

CYSTIC DILATATION OF RIGHT OVIDUCT IN LAYER CHICKEN

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ABSTRACT

Occurrence of cystic dilatation or distension of right oviduct in adult layer chicken is reported. Out of 6572 layer carcasses examined the condition was observed in 42 (2.45%) birds, predominantly in the age group of 61 to 80 weeks. Grossly, features were distended abdomen that contained fluid filled cyst which varies from 2.5 cm to 10 cm in diameter. The wall of the cyst was very thin and it contained slightly opaque watery fluid that ranged from 20 to 430 ml. Microscopically, the wall of the cyst was lined by a single inner layer of cuboidal epithelium surrounded by smooth muscles amidst collagen, reticulum fibers and blood vessels and also an outer serosal layer.

Key words: Cystic right oviduct, Layer chicken, Occurrence, Pathology

INTRODUCTION

The development of breeds of chicken that have the ability to ovulate more in order to produce more number of eggs during a laying period. This enhanced genetic potential along with the sophisticated feeding management strategies make the bird susceptible to different types of reproductive disorders. Although it is well known, that reproductive disorders of poultry results in decreased egg production and increased mortality. There are limited reports on the disorders of the oviduct (Batra and Singh, 1978). The present study reports the occurrence, gross and histopathology of cystic dilatation cases recorded at necropsy in the right oviduct of commercial layer chicken.

MATERIALS AND METHODS

The study was carried out over a three year period (2005 to 2008). A total of 6572 carcasses of

commercial layers, above 20 weeks of age belonging to white leghorn breed from unorganized poultry farms situated in and around Namakkal district, Tamil Nadu, India were examined. Cases with cystic dilatation of the right oviduct were recorded and weighed. After recording the size of the cysts, representative tissue samples were collected in 10 % neutral buffered formalin solution for histopathological studies. Formalin fixed and paraffin embedded tissues were processed by standard procedures and 4 -6 µm thick sections were stained by routine haematoxylin and eosin staining method (Luna, 1968).

RESULT AND DISCUSSION

Out of 6572 layer birds examined oviductal lesions were recorded in 1715 cases. Among the 1715 cases 42 (2.45 %) had cystic dilatation of right oviduct. The condition was predominantly noticed in the 61 to 80 wk age group. The weight of

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the birds with cyst ranged from 2.5 to 3.2 kg compared to the birds with out cyst (1.5 to 2.0 kg). In the birds that had cystic dilatation, the abdomen. was distended and the pectoral and thigh muscles showed mild degree of atrophic changes. The right oviductal cysts varied in size from 2.5 cm to 10 cm in diameter and it was attached to the cloaca through a narrow stalk (Fig. 1) and in some cases occupied the entire abdominal cavity. The wall of the cyst was very thin and the cystic contents were slightly opaque and watery. The quantity varied from 20 to 430 ml. The distended cysts contributed to the birds developing a pendulous abdomen. In most of the cases the ovarian follicles were well developed indicating that the birds were actively laying prior to death. the observations made in this study are in agreement with earlier reports of Dietrich et al. (1999) and Crespo and Shivaprasad, (2003). Microscopically, the wall of the cyst was lined by a single inner layer of cuboidal epithelium surrounded by smooth muscles amidst collagen, reticular fiber and blood vessels and an outer serosal layer.

In domestic fowl (*Gallus domesticus*), as in most birds, paired paramesonephric (Mullerian) ducts and gonads are present in the coelomic cavity of developing male and female chick embryos (at about embryonic day 5). In the male, the ducts begin to regress about embryonic day 8 coincident with the expression of AntiMullerian hormone (AMH) and immediately undergoes regression and disappear by embryonic day 12. In the female, the left Mullerian duct continues to grow despite the expression of ovarian AMH and develops into the functional oviduct, where as the right duct undergoes a relatively slow involution after day 12 of incubation and remnants of non-functional vestige remains attached to the cloacae. At laying stage, the ovary produce an increased amount of

estrogen. An interaction of this increased estrogen with the remnants of right oviduct results in the development of cystic changes of the right oviduct (Crawford, 2003).

Genetic factors may also influence the development of right cystic oviduct. The inheritance of right oviduct development is controlled by a single pair of genes. Birds homozygous for the dominant gene (RO) had a fully developed right and left oviducts, where as the heterozygous showed relatively large cystic right oviduct. The birds that were homozygous for the recessive (ro+) usually possessed only single left oviduct and a small non cystic right oviduct (Crawford, 2003).

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Fig. 1

Fluid filled cystic right oviduct, appearing as a large blind sac and attached to the cloacae

