of pregnancy in the cow to be aware of. The presence of a fetus, palpation of uterine/placental placentomes, the palpation of fremitus coming from the uterine artery, and palpation of the fetal membrane slip. You ideally want to identify 2 of these signs to confirm you have a positive pregnancy in a cow. Which two is up to you, but aim for 2 positive signs of pregnancy on every cow you palpate, and you're statistically and substantially less likely to make a mistake calling a cow not pregnant when she actually is. Now, let's discuss them each a little further. Note that I did not say fluid is a positive sign of pregnancy! We'll circle back to this in a bit.

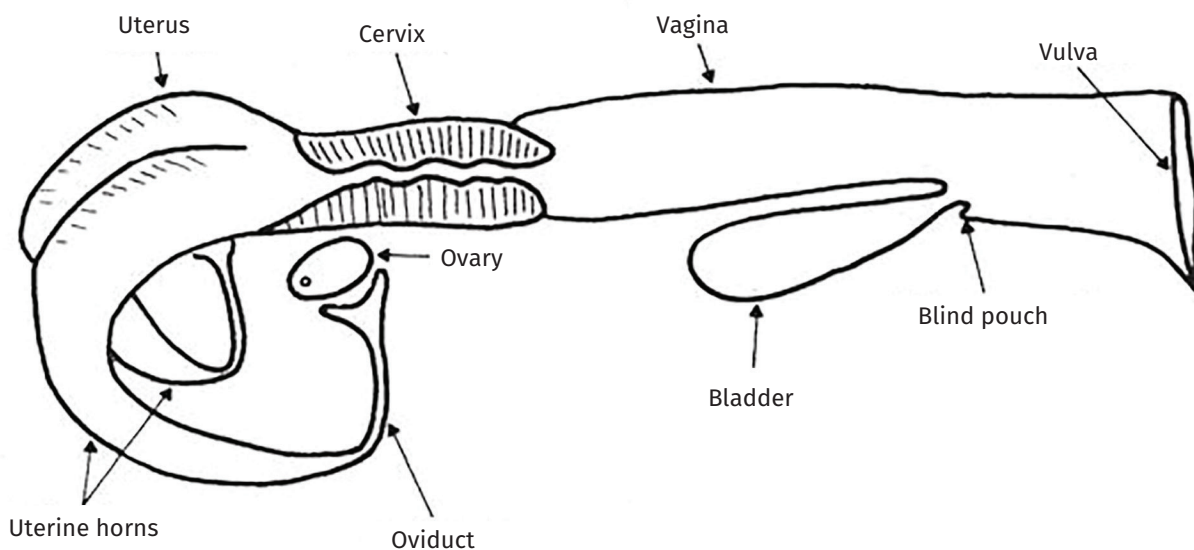
Fetus

Just because you don't feel or find a fetus doesn't mean that it is not there. Remember a “heavy” reproductive tract can be too far out of your reach rendering a fetus even further out of your reach. Don't underestimate the length into the cow that your arm sometimes has to go. The fetus is suspended in a beautiful protective fluid-filled uterus, so if you are able to “bounce” a baby with your hand, just like a basketball it will spring right back up at you. Be patient and give your hand time to catch up with what it's trying to tell your brain it's feeling. Whatever structure you are grabbing of the fetus, take a few moments to evaluate it and study the body part with your hand. A few seconds of observational hand intelligence gathering adds up over time, making your hand and your fingers your new secret weapon of observation.

Palpation of placentomes

As early as 30-45 days, some advanced palpators can feel these green-pea-sized structures. For me, that's quite difficult, and even with a decade-and-a-half of experience under my belt, I don't expect to be able to feel a green-pea-sized structure in the

Figure 1: Diagram of the reproductive tract of the cow. (Adapted from Rich and Turman, n.d.)



abdomen of a 1,200-2,000 lb cow. However, at 90 days of gestation, these structures are numerous and easily palpable. You remember from school that the placentome is the combination structure formed when the cotyledon (fetal side of the placenta) unites with the caruncle (maternal side of the placenta). These structures are round to ovoid in shape. They are palpated easiest just beyond the cervix and increase in size the closer they are to the fetus in uterine location as well as in length of gestation. This natural increase in size throughout gestation allows you to determine stage or length of pregnancy when you're palpating a cow for pregnancy. The actual structure that you are feeling with your fingers is the caruncle. As a pregnancy increases in length, the shape of the placentomes becomes more "dished" shaped and you can feel this contour changes with your fingers. This is nice to remember when you are differentiating from how the ovary feels compared to a caruncle. For quick reference here are a few caruncle size comparisons you can think of:

90 days = dime

120 days = quarter

150 days = half dollar

180 days = 2 inches

Start at the cervix and feel deeper to the uterine body and take your time to find a circular, ovoid, slightly dished structure, then hold it between your middle and index finger to measure with your thumb. **BIG TIP:** measure your hand and finger sizes as a point of reference of measurement in millimeters (Figure 2).

