

2024 Batch-Lecture No. 10

Examination for pregnancy-----Continued

SLIPPING OF FOETAL MEMBRANE:

1. Slipping of the foetal membranes is another aid to early pregnancy diagnosis in the cow that is best performed from 35 to 90 days of gestation, although the membranes may be slipped at nearly any stage of gestation.
2. The technique consists of greatly picking up and pinching or compressing either horn of the uterus and feeling the foetal membranes, the allantoic chorion, slip between the thumb and the fingers before the uterine wall escapes from between the finger.
3. In early pregnancy the foetal membranes are very thin and may be difficult to palpate.
4. Zemjanis recommended grasping the entire horn and letting it slip through the fingers so that the connective tissue band and allantoic vessels on the lesser curvature of the uterus which are three to four times thicker than the chorio-allantoic membrane could be palpated.
5. Excessive or rough pinching of the uterus particularly over the amniotic vesicle is to be avoided to prevent damage to the embryo or foetus.
6. This technique of slipping the membranes is especially valuable in the differential diagnosis of pregnancy from uterine diseases characterized by fluids causing uterine distension, such as pyometra or mucometra.

LOCATION OF THE PREGNANT UTERUS:

1. The uterus in heifers usually is located in the pelvic cavity until the third to fourth month of pregnancy.
2. In older cows, since the uterus in the non-pregnant state lies on or over the brim of pelvis, the pregnant uterus is found in the abdominal cavity as early as at the time of conception to the second to third month of pregnancy.
3. In all ages of cattle the uterus lies on the floor of the abdominal cavity after the fourth month of pregnancy.
4. In uteri that hang forward in the abdominal cavity the allantoic fluid tends to gravitate to the apices or pendant portions of the uterus frequently out of reach of the operator unless he retracts the uterus into or towards the pelvic cavity.
5. In heifers or young cows 2 to 3 months pregnant, the uterus often lies in the pelvic cavity and the horn containing the foetus exhibits a typical dorsal bulging or terracing because of its location.
6. By the fifth or sixth month of pregnancy the uterus is drawn well-forward and downward in the abdominal cavity so that in some cases only the cervix and uterine vessels can be palpated per rectum.
7. By the sixth to seventh month the foetus becomes large enough so that it can again be palpated on rectal examination in nearly all cows and by the eighth or ninth month the foetus may, in a few cows, actually extend caudally so that the nose and feet are resting in the pelvic cavity.
8. As the uterus drops forward into the abdominal cavity during pregnancy the mesometrium stretches and thickens and the ovaries are also drawn ventrally and cranially.

9. The ovaries can usually be palpated through the fourth month of gestation and occasionally during the fifth month.
10. During the latter month the ovary on the side of the uterine horn containing the foetus is usually drawn out of reach of the hand in the rectum.

FOETAL SIZE AND CHARACTERISTICS AT VARIOUS STAGES OF PREGNANCY:

1. The foetus may be palpated per rectum in over 95 % of cows at 3 to 4 months of gestation, about 40 to 70 percent of cows at 5 to 6 months of gestation, about 80 percent of cows at 7 months and about 95 % or more of cows at 8 to 9 months of gestation.
2. Palpation of the foetus before 60 to 70 days of gestation is not possible because of tense, distended amniotic vesicle and the small size of the foetus.
3. The larger and deeper the abdomen of the cow and the longer the mesometrium the greater the difficulty in palpating the foetus per rectum during mid gestation.
4. Thus in heifers the foetus can often be palpated per rectum the entire gestation period.
5. If the foetus cannot be felt, pregnancy diagnosis is based on the palpation of the uterus, the size of the uterine arteries, the palpation of the placentomes and the slipping of the foetal membranes.
6. After the sixth month of pregnancy one can elicit or cause foetal movements by pinching the claws, grasping and pulling a foetal leg, pinching the eyeballs, or grasping the nose of the foetus either through the rectal or vaginal wall.
7. The latter is possible only during the last month or so of pregnancy.
8. If the bovine foetus can be secured and measured an approximation of its age, especially up to 6 months of age, since thereafter there is too much variation in breeds, may be obtained by doubling the crown-rump length in inches and taking the square root of the result which is equal to the months of gestation.
9. The foetal electrocardiogram is an accurate means of diagnosing pregnancy, even twins, the last trimester of gestation in the cow.
10. The foetal heart rate at 6 months of gestation is 150, at 7 months is 140, and at 9 months is 120 beats per minute.

