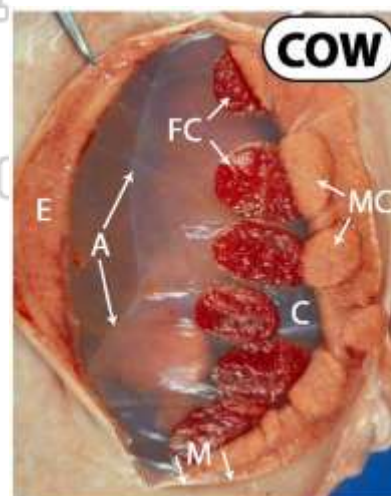


## Placenta

- The placenta is the fusion of the fetal membranes with the maternal endometrium and this process called placentation.
- The growing embryo get its nutrition from the mother through the placenta via the umbilical cord (umbilical cord consist from one vein two artery and urechus ,the urechus transport the urine from the kidney to the allantois cavity and the artery carried the non-oxygenate blood from the fetus to mother while the vein carried the oxygenate one)
- Although the placenta serves as an interface for fetal and maternal blood and the exchange of nutrients, gasses and water.
- the blood of the fetus and mother never mix.

## Implantation

- ❖ Implantation of embryo occurs when it becomes fixed in position and form a physical and functional contact with the uterus, it occur 2-5 weeks after fertilization.
- ❖ During this period, the uterus is primarily under the control of progesterone. Progesterone decreases the muscle tone of the uterus and increases the secretory capacity of the inner lining of the uterus (endometrium).



## Maintenance of Gestation

The maintenance of pregnancy in mammals is dependent on prevention of uterine contraction by the influence of progesterone. Some species are dependent on the corpus luteum only to release progesterone during pregnancy while in the other depend on CL and placenta.

### A. Species with Progesterone from the CL:

**Cattle:** The CL and ovarian progesterone are essential for pregnancy maintenance through 215 days of the 280 day bovine gestation. After day 150 the placenta compares to produce progesterone to maintain pregnancy.

**Goat:** the pregnancy in goat depends only on progesterone which is secreted from CL throughout pregnancy period.

### Horses:

- The original corpus luteum is maintained through day 140.
- About day 35, cells of fetal trophoblast stimulate the endometrial cups of the uterus and by day 40 produce equine chorionic gonadotropin (eCG).
- The gonadotropic hormone stimulates follicular growth on the ovaries, occasional ovulation and considerable luteinization occurs by day 50 to form numerous accessory corpora lutea.
- The eCG levels remain high and accessory corpora lutea greatly elevate plasma progesterone through day 140.
- The accessory and original CL regress and pregnancy is maintained by low levels of progesterone or some as yet unexplained mechanism.

### B. Species with Pregnancy Maintained by the Placenta

#### Sheep:

- The CL and anterior pituitary LH needed to cause CL secretion of progesterone are essential for the first 55 days of ovine pregnancy.
- Thereafter the placenta produces sufficient progesterone for maintenance of pregnancy until the end of the 146 day gestation.

