Extraembryonic Formations

① Placenta
② Extraembryonic mesoderm
} seperate fetus from endometrium

Placenta

Fetal (villous chorion)
chronic sac (outer most)

Maternal (decidua)
decidual cells, basalis

Development of rf

① cytotropho. cells into synchitioprost
these cell column → primary chronic villi
↳ end of second week

② extraembri. mesoderm forming mesodermal tissues
→ secondary chorionic villi
↳ early in the 3. week

③ mesodermal cells form blood vessels
→ tertiary chorionic villi
↳ end of the 3 week

④ chorion → chorionic villi → outer surface
provide nutrition

⑤ chronic villi cover entire chronic sac
↳ beginning of 8 week

⑥ trophoplost form in first planted area embryonic pole of chorion

⑦ Villi grow here develop chorion frondosum
→ part of chorion exchange material
→ together with decidua basalis form placenta

⑧ Villi opposite pole degenerate
↳ end of 3rd week

⑨ with disappearance of these villi chorion flattens form → chorion leve

⑩ amnion and chorion fuse to form → amniochorionic membrane

Placenta and Decidua

① Decidua endometrium of uterus

② increasing progesterone levels in maternal blood connective tissue of decidua of enlarge to form → decidual cells (stromal cells)

③ Decidua basalis decidua deep to conceptus forms maternal parts of placenta
Decidua capsularis superficial part overlying the conceptus
Decidua parietalis remaining part of endometrium

④ full develop placenta → %15 to %30 decidua of endomet. one sixth as much as fetus

⑤ Decidua Basalis replaced by fetal part of placenta
↳ end of four month

Circulation

1/0 ① fetal part connected to maternal part by cytotrophoblastic shell

② chorionic villi invade decidua basalis, decidual tissues enlarge to intervillous space

③ intervillous space → 5 to 10 weeks contain maternal blood derived from lacune.
↳ during the second week of development

④ erosion produce wedge shape area → placental septa in chorionic plate → part of chronic wall related to placenta

⑤ septa divide fetal part into irregular convex areas
↳ cotyledons

⑥ cotyledons consist of ① two or more stem villi @ many branch villi

⑦ Decidua basalis replaced by cotyledons
↳ end of four month

2/ ① maternal blood enter intervillous space from spiral endometrial arteries at decidua basalis
↳ poss cytropha. shell discharge it intervillous space

② intervellius space drained by endometrial vein penetrate cytop. shell

③ branch villi derived from stem villi circulate maternal blood through intervillous space.

3/ ① poorly oxygenated blood poss from → umbilical arteries to the placenta

② disposed chronoic arteries that branch freely chorionic plate before entering chronic villi

③ arterio capillary - venous system with chronoic villi
↳ exchange btw maternal and fetal

④ well-oxygenated fetal blood → umbilical vein → so back to fetus

Placental Membrane → extrafetal tissues seperate maternal and fetal blood into four layers
→ until approx. 20 weeks
1- syncytiotrophoblast
2- cytotrophoblast
3- connective tissue of villi
4- endothelium of fetal capillaries
→ after 20 weeks
villi in cytotrophoblast becoming thinner

functions of it → Metabolism (synthesis of glycogen)
↳ endocrine secretion hCG

Placental Abnormalities
Placenta accreta abnormal adherence of chronic villi to myometrium
Placenta percreta chronic villi penetrate full thickness of myometrium
Placenta previa blastocyst implants close to the internal os

Extra embryonic Membranes → layers enclosing embryo inside uterus
↳ Chorion
↳ amnion
↳ yolk sac
↳ allantois

Amnion
①- amniotic fluid secreted by cells of amnion
- most fluid derived from maternal tissue and interstitial fluid
- diffusion of fluid from intervillous space

② beginning 11th week
fetus contribute amniotic fluid → excrete urine

③ amniotic fluid swallowed by fetus
absorbed by → respiratory and digestive system

④ estimated 400 ml fetus +ve

⑤ high levels alpha fetoprotein in amniotic fluid
↳ severe neural tube defect
low levels alpha fetoprotein " " "
↳ neural tube defect

⑥ Oligohydramnios low volume
placental insufficiency / diminished placental blood flow
/ ruptured / most of amniochoric membrane
fetal birth effect
Poly hydramnios → large volume
severe defect of CNS

Umbilical vesicle

① dorsal part remove inside → primitive intestinal tract

② transfer of nutrients → second and third week
before uteroplacental circulation
begin

③ blood cell develop. occur extraem bryonic mesoderm
covering umbilical vesicle
→ begin in third weeks continue until sixth
(until hemopoietic activity begins in liver)

④ primordial germ cell appear on the wall of umbilical
vesicle, migrate the developing gonads
→ in the third week

⑤ endoderm of umbilical vesicle incorporated into to embryo as primordiyal gut.

Allantois

① forms from umbilical cord extend to connecting stalk
↳ third week

② in early period, — blood production and
— urinary bladder development