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## ***Laminosioptes cysticola* and *Gallibacterium anatis* infections in a lymphoma diseased chicken hen with a cystic right oviduct**

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### **SUMMARY**

A domestic hen showing infraorbital swelling was presented for a routine classroom demonstration of avian diagnostics. At necropsy, tiny whitish caseo-calcareous nodules were found in the subcutaneous tissues of the carcass, produced by the subcutaneous fowl mite, *Laminosioptes cysticola*. *Gallibacterium anatis* biovar *haemolytica* was isolated from the infraorbital sinus, it containing a caseous exudate. During necropsy, a conspicuous cyst was found in the abdominal cavity. Microscopic examination of the internal lining of the cyst revealed a single cuboidal to columnar, ciliated epithelium, leading to a diagnosis of oviductal cyst. Also, the microscopic examination of the heart, lung, liver and kidney reveal a multifocal infiltration of lymphoma cells. It appears the first case of simultaneous presentation of these conditions from a single chicken.

Key words: *Laminosioptes cysticola*, *Gallibacterium anatis*, oviductal cyst, neoplasia, poultry.

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During a routine classroom demonstration of avian diagnostics, a 4 year-old, domestic chicken hen showing coryzoid infraorbital swelling (Figure 1) was humanly euthanased.

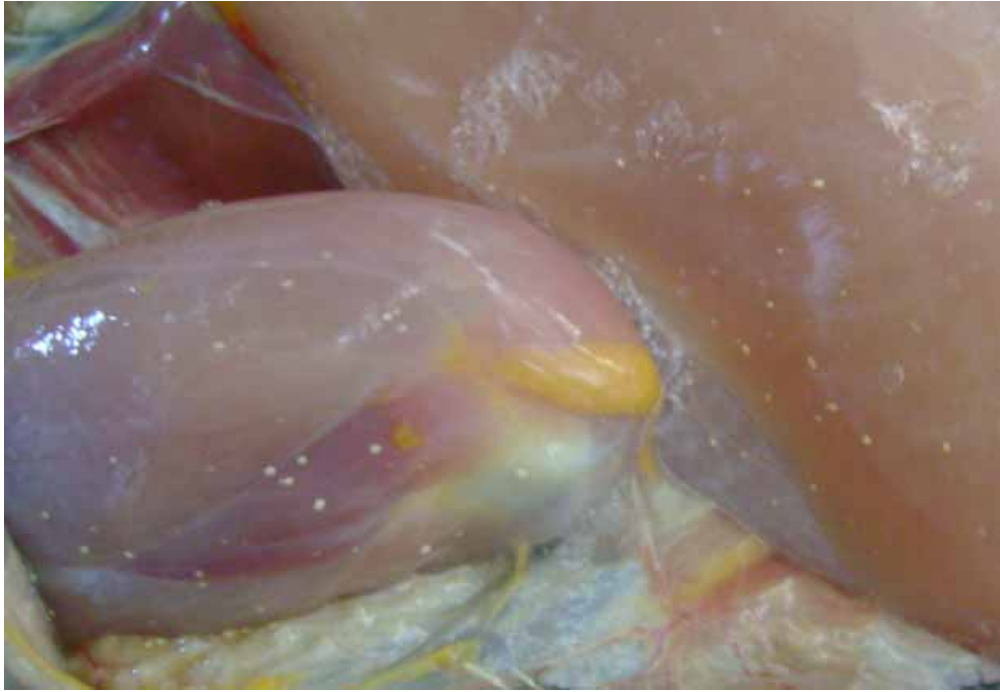
**Figure 1.** Chicken hen showing unilateral swelling (A) and caseous exudate (B) in left infraorbital sinus.



