Archives of Razi Institute, Vol. 62, No. 1, Winter (2007) 49-51

Case Report

Occurrence of Myelocytoma in a Broiler Flock in Tehran Province, Iran

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Received 20 Aug 2006; Accepted 09 Feb 2007

ABSTRACT

Large creamy color livers of some chickens from a commercial broiler flock, reared in Tehran province, were noticed in a slaughter house. Myeloid leukosis (myelocytoma) characterized by presence of typical gross and microscopic lesions was diagnosed. Further studies for assessment of prevalence of this disease in broiler breeders and broilers flocks was suggested.

Keywords: *Myelocytoma*, Broiler, Iran

INTRODUCTION

There are four economically important neoplasms in poultry: Mark's disease, Lymphoid leukosis, Reticulo endotheliosis and Lymphoproliferative disease of turkeys. Lymphoid leukosis is caused by certain members of the leukosis/sarcoma group of avian retroviruses (Chester *et al* 2001). In this group of viruses six subgroups; A, B, C and D (exogenous viruses), E (endogenous) and J (recombinant) have been identified (Shivaprasad 2002). Subgroups A, B and J are common in the field but subgroups C and D are rare (Fadly & Payne 2003, Shivaprasad 2002, Chester 2001). Infection with avian leukosis virus subgroup J (ALV-J) causes economic losses in the broiler industry by increasing mortality, producing tumors, and decreasing weight gain in chicken (Kim & Brown 2004). ALV-J has been isolated in England from broiler breeder stocks experiencing myeloid neoplasms, Myelocytoma (Chester 2001).

CASE HISTORY

In a routine post mortem inspection of chicken's carcasses from a 55 days old commercial broiler flock, reared in Shahriar region (Tehran province, Iran); enlarged creamy color liver of about 5 to 10 percent of one thousand chickens from a flock with totally ten thousand chickens were noticed (Figure 1). But, no other obvious gross lesions in other organs were observed. There was no exact history of clinical signs of the chickens in the flock. But, it was said that the mortality rate had been higher than normal, during rearing. The mean body weight of the chicken's carcasses, especially in chickens with liver enlargement was apparently less than the weight intended for that age. Thus, samples of the livers were collected and kept in 10% formalin until

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fixation. Tissues were routinely processed to paraffin blocks, sectioned at 5μm, deparaffinized, stained with H&E and finally examined by a light microscope.

Figure 1. Enlarged creamy color liver of a chicken infected to myelocytoma.

In microscopic examination of the livers, diffuse infiltration of proliferative neoplastic myelocytes with large nuclei and distinct nucleolus that contained numerous eosinphilic cytoplasmic granules was evident (Figures 2 and 3).

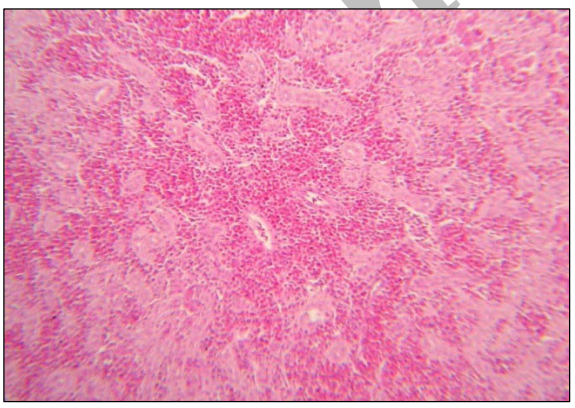

Figure 2. Myelocytoma. Chicken liver. Obvious infiltration of myelocytes with numerous eosinophilic cytoplasmic granules (×100 H&E).