PALPATION OF PLACENTOMES:

1. Although the placentomes are forming by 60 to 70 days of pregnancy, they seldom can be palpated as definite structures until 75 to 80 days.
2. At this time they can be palpated in the uterine wall at the level of the intercornual ligaments of the horn containing the foetus as ovoid thickened areas.
3. They increase in size as the foetus develops.
4. In general the placentomes in the middle of the horn containing the foetus and nearest the attachments of the middle uterine artery are larger than those placentomes in the cervical or apical end of the horn or in the opposite horn.
5. Thus the largest placentomes from the fifth month of pregnancy to term are usually out of reach of the rectal hand.

THE DEVELOPMENT OF THE MIDDLE UTERINE ARTERY:

1. The development of middle uterine artery is closely associated with the development of the foetus and the duration of pregnancy.
2. As gestation advances, the blood supply to the uterus increases.
3. The artery supplying the largest amount of blood to the uterus is the middle uterine artery.
4. Palpation of changes that occur in the size of this artery and the character of its pulse are of diagnostic value.
5. The middle uterine artery arises from the internal iliac artery close to its origin at the aorta.
6. In the non pregnant cow it curves caudally in the broad ligament over the dorsal part of the shaft of the ilium into the pelvic cavity and the downward and forward over the pelvic brim to enter the concave part of the uterine horn near its centre.
7. As pregnancy progresses the artery is pulled more cranially as the uterus drops forward in the abdominal cavity until in the later half of pregnancy it may be located 5 to 10 cm cranial to the shaft of the ilium.
8. One should not confuse the internal iliac artery which is securely fastened by fascia to the shaft of the ilium with the middle uterine artery in the broad ligament which is movable for a distance of 10 to 15 cm.
9. In heifers a change in the size of this artery to the horn containing the foetus may be noted as early as 60 to 75 days of pregnancy when it may be 0.15 to 0.3 cm in diameter.
10. In older cows the change in size of the middle uterine artery to the horn containing the foetus can be noted at 90 days, when the artery is about 0.3 to 0.45 cm in diameter.
11. The middle uterine artery to the horn not containing the foetus also enlarges but the changes are not so great as those in the artery to the other horn and they occur later.
12. With this change in size of the artery the arterial wall becomes thinner, so that instead of feeling a pulsation in the artery a characteristic "whirr", "thrill" or fremitus is felt.
13. This is first recognized at about 80 to 120 days of pregnancy, but the time may be variable.
14. By the fourth to fifth month of pregnancy it is always palpable.
15. If the uterine artery is pressed too tightly this fremitus may stop, so that only a pulsation is felt.
16. In advanced pregnancy this artery, when palpated lightly, feels much like a stream of water surging intermittently through a thin rubber hose.
17. Aneurysms producing localized fremitus of the uterine artery in the cow are rare.
18. This change in the size and character of the pulse in the middle uterine artery especially to the horn containing the foetus is helpful in diagnosing pregnancy about fifth and sixth months when the uterus is forward in the abdominal cavity and the foetus cannot be palpated.
19. It is of value and aid in determining the stage of pregnancy.
20. If both uterine arteries are equally enlarged, twin bicornual pregnancy should be suspected.
21. The characteristic fremitus of the pulse is often of value in determining whether or not a normal pregnancy with a viable foetus is present.
22. In advanced pregnancy an increase in the size of other uterine arteries such as posterior uterine occurs.