

Rectal Palpation: Safety Issues

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Rectal examination, or palpation, of the reproductive tract is the standard method of bovine pregnancy diagnosis and has been for the last 50 years. It has been routinely employed in veterinary practice for more than 90 years¹ and there are numerous references to transrectal pregnancy diagnosis in the veterinary literature dating back to the early 1800's. The veterinary profession's early reluctance to adopt the technique was attributed to its potential to produce abortion, but was more likely due to aesthetic objections that were especially meaningful in the era before rubber sleeves and gloves. With adequate training, sensory desensitization, and the use of disposable plastic sleeves, most veterinarians today view rectal palpation as a routine procedure. (Author's note: Although we do not technically palpate the rectum, but rather the reproductive tract through the rectal wall, I nevertheless prefer "rectal palpation" to the possibly more correct but certainly more cumbersome "manual palpation per rectum.")

Change in uterine size and location, the detection of fluid in the uterine lumen, middle uterine artery hypertrophy and fremitus, and the presence of a mature corpus luteum on the ovary are signs consistent with pregnancy and detectable by rectal examination of the cow sometime after 30 to 35 days of gestation. Certain pathological conditions, most notably pyometra, can produce these signs as well. For a positive diagnosis of pregnancy in the cow, one of the four positive signs of pregnancy should be detected.² These are: 1) palpation of the chorioallantois using the fetal membrane "slip" method (FMS); 2) detection of the amniotic vesicle (AV); 3) palpation of placentomas; and 4) palpation of the fetus itself.

Rectal palpation is considered by most to be a safe, accurate method for pregnancy diagnosis in cows from about day 30 to 35 of pregnancy until term. Diagnosis is possible a few days earlier in heifers. A diagnosis of nonpregnant should never be made until the uterus has been retracted and carefully palpated along its entire length.

Differential diagnoses that should be considered for pregnancy in the cow include pyometra, fetal mummification, fetal death and/or maceration, segmental aplasia with accumulation of fluid, adhesions of the reproductive

tract to other abdominal organs, uterine lymphoma, abscesses of the reproductive tract, and ovarian tumors. Mistakes involving these conditions should not be made if the examiner relies on the positive signs of pregnancy mentioned above.

Concerns about rectal palpation have always existed but have not been judged significant enough to override the advantages of this technique for pregnancy diagnosis in the cow. The concerns have taken two principal forms, those of accuracy and those of safety. I feel that after 35 days of gestation, the accuracy of the technique of rectal examination for pregnancy diagnosis is virtually absolute, however, it is important to remember that this does not necessarily apply to every practitioner of the technique. Errors can occur as the result of inadequate training or skill, or a hurried examination. Cows that are obese or those that have experienced significant rectal trauma from previous examinations may require alternative methods for pregnancy diagnosis. It is important to remember that failure to produce a calf after a positive pregnancy diagnosis does not necessarily mean the diagnosis was in error. The possibility of undetected fetal loss following but unrelated to the examination must always be considered when cows diagnosed pregnant are subsequently found to be nonpregnant.

Concerns about safety of the technique for the fetus itself, though possibly overstated, are not so readily dismissed. It is worth noting that a number of veterinary teaching programs, where relatively inexperienced students palpate client animals, have reported no obvious problems with fetal loss.^{3,4,5} However, there are at least two reports of increased fetal loss after rectal examination for diagnosis of pregnancy. Abbit et al.⁶ reported that palpation of either the AV or the FMS resulted in increased fetal loss when compared to diagnosis of pregnancy by the presence of fluid alone. Palpation of the FMS was deemed more dangerous than palpation of the AV. While the authors' recommendation that palpation of fluctuation be used as a sole diagnostic method precludes obtaining one of the four positive signs of pregnancy, they concluded that the presence of fluid by itself was sufficient for diagnosis of pregnancy.

More recently, Franco et al.⁷ reported that palpation of fluctuation, FMS, and the AV together caused fetal death in about 10% of cows palpated between 42 and 46 days of gestation. Progesterone monitoring of a contem-

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porary group of bred cows that were not palpated until 90 days of gestation served as controls. This is an unacceptably high rate of induced loss and the authors recommended either waiting until 46 days after breeding to palpate cows for pregnancy diagnosis or, based on the report of Abbit et al.,⁶ to use the finding of fluid or fluctuation of the uterine horn as a sole criterion for pregnancy diagnosis. Certainly it is undesirable to wait more than two cycles after breeding before diagnosis of pregnancy is made, so palpation of fluid may be the more realistic recommendation. It is perhaps significant that the definitive determination of pregnancy status in this experiment was by rectal palpation, albeit at 90 days.

Although Abbit et al.⁶ reported AV palpation to be safer than FMS, it has long been the convention to recommend against AV palpation, especially for relatively inexperienced palpators. Manual crushing of the AV is a well established cause of fetal loss. A further cause for concern regarding AV palpation was raised by Bellows et al.⁸ when they suggested that diagnosis of pregnancy by palpation of the AV between 35 and 44 days of gestation was a possible cause of colonic atresia or stenosis in calves. This suspicion seems to have been confirmed by a clinical investigation in Germany⁹ where a single practitioner was apparently responsible for an epidemic of atresia ani in calves. The problem began after changing the timing of pregnancy diagnosis by the AV method from 45 days after breeding to 35 days. My recommendation at this time is to avoid palpation of the AV altogether before 45 days of gestation and to use it only when required for evaluation of possible problem or twin pregnancies.

While I feel that palpation by a skilled clinician using the FMS method after 35 days of gestation is presently the most practical method of bovine pregnancy diagnosis, I am open to suggestions that it may not be entirely safe. Final resolution of the palpation safety question awaits a pregnancy diagnostic technique that is demonstrably superior in terms of accuracy and safety. I do not believe that any of the methods that have been used to date meet these criteria. Of the new techniques, realtime ultrasound is the one most likely to provide the answer to the question of palpation safety.

Finally, a concern has arisen about rectal palpation that is not specifically related to the issue of pregnancy diagnosis. Most clinicians are aware that hemorrhage of the rectal mucosa can occur during palpation. It is likely that most cows experience some degree of hemorrhage during rectal examination, although it is usually not grossly detectable. Bacteremia can also occur after rectal palpation, but is probably not a clinically significant

problem.¹⁰ These observations generate concern that the use of a common examination sleeve for rectal palpation of more than one cow may result in transmission of disease from one animal to another.

Intra-rectal inoculation of whole blood¹¹ and simulated rectal palpation using a sleeve inoculated with whole blood¹² have resulted in transmission of bovine leukemia virus (BLV) from viremic to seronegative cattle. However, an epidemiologic study of over 2,000 cows failed to find an association between the prevalence of infected and noninfected cows palpated at one time with a common sleeve, and subsequent seroconversion of cows to BLV.¹³ This issue, and the possibility that other diseases (eg., anaplasmosis or paratuberculosis) may be transmitted in a similar fashion are certainly a concern for veterinarians who offer reproductive herd health programs. It may be wise to institute a practice of using individual sleeves for rectal examination, especially in herds that are involved in BLV or Johne's eradication programs.

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