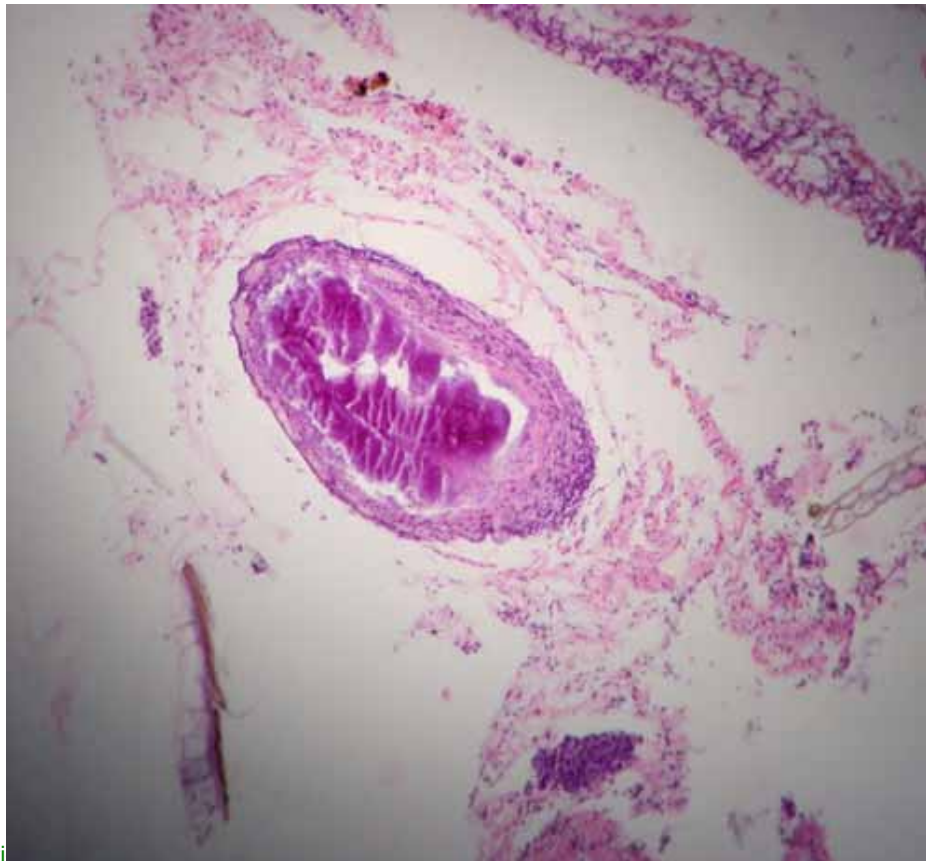
At the post-mortem inspection, a caseous exudate was found into the left sinus. Large numbers of tiny whitish caseo-calcareous nodules were found in the subcutaneous tissues of the vent, breast and flanks (Figure 2).

**Figure 2.** Characteristic caseo-calcareous nodular lesions by *Laminosioptes cysticola* in the subcutis of the chicken hen of this study (A). Histology section of a caseo-calcareous nodule (B).

A.



B.



A conspicuous cyst (approximately 6 cm length) was found in the abdominal cavity (Figure 3).

**Figure 3.**  
Cystic right oviduct in the chicken hen of this study.



Infraorbital sinus samples were taken and

cultivated on 10% sheep blood agar plates with *Staphylococcus epidermidis* as colony feeder. Plates were incubated at 37° C into a candle jar.

Tissue samples were processed for routine paraffin embedding. Paraffin sections were stained with hematoxylin and eosin.

