PAROVARIAN CYST IN LAYER CHICKEN

P. Srinivasan and G. A. Balasubramaniam
Department of Veterinary Pathology
Veterinary College and Research Institute
Namakkal, Tamil Nadu, India.

ABSTRACT

This report describes rare cases of parovarian cyst in 61 to 80 wks old layer chicken. On necropsy examination, thin wall cysts measuring between 3 to 8 cm diameters were noticed in the vicinity of the ovary of affected chickens in mesosalpinx of the left oviduct towards the region of infundibulum with a narrow stalk. Microscopically the wall of the cyst was lined by cuboidal epithelium and beneath which prominent muscular layer was noticed. On cultural examination the cystic fluid was sterile. To the best of our knowledge, this is the first report of parovarian cyst in layer chicken.

Key words: Parovarian cyst, chicken, pathology.

INTRODUCTION

In the adnexal structures (e.g., broad ligament, round ligament) variety of cysts arise from peritoneal inclusions or embryonic remnants (Mullerian or Wolffian systems). Parovarian cyst is a fluid filled cystic structure that do not occur in the ovaries themselves, but present in the broad ligament close to the ovary and oviduct. It arises from remnants of either Mullerian or Wolffian ducts. In poultry cystic condition of right and left oviduct (Goldhaft, 1956) and follicular cysts of ovary (Krishnan, 1967) have been reported. However parovarian cyst in domestic chicken, to the best of our knowledge has not been reported. The purpose of the present paper is to place on record the gross and histopathology of an unusual occurrence of parovarian cyst in layer chicken encountered during an investigation of oviduct pathology.

MATERIALS AND METHODS

In the present investigation, oviduct abnormalities in 6572 birds of above 20 wks of age were studied based on gross lesions recorded at routine postmortem examination for a period of three years from 2005 to 2008. All the birds were White Leghorn layer chicken and maintained in commercial poultry farms situated in and around Namakkal district, Tamil Nadu, India. The birds were reared in cage system and fed with commercial layer ration.

Detailed postmortem examination was carried out in birds showing oviduct abnormalities and the parovarian cyst was identified based on its location, gross lesion and histopathological examination. The cystic fluid was aspirated using a 5 ml sterile syringe attached with 18 gauge needle and cultured on blood agar for 72 h at 37°C. The tissue for histopathological examination was collected in 10% neutral buffered formalin solution. Formalin fixed
tissues were washed overnight in running tap water, dehydrated in ascending grades of alcohol and cleared in xylene and embedded in paraffin. Thin paraffin sections were cut at 5 -6μm thickness, stained with routine haemotoxylin and eosin method of staining and examined for histopathology.

**RESULTS AND DISCUSSION**

Among the 6572 birds examined, 1715 birds showed various types of oviduct abnormalities. Out of 1715, six birds aged between 61 to 80 wks old, revealed the presence of parovarian cyst. The affected birds were good in physical condition, weighed between 1.9 to 2.2 kg and found dead inside the cages without any premonitory signs. It appeared as cystic distension in the vicinity of ovary in mesosalpinx of the left oviduct towards the region of infundibulum with a long narrow stalk. The size of the cysts ranged from 3 to 8 cm in diameter. In few birds the cyst was observed along with a small cystic dilatation of right oviduct (Fig 1). All the cysts were roughly circular and the walls were whitish in colour. On opening, the contents vary from clear watery to mucus in nature. In two cases the cysts were large (8 cm) which compressed the abdominal viscera and caused the disproportional large pendulous abdomen as observed in other cystic conditions of ovary and oviduct (Riddel, 1997). In birds with large cysts, the ovary appeared restive i.e., no clusters of ova were found as seen in the laying period, the oviduct was also quiescent, where as in birds with small cysts the ovarian follicles and left oviduct were apparently normal, indicating that the birds were actively laying before death. No other gross lesions were seen in other organs. Microscopically the wall of the cyst was lined by cuboidal epithelium underneath these cells, prominent muscular layer was noticed. The findings were concurred with those of Sastry (2001). Cultural examination of cystic fluid revealed no bacteria of pathological significance.

Although spontaneously occurring parovarian cyst probably arise from either mesonephric or paramesonephric duct remnants, the cystic structures observed in the present study were consistent in location and histologic appearance with a mesonephric origin (Stenback and Kauppila, 1981). In conclusion, parovarian cyst appears to be a rare finding in chicken, as there is no earlier report, to the best of our knowledge, of the condition in the literature. We therefore suggest that this may be a first reported case of parovarian cyst in poultry.

**REFERENCES**


Fig. 1

Fluid filled parovarian cyst (A) attaching to the mesosalpinx of left ovary along with small cystic distension of right oviduct (B)