Moreover, there were some small nests of less well differentiated myelocytes, myeloblasts, within the myelocytomas these cells appeared more basophilic,

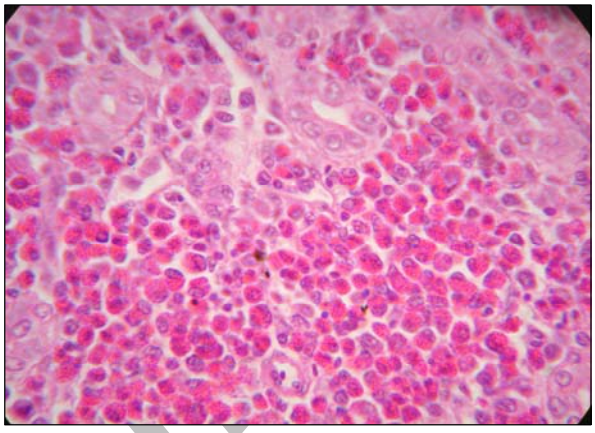

Figure 3. Myelocytoma. Chicken liver. A group of myelocytes with large round nuclei and copious eosinphilic granules is seen (×1000 H&E).

due to lower cytoplasmic granules and larger nuclei (Figure 4). Based on the history, gross observation and histopatholgic examination results it was diagnosed as myelocytoma.

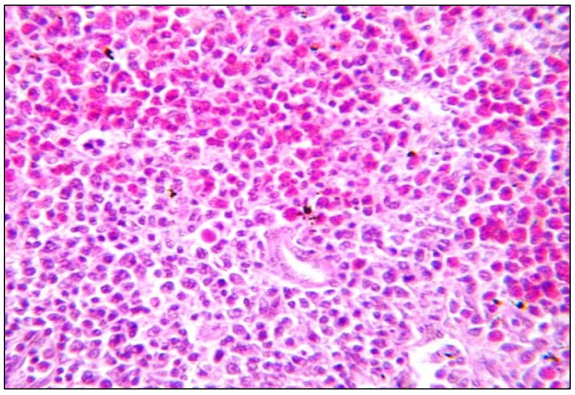

Figure 4. Myelocytoma. Chicken liver. In the bottom of the picture a nest of myeloblasts with fewer cytoplasmic granules and larger nuclei and in the upper part myelocytes with copious eosinophilic cytoplasmic granules is seen (×200 H&E).

DISCUSSION

Erythroblastosis, myeloblastosis and myelocytoma are the well known neoplasms of the erythroid and Myeloid series of cells (Ridell 1997). Myelocytoma is the most common tumors of those mentioned that can cause problems in infected flocks. Primary

tumors arise in the bone marrow and metastasize to viscera (Randall & Reece 1996). Tumors of myelocytoma are distinctive and can be recognized on gross examination with some degree of certainty (Fadly & Pyne 2003). Myelocytomas often develop at the costochondral junction of the ribs, on the inner sternum, pelvis, and flat bones of skull. Myelocytomatous infiltration often causes enlargement of the liver and spleen and other organs. Whereas, in present study enlargement of livers was the most prominent feature of the disease. But, we neither had enough concentration to bones nor did bone sampling. Moreover, we didn't see any similar gross lesions, like as liver, in other organs like as spleen, As well as, in histopathological examination of the randomly sampled spleens and other organs.

The morphology of the neoplastic cells in the liver was highly suggestive of myelocytoma. In the liver accumulation of neoplastic myelocytes occur around blood vessels and in the parenchyma (Fadly & Pyne 2003, Randall & Reece 1996, Ridell 1997). This was in agreement with our observation. In Australia broiler breeders were screened for ALV-J from May 2001 to December 2003 as surveillance of measures to reduce the prevalence of ALV-J, using virus isolation and molecular biological detection (Bagust *et al* 2004, Fenton *et al* 2005).

Although we didn't performed virus isolation and other biological diagnostic technique. But, our results were highly indicative of presence of ALV-J in that broiler flock in Tehran province. Therefore, it is essential to obtain a clear understanding of the infection status of ALV-J in Iranian broiler breeders and broiler flocks.

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