Diagnostic Exercise
From The Davis-Thompson Foundation*

Case #: **196** Month: **September**; Year: **2022**
Answer Sheet

Title: Oviduct impaction in a backyard/hobby hen

Contributors: Contributors: Max Beecroft[1], DVM; Mandy Womble[1], DVM, PhD; Daniel Felipe Barrantes Murillo[2], DVM, MS; Tatiane Terumi Negrão Watanabe[1*], DVM, MS, PhD, Dipl. ACVP
[1]Department of Population Health and Pathobiology, College of Veterinary Medicine, North Carolina State University, Raleigh, NC, USA.
[2]Department of Pathobiology, College of Veterinary Medicine, Auburn University, Auburn, AL, USA.
*Address correspondence to Dr. Negrão Watanabe at tnegrao@ncsu.edu

Morphologic diagnosis:

Oviduct, coelom: Severe chronic segmental (isthmus) egg yolk impaction with oviductal dilatation and chronic egg yolk peritonitis

Name of the condition: Oviduct impaction

Discussion: Oviduct impaction has been reported in chickens, cockatiels, canaries, budgerigars, raptors, and African grey parrots (7). Oviduct impaction comprised 0.87% and 5% of all oviduct abnormalities in white leghorn layer chicken and Kalinga Brown breed, respectively (2,10). Risk factors include excess mucin or albumin, cystic hyperplasia of the oviduct, egg binding, and bacterial infection causing metritis or salpingitis (3,6,7). The most common bacterial isolates are *Escherichia coli*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, and *Salmonella spp*. (6,7,10) Chronic bacterial salpingitis leads to diffuse thickening of the oviduct and narrowing of the lumen (4). Older laying hens are thought to have thinner muscular layers in their reproductive systems with decreased normal peristalsis, leading to increased bacterial exposure to the oviductal lumen through retrograde peristalsis (6,7). Additionally, increased age-related oviductal eversion may also lead to increased bacterial exposure (6,7).

Grossly, the oviduct is markedly distended and occluded by masses of coagulated yolk, albumen intermixed with broken shells, shell membranes, and occasionally developed eggs (3). Frequently, the impaction is at the level of the uterus and vagina, causing reflux of the eggs enclosed in shell membranes within the coelomic cavity (3). The oviduct proximal to the impaction, as in this case, becomes dilated, which can be severe enough to lead to rupture and leakage of yolk material into the coelomic cavity and consequently resulting in egg yolk coelomitis, bird morbidity and mortality, as also seen in this case (7). In the present case, the coelomic

bacterial culture yielded *Proteus mirabilis* (4+), *Corynebacterium stationis* (2+), and *Escherichia coli* (+1). It is uncertain whether these bacterial growths contributed to the coelomitis or if they are considered contaminants. Egg yolk peritonitis can be accompanied by vent pecking and cannibalism (8). This could explain the wounds and subsequent myiasis as observed on physical examination.

Herein, the reported bird also had an oviduct/ovary adenocarcinoma with carcinomatosis that was closely associated with the site of impaction. Oviductal adenocarcinomas originate from albumen-secreting cells of the oviduct, invading the serosal and muscular layers (5). They frequently metastasize by implantation into the rest of the body cavity (carcinomatosis) or by lymphatics frequently to the lungs (1,5). Involvement of the liver and spleen is uncommon (1,5). These neoplastic processes are histologically and behaviorally indistinguishable from ovarian adenocarcinomas except by location (1,5). The magnum of the oviduct is the most common location of oviductal adenocarcinomas. Clinical signs vary from acute death to coelomic distension and lethargy (1,5). Although yet to be reported, we speculate that the coelomic neoplastic masses could lead to mechanical compression in the oviduct favoring the oviduct impaction.

Additionally, the reported bird also had a rudimentary right oviduct which is a common, often incidental finding. (9) The right oviduct and ovary normally regress during fetal development. However, failure of regression, which is an inherited trait, can predispose the bird to glandular tissue development and ultimately to a right oviductal cyst formation (3).

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Associate Editor for this Diagnostic Exercise: Tatiane Watanabe

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