

Study On Prevalence Of Hepatic Tumor In Imported Ducks

Sanaa¹ S. A. Awad and Hussein² S. Hussein

¹Department of Poultry diseases, Faculty of Veterinary Medicine, Mansoura University

²Department of Pathology, Faculty of Veterinary Medicine, Mansoura University

ABSTRACT

The prevalence of hepatic neoplasm (lymphoid leukosis) among the imported ducks (aged 3-5 month) were carried out during the period of January to December 2006. The examined ducks were admitted to the veterinary teaching hospital, Mansoura University. The clinical signs of the admitted ducks were not specific and represented by inappetence, emaciation with moistened vent by greenish diarrhea besides dehydration and distended abdomen. The liver of necropsied ducks revealed diffuse hepatic enlargement or the presence of soft focal grayish white nodules of 0.5 to 1.5 mm in diameter, distributed on hepatic and cut surface. Histopathological examination revealed that, the hepatic parenchyma was focally displaced with neoplastic cells. Moreover, several focally infiltrated areas were coalescing with each other to diffusely replacing the parenchyma. The compressed hepatic cells, by neoplastic cells and remnant of sinusoidal endothelium were appeared as fibroblast like cells. The tumor cells were consisted from uniformly large anaplastic lymphoblasts with large vesicular and hyperchromatic nuclei containing prominent nucleoli besides poorly defined cytoplasm. The adjacent hepatic cells showed pressure atrophy and various degenerative changes. It could be concluded that the prevalence of lymphoid leukosis among imported ducks in Egypt is high (8%).

INTRODUCTION

Hepatic tumors have been previously reported in ducks. The incidence of hepatic tumors in Chinese ducks ranged from 5-12 % (1). Avian leukosis virus (ALV) persisted for at least three years in tissues of ducks embryonally inoculated with ALV in spite of lack of viremia and the development of neutralizing antibodies (2). Viremia was detected in 60-70% of intraembryonally infected duck with avian leukosis virus of subgroup C (ALV-C), which followed up for 5-6 years, and varied from transient, fluctuating or persistent viremia (3). Additionally, hepatocellular carcinoma in ducks, has been associated with hepatitis B virus (4). Duck hepatitis virus has been detected in apparently healthy Indian ducks, but postmortem examination revealed presence of neoplastic nodules on the surface of the liver (5).

Moreover, from 875 examined ducks (from the three flocks in Qidong country), 34 were suffered from hepatoma. Twenty seven ducks (from 34) were positive for Duck hepatitis B

virus. Duck hepatitis DNA was demonstrated in neoplastic nodules of 22 ducks (6).

In Egypt, it has been recorded (7) that, the liver tumors in ducks appeared to be high (22.9%) and the most affected organs were kidneys. However, previous studies in Egypt did not describe the disease condition in the liver in details and no further studies were done to investigate the extent of the problem in imported breeds of ducks. Consequently, the aim of the present study was to describe the prevalence of neoplasm (lymphoid leukosis) in the liver of imported breeds of duck as well as their histopathological findings.

MATERIAL AND METHODS

History and clinical examination

Fifty cases of imported breed of ducks from different localities in Dakahlia province were admitted to the clinic of veterinary teaching hospital, Mansoura University during 2006. Birds were 3-5-month-old and were related to small scale duck farms. The clinical signs were recorded. The postmortem examination was performed and gross lesions were assessed.

Postmortem examination and sampling

Postmortem examination was carried and specimen from the macroscopical liver lesions were collected and fixed in 10% neutral buffered formalin solution. Five micron thick paraffin sections were prepared and stained by Hematoxylin and Eosin (8).

RESULTS

Clinical findings

The clinical signs of the admitted ducks were not specific and represented by inappetence, emaciation with moistened vent with greenish diarrhea besides dehydration and distended abdomen.

Gross findings

The most affected organs were the liver (fig1-2). The liver of necropsied ducks revealed diffuse hepatic enlargement or presence of soft focal grayish white nodules of

0.5 to 1.5 mm in diameter, distributed on the external hepatic and cut surfaces four birds out the fifty (8%) showed apparent hepatic lesions.

Histopathological findings

Histopathological examination revealed that, the hepatic parenchyma was focally displaced by neoplastic cells. Moreover, several focally infiltrated areas were coalescing with each other to diffusely replacing the parenchyma. The compressed hepatic cells, by neoplastic cells, and remnant of sinusoidal endothelium were appeared as fibroblast like cells. The tumor cells were consisted from uniformly large anaplastic lymphoblasts with large vesicular and hyperchromatic nuclei containing prominent nucleoli besides poorly defined cytoplasm. The adjacent hepatic cells showed pressure atrophy and various degenerative changes.

