

Case 1. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Uterus **(1pt)**. Markedly expanding the endometrium **(1pt)** up to 4mm is an irregular coagulum composed of markedly ectatic endometrial glands **(1pt)**, separated by dense bands of collagen **(1pt)**. Ectatic glands are lined by a single layer of cuboidal to columnar epithelium with abundant vacuolated epithelium **(1pt)** (progesterone effect) **(1pt)**, which also line the uterine lumen, and contain low numbers of sloughed epithelial cells, degenerate neutrophils, and globular to granular eosinophilic protein, and some are filled with hemorrhage and erythrocyte breakdown products. **(1pt)** The collagen bands are also infiltrated by large numbers of cells with moderate amounts of basophilic granular cytoplasm and a large round nuclei with 1-2 prominent nucleoli (trophoblasts) **(1pt)** and fewer polygonal to stellate cells with up to 10 nuclei (syncytiotrophoblasts.) **(1pt)** Trophoblasts often contain erythrocytes within their cytoplasm (erythrophagocytosis) **(1pt)** or brightly eosinophilic breakdown products (hematin). Interspersed between glands are variable combinations of and concentrations of hemorrhage, fibrin, hemosiderin-laden macrophages **(1pt)**, hematoidin and cellular debris. These cells are admixed with various combinations and concentration of neutrophils **(1pt)**, macrophages, lymphocytes and rare plasma cells, abundant hemorrhage, fibrin, siderophages and free hematoidin. Trophoblasts and syncytiotrophoblasts (as well as previously described inflammatory cells and rare endometrial glands transmurally **(1pt)**) infiltrate the underlying uterine wall. **(1pt)** Within the myometrium there are also lakes of mineral.

MORPHOLOGIC DIAGNOSIS: Uterus, Endometritis, necrohemorrhagic **(1pt)**, chronic-active diffuse, severe, with numerous syncytiotrophoblasts **(1pt)**, and mural rupture. **(1pt)**

Name the condition: Subinvolution of placental sites **(2pt)**

O/C - **(1pt.)**

Case 2. Tissue from a goat.

MICROSCOPIC DESCRIPTION: Placenta with sections of two cotyledons and intercotyledonary space **(1pt.)**: There is marked distortion of normal cotyledonary architecture as a result of severe villar edema **(1pt.)** and multifocal villar loss **(1pt.)**. Diffusely, there is necrosis and loss of the chorionic epithelium **(1pt.)** and numerous trophoblasts **(1pt.)** (including sloughed trophoblasts within the debris field) are markedly expanded by large numbers of intracytoplasmic 1-2 um bacilli **(1pt.)**, giving the cytoplasm a basophilic, bubbly appearance. Villi are occasionally lined by a coagulum of abundant necrotic debris **(1pt.)**, sloughed trophoblasts, degenerate neutrophils **(1pt.)**, hemorrhage, hematoidin, and fibrin, and scattered mineral. There is loss of the epithelium of the intercotyledonary space as well **(1pt.)** with scattered remnant bacilli-laden trophoblasts. There is multifocal and superficial infiltration of the chorion by low to moderate numbers of neutrophils and fewer macrophages. **(1pt.)** The chorion itself is multifocally expanded by moderate edema **(1pt.)** and low numbers of macrophages and plasma cells. The walls of chorionic vessels are infiltrated with low to moderate numbers of neutrophils **(1pt.)**, cellular debris, and rarely extravasated red blood cells (vasculitis). **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Chorioallantois: Placentitis, necrotizing, **(1pt.)** diffuse, moderate, with vasculitis **(1pt.)**, edema, and numerous intratrophoblastic bacilli. **(1pt.)**

CAUSE: *Coxiella burnetti* **(3pt.)**

O/C: **(1pt.)**

Case 3. Tissue from a rhesus macaque.

MICROSCOPIC DESCRIPTION: Uterus **(1pt.)**: Focally within the superficial endometrium and projecting into the lumen, there is an infiltrative, moderately cellular multinodular, poorly demarcated, and unencapsulated neoplasm **(2pt.)** composed of two cell types **(1pt.)** in contiguous nests and packets **(1pt.)** on a fine fibrovascular stroma. **(1pt.)** The first cell type (trophoblasts) **(1pt.)** is a population of polygonal **(1pt.)** cells ranging up to 20um in diameter with prominent cell borders and a moderate amount of homogenous, occasionally vacuolated eosinophilic cytoplasm. **(1pt.)** Nuclei are round with finely clumped chromatin and 1-2 prominent nuclei. Mitoses are rare. **(1pt.)** The second cellular population is composed of pleomorphic **(1pt.)** multinucleated cells **(1pt.)** (syncytiotrophoblasts) **(1pt.)** which range up to 80um with cytoplasm similar to the first cellular population but up to 15, large irregular nuclei and one to two prominent eosinophilic nuclei. **(1pt.)** Nuclei often exhibit molding and there are rare intracytoplasmic vacuolation. Mitoses are rare in this population as well. The stroma contains low to moderate numbers of lymphocytes and macrophages. **(1pt.)** Neoplastic trophoblasts exhibit occasional apoptosis. **(1pt.)** The endometrial stroma is mildly hyperplastic with a few dilated glands, and the endometrial epithelium is cuboidal with vacuolated cytoplasm (normal cycling). **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Uterus: Choriocarcinoma **(4pt.)**

O/C - **(1pt.)**

Case 4. Tissue from a horse.

MORPHOLOGIC DESCRIPTION: Ovary **(1pt.)**: Approximately 33% **(1pt.)** of the slide is replaced by a cystic structure with a 750um **(1pt.)** thick wall composed of wall composed of an inner rim of fibrovascular tissue **(1pt.)** which measures 125um in diameter and is composed of plump fibroblasts and atrophic granulosa cells **(1pt.)** enmeshed in loosely arranged lamellar collagen. **(1pt.)** Peripheral to this the outer 625um of the cyst wall is composed of numerous haphazardly arranged polygonal **(1pt.)** cells ranging up to 30um in diameter with abundant finely granular cytoplasm **(1pt.)**, distinct cell borders and peripheralized nuclei with a single prominent nucleus (luteinized thecal cells.) **(2pt.)** Blood vessels within this layer are distended, congested, and rarely thrombosed **(1pt.)** with multifocal mild hemorrhage. **(1pt.)** The cyst contents are composed of scattered small numbers of erythrocyte **(1pt.)**s enmeshed in homogenous to fibrillar eosinophilic protein **(1pt.)** admixed with low numbers of sloughed, necrotic granulosa cells. The ovarian stroma adjacent to the cysts is multifocally atrophic **(1pt.)** and replaced with a compression capsule. Scattered in the adjacent ovary are a variety of follicles in various stages of development, including several atretic tertiary follicles, as well as few primordial, primary, and secondary follicles **(1pt.)** and numerous hilar vessels.

MORPHOLOGIC DIAGNOSIS: Ovary: Hemorrhagic luteal cyst (hemorrhagic anovulatory follicle OK) **(4pt.)**

O/C: **(1 pt.)**