

Pancreatic Exocrine Adenocarcinoma in a Cock

D.Basheer Ahamad, S.Azmi, C.Balachandran

S.Sood, N.Nashirudullah, & M.S.Badwal

Sher-e- Kashmir University of Agricultural Sciences & Technology- Jammu

R.S.Pura. 181 102. Jammu. J&K State, India

†Tamil Nadu Veterinary and Animal Sciences University, Chennai, India

Article Received on 22.03.2018

Article Published on 19.04.2018

Abstract

Pancreatic adenocarcinoma is a rare neoplasm of poultry. This condition is discussed in an adult cock that died suddenly in a flock of apparently healthy birds. Grossly, pancreas and mesentery of intestine, serosal layer of small intestine, gizzard, proventriculus, spleen, and liver showed grayish nodular growths on of various sizes. On histopathological examination, neoplastic cells arranged as tubular pattern of adenocarcinoma with transcoelomic metastasis to other organs. Based on pathomorphology, the growth was diagnosed as well differentiated pancreatic exocrine tubular adenocarcinoma in a cock.

Introduction

Exocrine pancreatic adenocarcinoma is a rare neoplasm of domestic animals, including poultry (Hafner et al., 2013; Reece, 1992; Okoye and Ilochi, 1993). Ascites may occur as a result of transcoelomic spread of neoplasia or as a consequence of compression of the portal vein or its major branches. (King, 1995). To our knowledge, there has been no report of Exocrine pancreatic adenocarcinoma in turkey. The present study describes a case of exocrine pancreatic adenocarcinoma in a cock.

Materials and Methods

A two and a half year old cock was submitted for the necropsy with a history of yellowish black droppings, yellowish discoloration of the skin, continues biting of other birds, cannibalism for the last one month and was found dead. Necropsy of the carcass was done. Representative tissue samples from pancreas and intestine were collected in 10% formalin and were processed. Sections were made at 5 microns thickness and were stained by Haematoxylin and Eosin staining technique.

Results

Grossly, the carcass showed distended abdomen. The abdominal cavity contained large quantity of yellowish watery fluid. Numerous tiny grayish nodules of tissue growths were observed the pancreas, serosal layer of small intestine including mesentery, on the abdominal wall, mesentery and serosal layer of gizzard, proventriculus and spleen. The pancreatic tissue was the only parenchyma affected and the growths were measuring 3.5x4.5x5 cm and weighing 60 g. The other nodules in the serosal layer of the other abdominal organs were measuring ranging from 0.3- 2.5 cm in diameter. Histopathologically, in pancreas, the malignant neoplastic tissue consisted

of diffuse tubular pattern of structure originated from exocrine portion of parenchyma showed columnar to cuboidal cells. This neoplastic growth had the uniform cells with tubular pattern which were supported by a thin but regular fine collagenous trabecular structure (Fig.1 and 2). In some areas relatively more stromal components, but encapsulation of the whole tumour was seen. The neoplastic cells have eosinophilic cytoplasm, vacuolated, but zymogen granules (eosinophilic) were only seen little quantity (Fig.3). Nuclei were vacuolated, uniform, oval, with sparse chromatin and are basally sited in columnar cells lining acini. This well differentiated carcinomas with tubular formations had uniform cells with regular polarity and low nuclear to

cytoplasmic ratio. Mitotic index reflects the level of differentiation. The growth had more numerous mitoses per high power microscopic field (2–4 mitoses per 400x field). Liver showed diffuse mild congestion, multifocal mononuclear cell infiltration around periportal areas. The Gllison's capsules were adhered with neoplastic cells seen in pancreas. Similar type of tubular pattern of well differentiated adenocarcinoma neoplastic cells were observed in serosal of jejunum, ileum, spleen, mesentry, testes including invasion of neoplastic tissue into muscular coat of duodenum (Fig.4). Based on pathomorphological examination, the growth was diagnosed as Pancreatic exocrine tubular adenocarcinomas.

