

Figure 1. Embryo and embryonic membranes on day 25 of pregnancy.

Figure 2. Embryo and embryonic membranes on day 36 of pregnancy.

Figure 3. Equine fetus and mature fetal membranes.

Inset: Detail of placental attachment.

E = embryo; F = fetus; arrows = growth of allantois.

In early pregnancy, the **yolk sac** from the midgut of the embryo forms the **yolk sac placenta** with the endometrium of the mare's uterus. As the **allantois** grows out from the hindgut and fuses with the **chorion** and **amnion**, the **allantoic cavity** fills with a larger volume of fluid than the fluid in the **amniotic cavity**.

Around day 36 of pregnancy, girdle cells from the **chorionic girdle** invade the endometrium. These cells multiply and transform into cup cells in placental outgrowths called **endometrial cups**. Cup cells secrete equine Chorionic Gonadotropin (eCG), a hormone that stimulates estrogen production by the corpus luteum. Growth and hormone production by fetal gonads may also be stimulated by eCG. Endometrial cups are most active from day 55 to day 65 of pregnancy. An immune response from the mare causes degeneration and sloughing of endometrial cups. They are gone by day 100 to day 130.

The horse has a diffuse, epitheliochorial, adeciduate placenta. Chorionic cells contact endometrial lining cells throughout the placenta (except in the **cervical star** opposite the internal opening of the cervix). When the placenta is expelled, there is no loss of maternal tissue and very little bleeding.

The **umbilical cord** contains two arteries, a vein and the urachus, a tube extending from the fetal bladder to the allantoic cavity. Blood vessels course throughout the allantochorion.

Fetal blood in capillaries in the tiny **microcotyledons** of the allantochorion is separated from maternal blood in capillaries in the endometrium by six layers of tissue.

Hippomanes are soft, brown or white floating masses of organic material and minerals deposited on some cellular debris in the allantoic fluid. They are normal features.

Figure 1

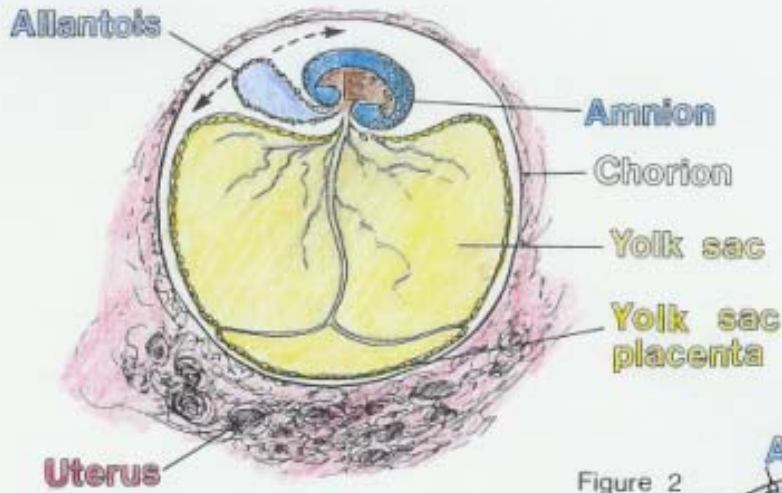


Figure 2

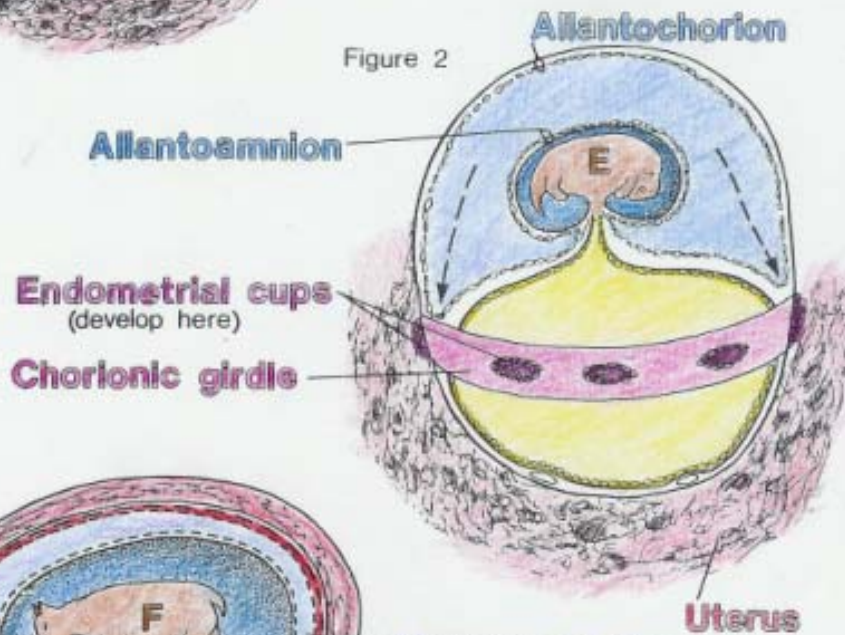


Figure 3

