

# Diagnostic Exercise

## From The Davis-Thompson Foundation\*

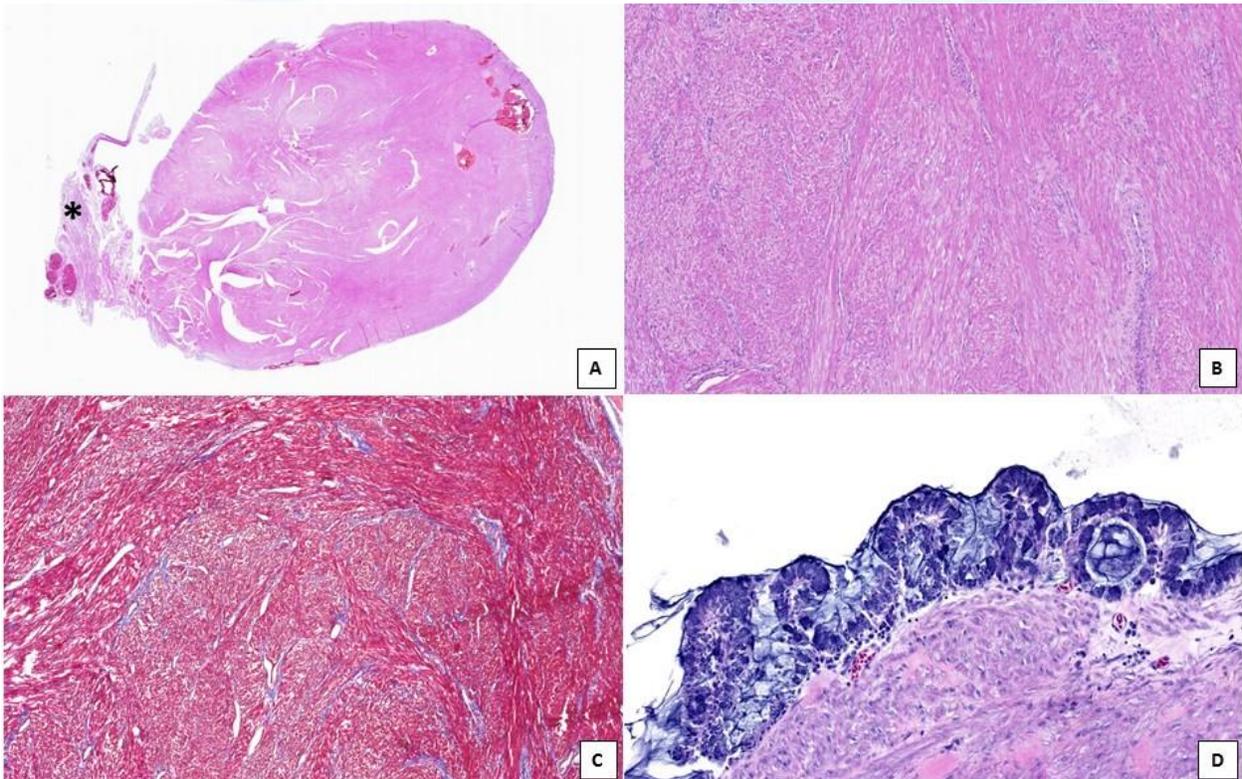
Case #: 98 Month: June Year: 2018

*Answer Sheet*

**Title:** Mesosalpinx leiomyoma and right oviduct cyst in a chicken.

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**Microscopic Images:**



**Figure 2.** Hen. Mesosalpinx leiomyoma (A-C) and right oviduct cyst (D). (A) There is an ovoid, well-delimited mesenchymal neoplasm attached to the ventral mesosalpinx, which is rich in vessels and smooth muscle fascicles (\*). H&E, subgross photograph. (B) Neoplastic spindle cells form interlacing bundles supported by fine intercellular stroma. H&E, 5x. (C) The neoplastic cells stain red, consistent with smooth muscle origin, and the intervening delicate connective tissue stains blue, consistent with collagen. Masson's Trichrome stain, 5x. (D) The wall of the intracoelomic cyst consists of smooth muscle lined by a monolayer of columnar epithelium with numerous goblet cells. Some mucus remains in the cyst lumen. H&E, 25x.

**Morphologic Diagnoses:** Mesosalpinx mass: Leiomyoma; Rudimentary right oviduct: Cyst.

**Typical Gross Findings:**

Mesosalpinx leiomyoma:

- Unencapsulated densely cellular mass attached to the wall of the isthmus of the left oviduct.
- Presence of convoluted subcapsular vessels

Right oviduct cyst:

- Small to large intracoelomic cyst.

**Typical Microscopic Findings:**

Mesosalpinx leiomyoma:

- Spindloid, closely packed cells arranged in interlacing bundles embedded in fine fibrovascular stroma.
- Cells have moderate fibrillar eosinophilic cytoplasm and oval to fusiform vesiculate nucleus with 1-2 small nucleoli.
- Cell atypia is minimal; no mitoses are evident.

Right oviduct cyst:

- Lining is composed of a monolayer of ciliated columnar epithelium that includes many goblet cells (consistent with oviduct epithelium).
- Minimal to abundant mucus accumulates in the cyst lumen.

**Discussion:** Leiomyomas are benign, mesenchymal tumors arising from the smooth muscle.<sup>1</sup> In humans, mainly in pre-menopausal women, the uterus is the most common affected site.<sup>2</sup> In domestic animals, leiomyomas are the most common tumors of the tubular genitalia in dogs<sup>1,3</sup> but they have also been described in other species such as goats<sup>1</sup> and elephants.<sup>3,4</sup> In birds, the occurrence of leiomyomas of the reproductive tract is not as common as lymphomas in cases of avian leukosis and Marek's Disease.<sup>5</sup> Older laying hens and broiler breeders are most prone to developing leiomyomas.<sup>6</sup> The ventral border of the mesosalpinx has well developed smooth muscle and is therefore the most commonly affected site, usually accompanied by convoluted subcapsular vessels.<sup>6,7</sup> Because leiomyomas do generally not grow into the oviduct, they do not interfere with oviposition, although they might cause the ova to be displaced in the coelomic cavity.<sup>7-9</sup> In the present case, the location and appearance of the mass was in accordance with the literature. In rare cases, leiomyomas may also arise from the mesentery and the surface of the distal digestive tract.<sup>6</sup>

Histologically, leiomyomas are characterized by interlacing whirling bundles of smooth muscle cells supported by scant fine connective stroma.<sup>7</sup> Expression of receptors of the ovarian sex hormones estrogen and progesterone as well as expression of the anti-apoptotic protein BCL-2 are reported in chickens and humans. Hence, leiomyomas can potentially be hormone-dependent tumors.<sup>8</sup> A hereditary basis for the incidence of leiomyoma in poultry has also been suspected.<sup>7</sup>

Cystic right oviduct is fairly common in hens.<sup>10</sup> In chicks, usually only the left reproductive system develops after hatching although parts of the right oviduct may also develop to various degrees. The partially developed segments of the right oviduct are usually cordoned off and have no anterior or posterior drainage. If the oviduct wall contains glandular tissue as in this case, accumulation of secretion can occur, therefore leading to the formation of a cyst.<sup>10</sup> These cysts are variably sized structures that vary from small and imperceptible to large cysts that can occupy a considerable portion of the coelomic cavity. Hens with large cysts may therefore present with distended coelom; these cysts do usually not interfere with ovipositioning, however. In the present case, the cyst likely accounted for the intracoelomic mass effect noted clinically and was the source of the aspirated fluid. Left oviduct cysts are uncommon.<sup>10</sup>

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