Take the average size of 2 to 3 caruncles to gain a better representation of gestational length and to ensure that 1 of the 3 structures you are grabbing is NOT an ovary.

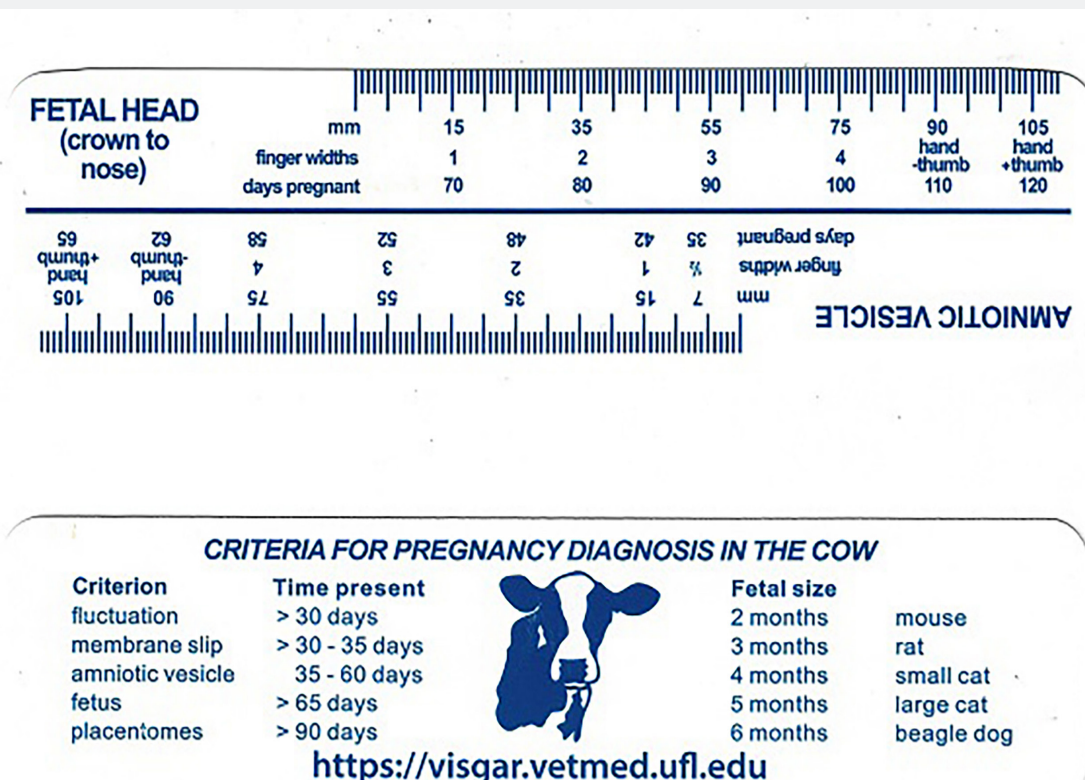
Fetal membrane slip

The elusive fetal membrane slip – oh the struggle that students and young veterinarians have in finding and feeling this structure. Let's break it down in more detail. Early in gestation following implantation, the embryo and placenta begin to develop into the first palpable structure within the uterus known as the chorio-allantoic membranes. The layers of uterine wall (endometrium) and these membranes are loosely connected due to the cotyledenary placentation of the cow. Therefore, with gentle but intentional "pinch" pressure of the uterus at 30-60 days, you are able to feel the snap of these membranes between your index and thumb fingers. This is a very intentional snap and once you feel it, you will know exactly what you felt. Practice when and where you can and rest assured you are not likely to terminate a pregnancy by pinching too hard. This slip can be felt throughout the majority of the reproductive tract and it's a tell-tell 100% non-negotiable positive sign of pregnancy.

Uterine artery and its roar

What the fremitus? LOL! In Latin, fremitus is also known as murmur or "roar". This buzzing feeling is easily felt with gentle pressure of the uterine artery between your index finger and thumb. First off, this is just a fun word to say out loud, but it's actually a pretty cool sensation to feel once you find it. So how do you find it? Along either side of the cervix lies the uterine artery. This large vessel transitions into a larger diameter

Figure 2: Determination of the stage of pregnancy in the bovine on a plastic ruler.



structure at roughly 90 days gestation, and increases in size further throughout the remainder of gestation. Here are some size comparisons for you:

90 days – 3mm diameter = smaller than a #2 pencil

120 days – 6mm diameter = #2 pencil

150 days – 9mm diameter = regular sharpie

180 days – 12mm diameter = fat sharpie

This is my go-to structure to feel in super fat cows where the entire reproductive tract is out of my reach or the reproductive tract is not able to be retracted. If fremitus is there, then there is a fetus that increased blood flow is supplying. Winner, winner chicken dinner!

