

IDENTIFIER ON SLIDE:

4095288-00

CONTRIBUTOR(S)/INSTITUTION:

Kindness Animal Hospital, Wheaton, MD

SIGNALMENT:

11-month old female Bernese mountain dog

HISTORY:

The patient presented for ovariohysterectomy and umbilical hernia repair, which were performed routinely. Gross changes were noticed in each uterine horn as described below. The owner stated that the patient could not have been bred, and that she had undergone a prolonged estrus (her first and only estrus) 2 months prior, bleeding for approximately 3 weeks. The patient had a yeast otitis externa bilaterally at the time of the spay. Preanesthetic blood test results were normal.

GROSS FINDINGS:

Two areas of segmental uterine enlargement were noted (one in each horn). Each segment measured approximately 2.5x2x2 cm. On cut section, the uterine wall was found to be markedly hypertrophied in the affected areas, and the affected segments also contained a moderate amount of opaque, green-brown fluid. The ovaries and remainder of the uterus appeared grossly normal.

HISTOPATHOLOGIC/CYTOLOGIC FINDINGS:

Uterus: The endometrium is expanded diffusely (up to 9 mm) in the examined sections and is composed of three distinctive zones. The most luminal zone is composed of long villous folds extending from the endometrial surface, often forming papillary projections, lined by simple columnar to occasionally pseudostratified epithelium with foamy cytoplasm, bleb-like apical protrusions, and large vesiculate nuclei with variable nuclear localization (progestational endometrial epithelium), supported by a fibrovascular core. There are multifocal areas of necrosis and erosion of the superficial epithelium, with accumulation of karyorrhectic debris and basophilic ground substance (mucus). The middle layer is composed of a variably thick band (up to 300 um) of dense fibrous connective tissue lined by columnar to cuboidal epithelial cells with variable nuclear localization. The deepest layer (in contact with the myometrium) is composed of relatively normal uterine stroma surrounding numerous dilated (up to 400 um) endometrial glands lined by attenuated to cuboidal to occasionally columnar epithelial cells containing eosinophilic debris and variable amounts of an amphophilic secretory product within their lumens. One aggregate of lymphocytes is noted in the deepest portion of the endometrium.

MORPHOLOGIC DIAGNOSIS/CONDITION:

Uterus, endometrium: Hyperplasia, pseudoplacental, locally extensive, Bernese mountain dog, canine (*Canis lupus familiaris*) / Pseudoplacental Endometrial Hyperplasia (PEH)

DISCUSSION:

PEH, also known as deciduoma, endometrial hyperplasia in pseudocyesis, maternal placental-like endometrial hyperplasia, and segmental endometrial hyperplasia, is an unusual finding with characteristic segmental endometrial hyperplasia. It is distinct from cystic endometrial hyperplasia in its segmental nature and the manner in which the affected portions of the uterus resemble pregnancy sites. No fetal tissues are present.

The disorder is closely associated with pseudopregnancy. Experimentally, focal endometrial proliferation has been induced when sterile substances, such as silk suture or autogenous tissue are introduced into the lumen of a bitch in her luteal phase. Pathogenesis of naturally occurring PEH is not known. It is theorized that bacteria invading the vagina during estrus can cause stimulate the endometrium as an ovum would, though signs of lower urinary tract disease were not noted in this patient. No bacteria were noted in the examined sections on histopathology.

#### REFERENCES:

Arrighi S, et al. Characterization of a population of unique granular lymphocytes in a bitch deciduoma, using a panel of histo- and immunohistochemical markers. *Vet Pathol.* 2007; 44(4):521-4.

Foster RA. Female reproductive system and mammary gland. In: Zacchary JF, McGavin MD, eds. *Pathologic Basis of Veterinary Disease*. 5th ed. St. Louis, MS: Mosby; 2012: 1100-1104.

Mir F, et al. Findings in uterine biopsies obtained by laparotomy from bitches with unexplained infertility or pregnancy loss: an observational study. *Theriogenology*. 2013; 79(2):312-22.

Sato, Y. Pseudoplacental endometrial hyperplasia in a dog. *J Vet Diagn Invest*. 2011; 23(5): 1071-1074.

Schlafer, DH and Foster, RA. Female genital system. In: Maxie, MG, ed. *Jubb, Kennedy, and Palmer's Pathology of Domestic Animals*, Volume 3. 6th ed. 2016; 383-384.

Schlafer DH, Gifford AT. Cystic endometrial hyperplasia, pseudo-placental endometrial hyperplasia, and other cystic conditions of the canine and feline uterus. *Theriogenology*. 2008; 70: 349-358