Diagnostic Exercise

From The Davis-Thompson Foundation*

Case # **189**; Month: **May**; Year: **2022**
Answer Sheet

Title: Endocervical adenocarcinoma in a Guinea Pig (*Cavia porcellus)*

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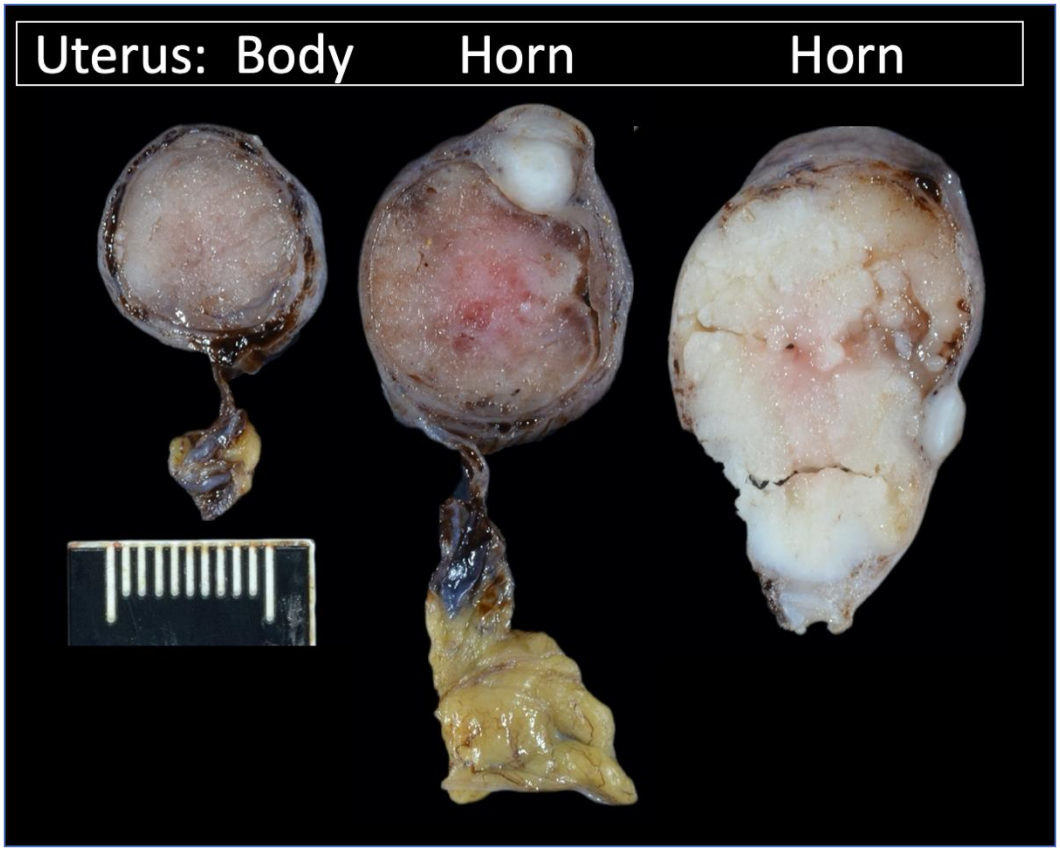
Clinical History: The tissue is from a 3-year-old female intact Guinea Pig (*Cavia porcellus)* with a 9-month history of increased aggression and mounting behavior. On physical examination, the patient had bilateral patchy caudal alopecia, bilateral hyperkeratotic nipples, and soft, round structures palpated within the cranial abdomen. Additional findings include hematuria and mild to moderate hyperfibrinogenemia. A hysterectomy was performed, and the reproductive tract submitted for evaluation.

Gross Findings: The bicornuate uterus is markedly enlarged with the uterine body measuring 0.3 cm x 1.5 cm x 2.5 cm and the uterine horns ranging up to 2-3 cm in diameter. Bulging from the serosal surface of the uterine body are two nodules of similar appearance which are pale tan, smooth, raised, and approximately 0.3 cm in diameter. On section, the masses extend transmurally across the uterine wall. Extending from the serosal surface of one uterine horn, 3 cm from the uterine body-uterine horn junction, is a similar mass which has a stellate pattern. The lumen of the uterine body/uterine horns in this region is almost completely obstructed with firm, irregular, friable, pale tan tissue which is fissured with spaces filled with pink to dark brown, gelatinous to mucoid fluid. The ovaries (not shown) are enlarged and their surface bossylated, measuring 2 cm x 0.6 cm x 0.5 cm and 1.2 cm x 1.7 cm x 0.6 cm in diameter. On cut section, the ovarian parenchyma is replaced with multiple

cysts up to 1 cm diameter that contain variable to scant clear, watery to slightly viscous fluid.

