

Embryology

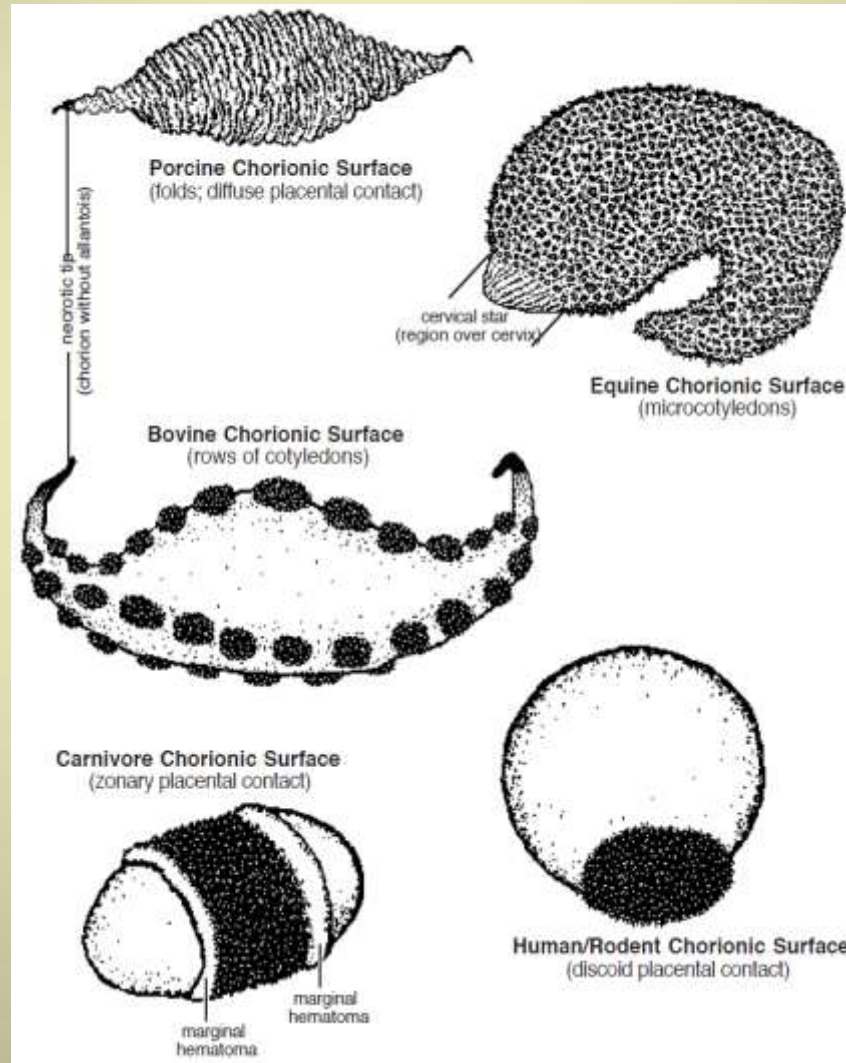
By: Dr. Ammar Ismail



Placentation:

The placenta is the area(s) of apposition between uterine lining and fetal membranes where metabolites are exchanged for sustaining pregnancy. Apposition areas (placental types) may be diffuse (pig), zonary (carnivore), discoid (primates & rodents), or involve placentomes. A placentome is a discrete area of interdigitation between a maternal caruncle and a fetal cotyledon. Equine placentas are microcotyledonary (microplacentomes are distributed diffusely). Ruminant placentas consist of rows of relatively large placentomes.

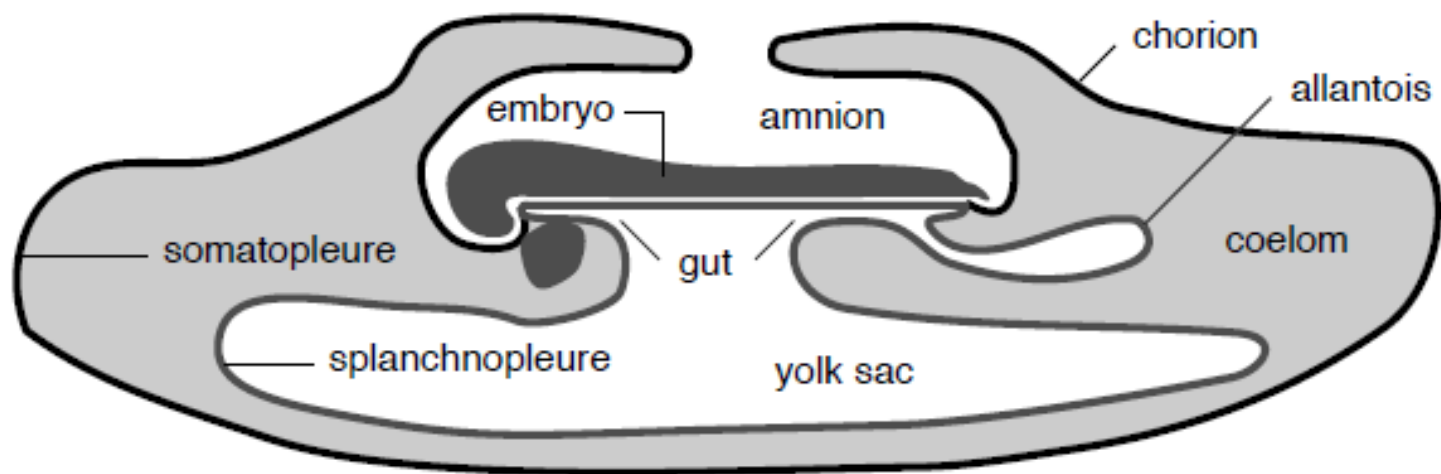
Fetal component of placentae



placentae

- *Placentas (placentae) may also be classified according to **the tissue layers separating fetal and maternal blood**.*
- *Uterine epithelium, uterine connective tissue and uterine endothelium may be eroded, giving rise to four placental types:*
- *epitheliochorial (swine, equine, cattle);*
- *synepitheliochorial, formerly called syndesmochorial, (sheep, goats);*
- *endothelialchorial (carnivore);*
- *and hemochorial (primates & rodents).*

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Fetal membranes:

- *Four fetal membranes develop in a conceptus. Two arise from the trophoblast layer of the blastocyst (and are continuous with the somatopleure of the embryo). Two arise from the inner cell mass of the blastocyst (and are continuous with splanchnopleure of the embryo); these two splanchnopleure membranes are vascular.*

The four fetal membranes are:

- 1. **Chorion** — from trophoblast, forms the outer boundary of the entire conceptus.
- 2. **Amnion** — from trophoblast, is formed by folds of chorion in domestic animals (in humans, amnion forms by cavitation deep to a persistent trophoblast). The amnion encloses the embryo within a fluid filled amnionic cavity.
- 3. **Allantois** — from the inner cell mass, develops as an outgrowth of hindgut splanchnopleure. The allantois grows to fill the entire extra-embryonic coelom, with fluid-filled allantoic cavity. The outer surface of allantois binds to the inner surface of chorion and the outer surface of amnion. The allantois is highly vascular and provides the functional vessels of the placenta, BY umbilical vessels.
- 4. **Yolk sac** — from the inner cell mass, develops early (with hypoblast formation) and is continuous with midgut splanchnopleure. Supplied by vitelline vessels, yolk sac is most important in egg laying vertebrates. It forms an early temporary placenta in the horse and dog.
- **Note:** The term conceptus refers to the embryo or fetus plus its fetal membranes.