## RESULTS

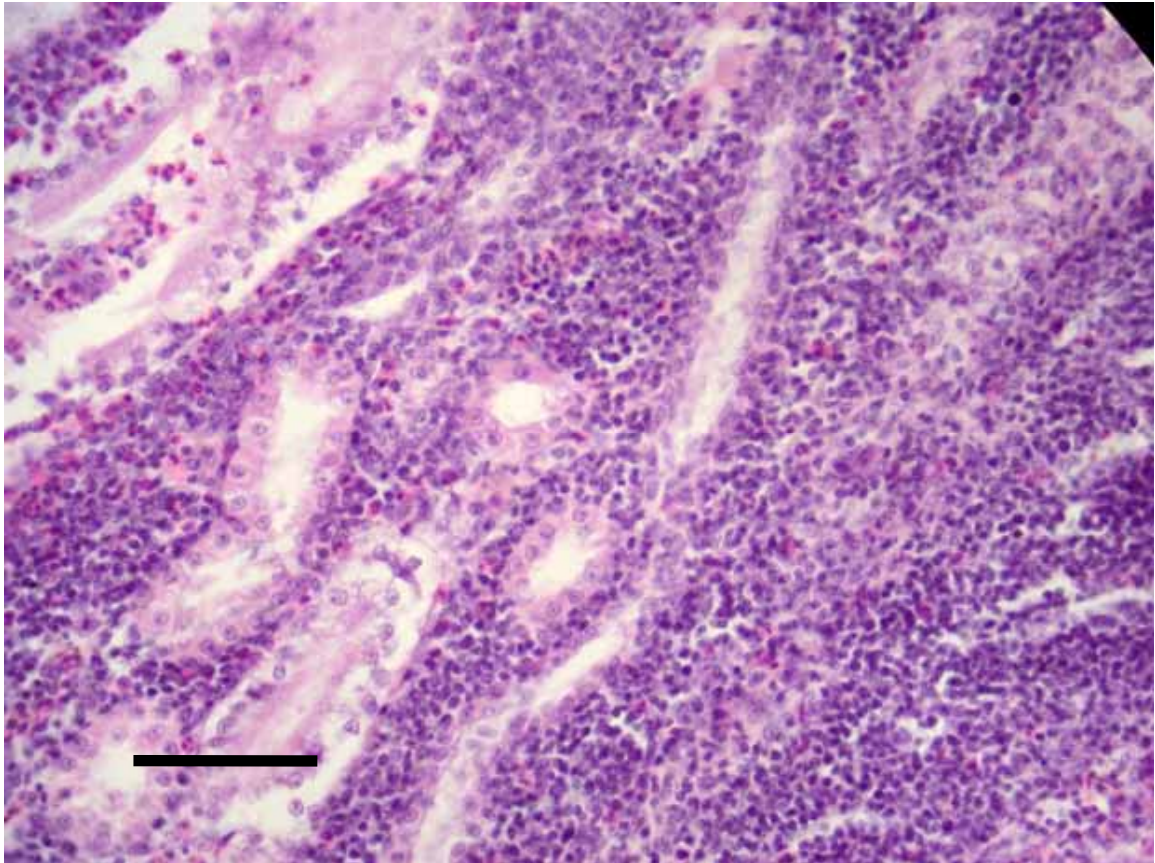
The bacterium *Gallibacterium anatis* biovar *haemolytica* was isolated in pure culture from the affected infraorbital sinus (Figure 1). The identity of the isolate was confirmed by polymerase chain reaction as described by Bojesen *et al.* (2007).

On histological examination, nodules appeared as encapsulated homogenous masses in the subcutaneous connective tissue (Figure 2). These were presumably remnants in section of the subcutaneous fowl mite, *Laminosioptes cysticola*.

Microscopic examination of the internal lining of the cyst revealed a single cuboidal to columnar, ciliated epithelium, leading to a diagnosis of an oviductal cyst.

Microscopic examination of the heart, lung, liver and kidney reveal a severe multifocal infiltration of lymphoma cells. In kidney, infiltration of lymphoma cells trend to a nodular disposition (Figure 4).





**Figure 4.** Kidney lymphoma in the chicken hen of this study (Bar = 0.2 mm).

## DISCUSSION

The bacterium *G. anatis* biovar *haemolytica* is involved in respiratory disease of poultry (Christensen *et al.*, 2003). However, it is unknown if this bacterium may produce a coryzoid respiratory disease in infected chickens.

The work of Cassidy & Ketter (1965), showing caseo-calcareous nodular lesions by *L. cysticola* in the subcutis of a chicken was definitive in the diagnosis of this condition. The life cycle of the mite is not known (Fain, 1981). It has been reported from chickens, turkeys, pheasant, geese, or pigeons in USA (South Dakota, Iowa, Minnesota, Wisconsin, West Virginia and California) (Arends, 2003; Cassidy & Ketter, 1965; Tacal, 1986), Mexico (Acevedo & Quintero, 1981), Britain (Amure & Stuart, 1977), Poland (Smolska-Szymczewska & Paszowska, 2000) and Chile (Toro *et al.*, 1999). Also, internal abdominal and nervous lesions in parasite infected turkeys have been reported (Kaliner, 1970; Smith *et al.*, 1997).

Large numbers of nodules are most often found in aged emaciated birds (Arends, 2003). It is possible that the age and immunodepression by the lymphoma disease contribute to the large number of nodules observed in the bird.

Cystic right oviducts are common incidental findings in postmortem examination of chickens. Small cysts are of little consequence, but large cysts compress the abdominal viscera (Crespo & Shivaprasad, 2003). A close examination of the cyst lining revealed a single cuboidal to columnar ciliated epithelium as reported by Schmidt & Raush (1986).

It appears the first case of simultaneous presentation of these conditions from a single chicken hen.

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