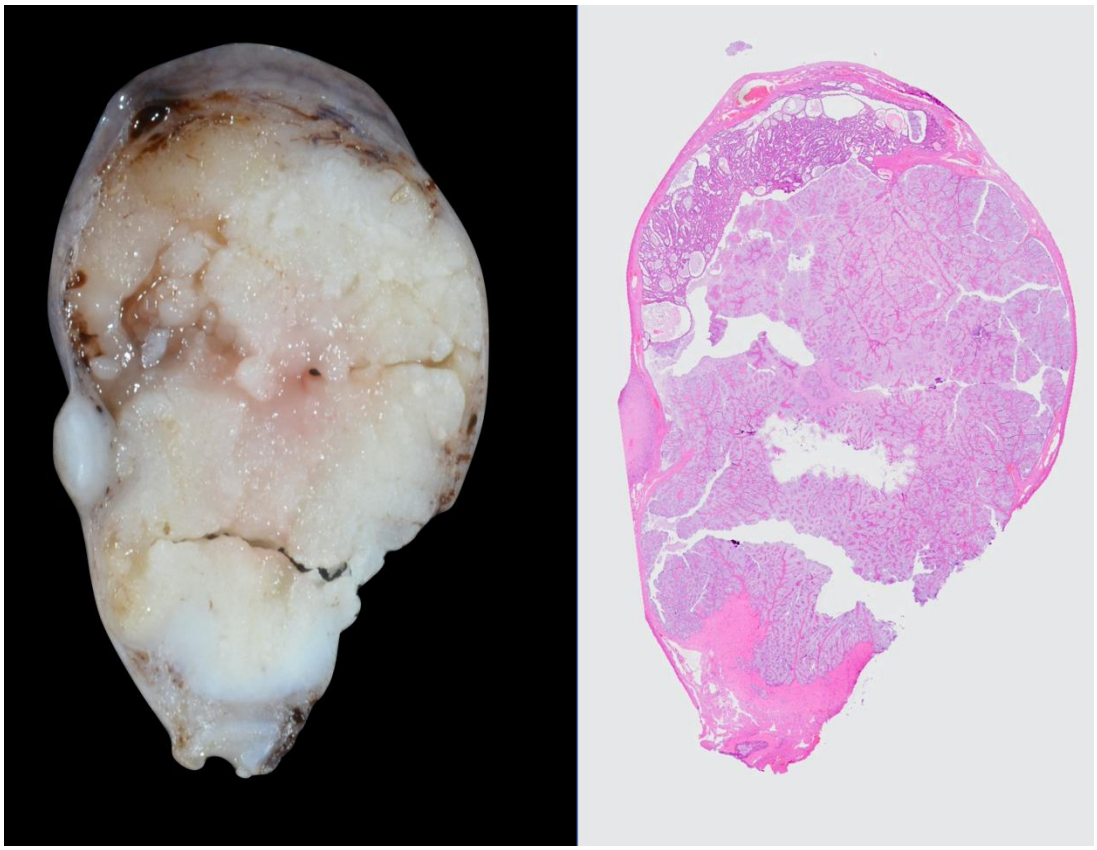


Uterine body: (mass is filling lumen in body and horns gross photos above, histologic photos are below). There are also two discrete white, nodular leiomyomas within the uterine horn wall (center and right)

Follow up question #1: Histologic description, endocervical carcinoma:

Multifocally arising from and replacing most of the endometrial mucosal epithelium is an un-encapsulated, poorly demarcated, infiltrative, moderately cellular mass composed of neoplastic epithelial cells which are arranged in exophytic and papillomatous fronds that project into, expand and occlude approximately 80% of uterine lumen causing compression of the adjacent uterine wall. Either a monolayer or a haphazardly piled multi-layer of neoplastic cells lines and is supported by a prominent fibrovascular stroma. Neoplastic cells have distinct cell borders, are plump columnar, have an abundant amount of finely vesiculate to granular, pale basophilic cytoplasm and one, eccentric, round to stellate, hyper-chromatic nucleus (endocervical glands). Anisocytosis and anisokaryosis are mild and mitoses are rare.