Supportive signs of pregnancy

Fluid

There are things you can feel while you're palpating that may be misleading or give you a false impression as to whether a pregnancy is there or not. Fluid is one of them. Just because fluid is within the uterus does not mean that there is a fetus also in there. This is why you need to lean into 2 different positive signs of pregnancy to fully determine if a cow is pregnant or not. A live fetus palpation is the only exception to this rule; however, often you are also going to search for a gestational length measure such as caruncles or uterine artery diameter (with fremitus felt).

Ovarian structures

Ovarian structures, specifically a corpus luteum (CL), can sometimes be found on the contralateral side of the pregnancy, but this is not reliable. Yes, the CL is a driving force of progesterone in early gestation, however, placental progesterone kicks in and takes over which can leave ovary structures lacking in their robust texture. Follicular waves are suppressed throughout gestation; however, micro waves of follicular development does occur resulting in the occasional palpation of follicular structures on ovaries. Moral of the story is to not rely on the ovaries in a pregnant cow to tell you the ENTIRE and COMPLETE story of what is actually occurring in her uterus.

Endurance/longevity

Here are a few life lessons or tricks I can share with you to make your palpation experience more endurable and save your arm and hand from fatigue.

Uterine bifurcation

Where the right uterine horn splits off from the left uterine horn there is a thick palpable tissue that has a ligamentous feel to it. This is the uterine bifurcation and you can use it to your advantage. Once located, hook this structure with your index finger and pull. This will allow you to pull back or retract the entire uterus close to you within the pelvic cavity where palpation of subsequent structures can occur much easier.

Grip strength

It goes without saying that it takes time to build grip strength and forearm muscular strength, but keeping a hand gripper tool in your truck will get you there a lot faster. Between appointments you can practice improving this.

Farmer carry

The farmer's carry is a simple and inexpensive total body exercise that will improve grip strength, forearm strength as well as core strength. Simply fill 5-gallon buckets with water (start with a few inches in each bucket at a time and increase from there) and carry both buckets, holding them away from your body, walking 10-15 passes over 2-4 rounds. The stronger you get the longer you will be able to hold an increasing amount of weight. How is this relevant to palpation? The stronger your grip strength the more likely you are able to hold onto and even grab anatomical structures through the ever-moving rectal tissue, straining motion of the cow and body motion of the cow. The quicker you are able to get in, find and feel what you need to find, the less trauma to the cow both mentally and physically. Use this exercise to improve your overall health regardless if you use it to improve your palpation skills.

Breath work – for stress management and endurance

Breathe friend, just breath. As we work, stress or become pressured, we have a tendency to hold our breath or take short, shallow breaths. This lack of CO₂ expulsion from your body and lack of O₂ replacement into your body will affect your mental capacity from a blood-gas stand point. It is underrated the mental and physical endurance needed to palpate cows. Let's face it, we are often in the blistering sun of the summer or freezing cold of the winter with no cover, layered up or wishing we could pull off layers, feeling the pressure of pleasing the cattle producer with accurate results, answering their "hey while I gotcha here, Doc..." questions all while you're quickly losing the feeling in your pinky finger and forearm is burning from muscle fatigue. In moments like this we hold our breath not intentionally but it does not help anything when we do. If you find yourself in this situation, please do me a favor and TAKE A BREATH. It is ok to do this. Last I checked, you are not superman or superwoman so give yourself and the cow a second and take a breath. In through the nose and out through the mouth. Well don't keep your mouth open to long, something might fly in there you were not prepared for!

Last, keep all your supplies (sleeves, lube, etc.) within a few steps from the palpation door. The fewer steps you have to take the overall less energy you are exerting between cows which adds up over time. Save your energy for the cows.

Bonus tips

Double sleeve

Wear a base sleeve with fingers removed, covered with an examination glove that will serve as your base layer of protection over your arm. I use a new sleeve between cows for biosecurity and herd health purposes, so this base layer serves as a smooth, non-sweaty surface to slip on my new sleeve. There is nothing worse than trying to get on a new sleeve when your arm is sweaty.

To hold the tail or not

I personally like to hold the cow's tail when I palpate because it help provide pull when I am pushing my hand through the rectum. I also do not like when the tail slaps me in the face. Nothing makes me more upset when the tail man lets loose of the tail too early or not early enough and I get slapped in the face.

Final reminder

If you love what you do then do it every day. Providing cattle reproductive services is a niche service for many veterinary practices and it takes time to develop proficiency at it. Be graceful with yourself and DO NOT BE AFRAID to ask your boss, practice owner or mentor for help. Talking through what you are feeling while you are working is a great way to develop that mind-body connection.

Remember to have a hospitality mindset. You are providing a service that producers often cannot and will never be able to on their own. You are an essential tool for their cattle business and you are full of all the knowledge and capability to do this job well. Know what you know and try not to get discouraged when you cannot figure something out.

Use ultrasound help if you have it for 30-45-day gestation palpation development until you become familiar with what you're feeling. In the beginning, I did not charge for the use of the ultrasound so I could advance my skills with early hand pregnancy detection.

The freemartin will get you, so again, remember to KISS it.