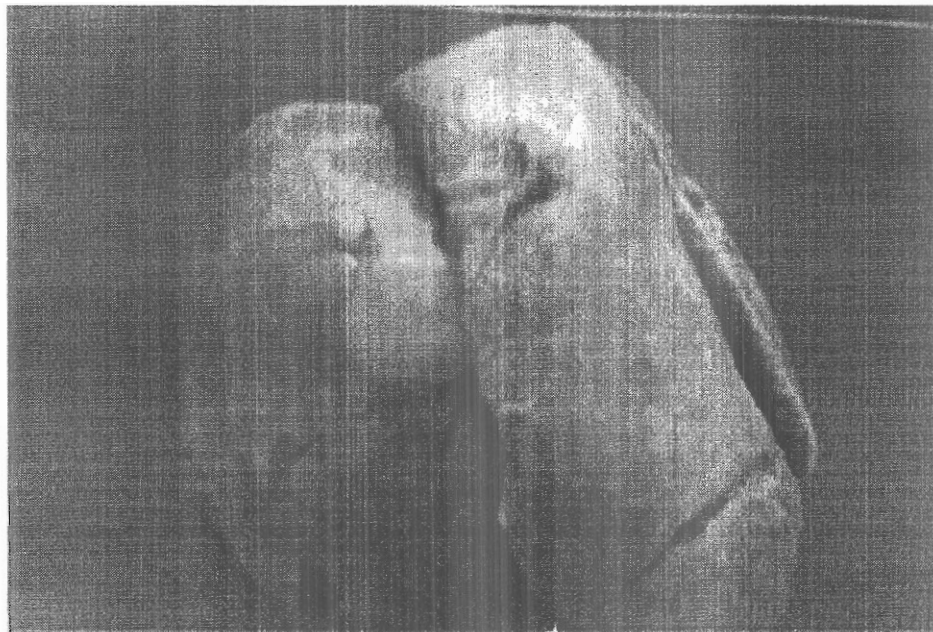


Figure 1. Liver of duck (4 month-old) showing enlargement with the presence of large neoplastic nodule. The nodule was grayish white to yellowish in color.

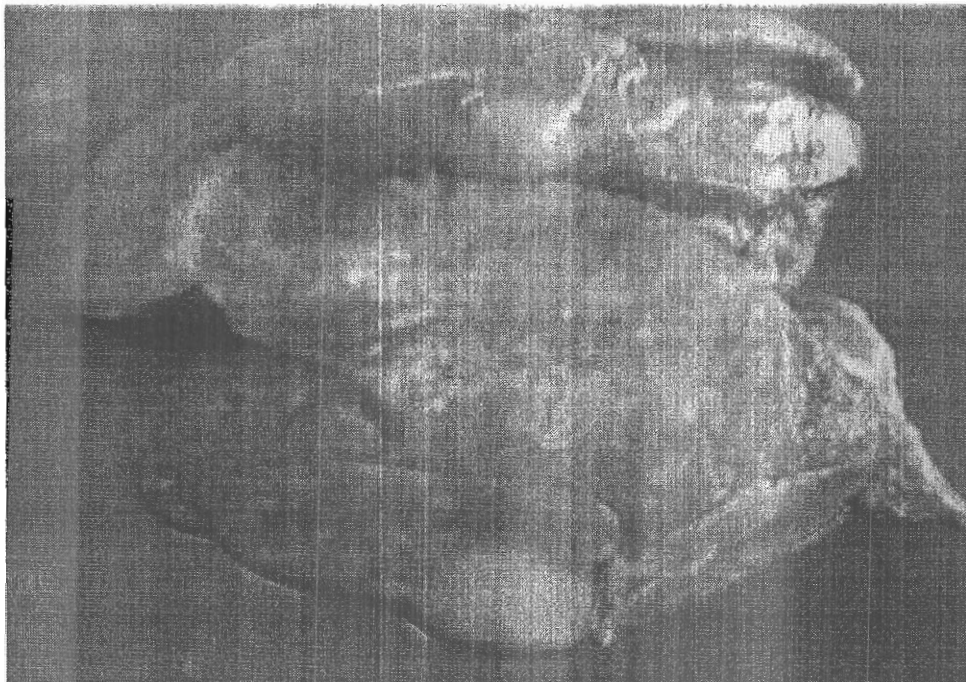


Figure 2. Liver of duck (5 month-old) showing enlarged liver and grayish white multiple nodular tumor on its surface

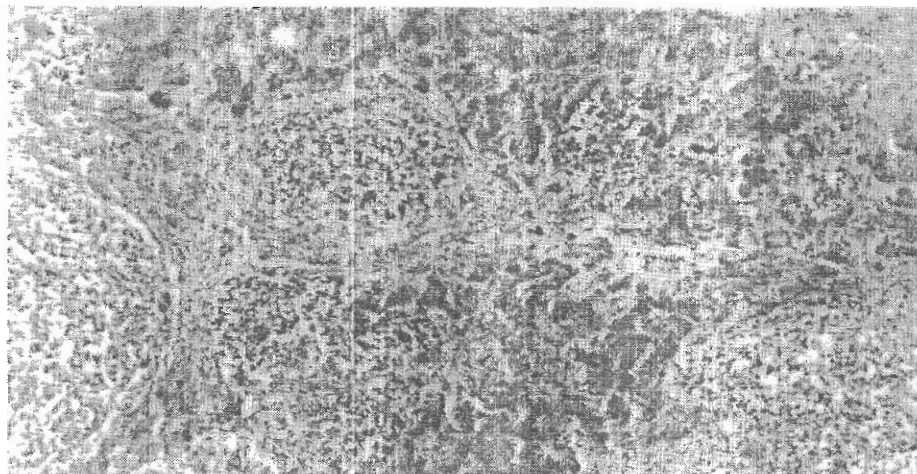


Figure 3. Multi-focal aggregation of neoplastic cells replacing liver parenchyma. The adjacent hepatic cells showing pressure atrophy. (H&EX120).