Within the uterine lumen are numerous sloughed neoplastic cells which are admixed with mucin and karyorrhectic debris. Small islands of these neoplastic cells transmurally invade into the myometrium. The apical surface of the stratified squamous cervical epithelium is superficially lined by similar appearing cells. This region is at the edge of the surgical margin.



The right horn of the uterus is occluded by the adenocarcinoma which also nests within the subjacent myometrium (bottom left). One remnant segment of the endometrium is intact, cystic, and hyperplastic (bottom right)

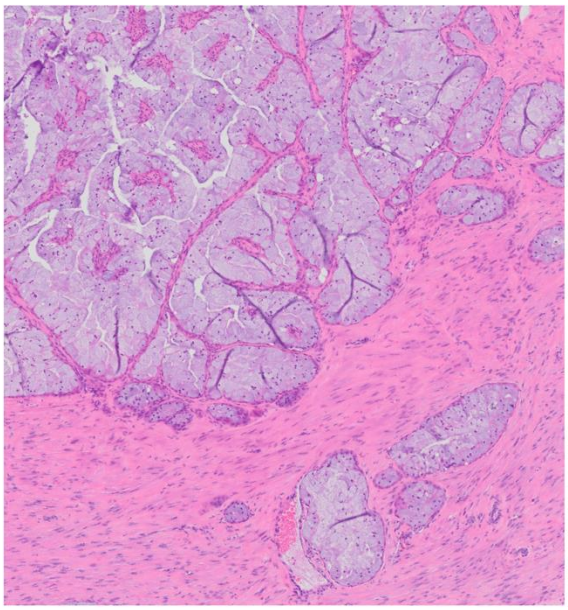
Other histologic findings?

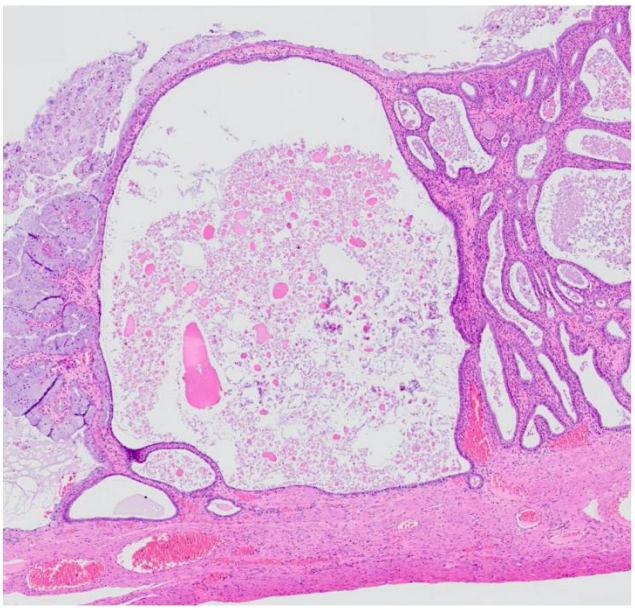
Uterus: Multiple leiomyomas

Ovaries: Multiple rete cysts

Comment (follow up question #2) What is the pathogenesis?

Cystic rete ovarii is a common condition in guinea pigs, occurring in up to 75% of female guinea pigs (2). Although frequently considered an incidental finding in this species, associated clinical signs may be appreciated and can include, as in this case: bilaterally symmetrical truncal alopecia, abdominal distension, crusting around the nipples, mounting/aggressive behavior, and anorexia (2). Cystic endometrial hyperplasia, vaginal/cervical/uterine polyps, and ovarian cysts are common findings. Cystic rete ovarii was found in 39 of the 44 neoplastic cases in which the ovarian tissue was assessed. The clinical signs associated with cystic rete ovarii are consistent





with hormonal dysregulation, and ovariohysterectomy is curative. The frequent presentation of multiple neoplastic and non-neoplastic lesions in the reproductive tract is suggestive of an endocrine imbalance. Currently, the relationship between cystic rete ovarii in guinea pigs and hormone dysregulation is not well understood. While endocervical adenocarcinomas are relatively common tumors in women, only a few have been described in the guinea pig. (1,4)

Retrospective studies on of pet guinea pigs suggest that neoplasms can occur anywhere within the reproductive tract (1,3). Leiomyomas were the most common benign neoplasm found in both studies.

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