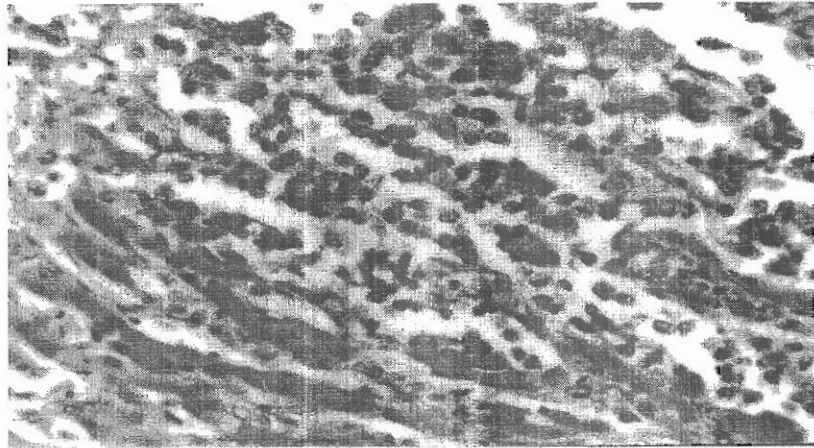


Figure 4. High power of the previous figure showing uniformly neoplastic cells with large vesicular and hyperchromatic nuclei containing prominent nucleoli besides poorly defined cytoplasm. (H&E X520)

DISCUSSION

Ducks are the natural host of avian leukosis virus (9). Experimentally infected ducks revealed neoplastic growth with or without viremia and serum neutralizing antibodies against ALV(2). Our results are in agreement with the aforementioned results , where the neoplastic growth were discovered only at slaughtering. Our results showed high prevalence (8%) of hepatic neoplasm in imported ducks in Egypt. Previous study on the investigation of tumor incidence in Baladi ducks in Sharkia governorate revealed a high prevalence in the kidneys , liver and subcutaneous tissue (7). Postmortem finding in our results showing diffuse hepatic enlargement or presence of soft focal grayish white nodules of 0.5 to 1.5 mm in diameter, distributed on hepatic and cut surface. The focal nodules could be due to focal replacement of the hepatic cells with neoplastic cells. Meanwhile the diffuse enlargement could be due to coalescing of several nodules (1,7). The diagnosis depends on histopathological examination , which revealed that the hepatic parenchyma was focally displaced with neoplastic cells.

Moreover, several focally infiltrated areas were coalescing with each other to diffusely replacing the parenchyma. Our results are consistent with recent study (10) which mentioned that the lymphoid leukosis are focal and multicentric in origin, even in organs appearing diffusely involved when examined grossly. Our results showed that the hepatic cells adjacent to the neoplastic nodules and the remnant of sinusoidal endothelium appeared as fibroblast like cells. The neoplastic cells in lymphoid leukosis were displaced and compressed cells of affected organ rather than infiltrated between them (10). Our results showed that the tumor cells were consisted from uniformly large anaplastic lymphoblasts with large vesicular and hyperchromatic nuclei containing prominent nucleoli besides poorly defined cytoplasm. The adjacent hepatic cells showed pressure atrophy and various degenerative changes. Similar finding were reported by several investigators (7, 11-13).

It could be concluded that ducks are natural host of ALV. Moreover, the prevalence of lymphoid leukosis among imported ducks in Egypt was high (8%) Unfortunately, in this study we were not able to determine the

antibodies of ALV or virus isolation, so further studies are required on a large scale of duck farms to determine antibodies and trials for virus isolation.

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الملخص العربي

دراسة على مدى انتشار الورم الكبدى فى البط المستورد

سناء سلامة احمد عوض¹ - حسين سعد حسين²

¹قسم أمراض الدواجن كلية الطب البيطرى جامعة المنصورة

²قسم الباثولوجية كلية الطب البيطرى جامعة المنصورة

تم إجراء هذا البحث على عدد خمسون بطة من النوع المستورد وردت إلى المستشفى البيطرى التعليمى بكلية الطب البيطرى جامعة المنصورة خلال عام ٢٠٠٦. وكانت الاعراض الاكلينيكية للمرض أعراض غير نوعية فى شكل هزال شديد و بهتان فى الأغشية المخاطية و ضمور فى عضلات الصدر.

وعند إجراء الصفة التشريحية وجد فى أربع حالات (٨%) تضخم فى الكبد مع وجود أورام مختلفة الأحجام. و تم اجراء الفحص الهستوباثولوجى وجد ان الورم السرطاني يتكون من خلايا سرطانية وتتميز بحجم النواة الكبير الذي يشغل معظم حجم الخلية تتطابق مع الصورة الهستوباثولوجية لمرض الليكوزس