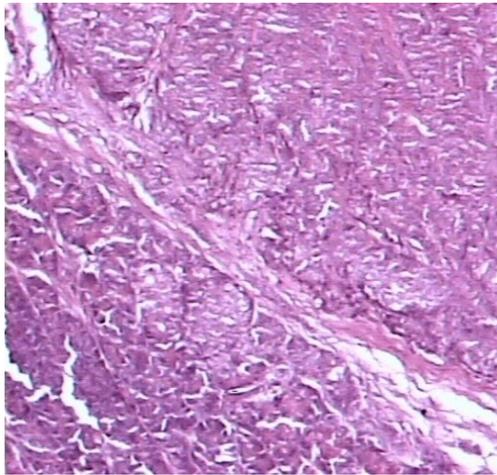


Figure 1 Pancreas showing well differentiated exocrine tubular adenocarcinoma H&E 100x

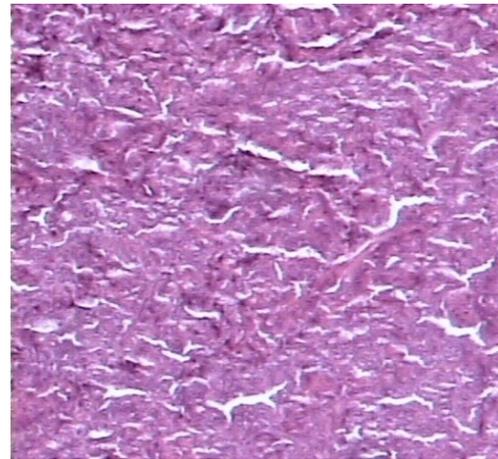


Figure 2 Pancreas showing well differentiated exocrine tubular adenocarcinoma H&E 100x

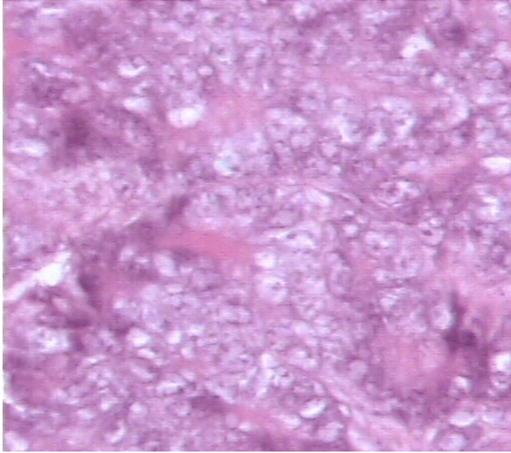


Figure 3 Pancreas showing well differentiated exocrine tubular adenocarcinoma H&E 400x

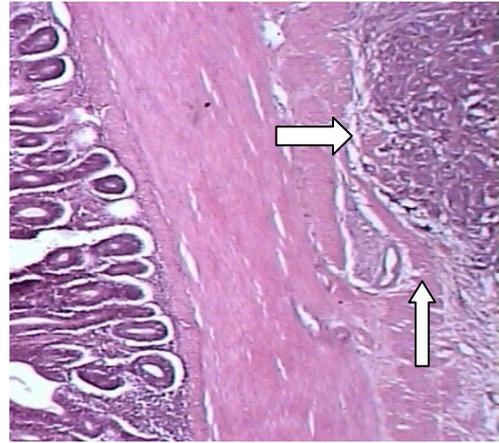


Figure 4 Duodenum: Serosal and muscular layer of intestine are infiltrated with pancreatic adenocarcinoma H&E 100x

Discussion

In the present study, Pancreatic exocrine adenocarcinomas and its transcoelomic metastasis in other abdominal organ were also recorded with tremendous range of differentiation. Well-differentiated tubular adenocarcinomas with acinar structures lined by irregular cuboidal or more differentiated columnar cells are seen in guinea fowl (Okoye and Ilochi,1993). The clear zone of transition observed between the normal acinar and the neoplastic tissue shows that the neoplasm is of exocrine origin. These findings for pancreatic adenocarcinoma in birds were in accordance with reports of Hafner *et al.*, (2017) and Okoye and Ilochi (1993) described a similar case with extensive metastatic implants on the serosa of the duodenum, proventriculus and liver, sections of all of which showed tubular glandular structures on microscopic examination. Kirev *et al.* (1986) also described a virus-induced experimental pancreatic adenocarcinoma of guinea fowl

in which the pancreas showed tubular neoplastic tissues some of which produced mucin. The severe ascites observed in this case might be due to extensive fibrosis of the serous membranes. Local destructive infiltration, widespread contiguous growth, and transcoelomic metastasis are hallmarks of exocrine pancreatic carcinoma. In addition, widespread metastases to distant sites are common and are often established by the time of clinical presentation. (Anderson and Johnson, 1967; Kircher, and Nielsen, 1976).The most frequent sites for metastasis are the peritoneum, mesentery and adjacent gastrointestinal organs, followed by liver and less frequently and spleen (Rowlatt, 1967; Munster and Reusch, 1988). Based on pathomorphological examination, the growth was diagnosed as Pancreatic exocrine tubular adenocarcinomas with transcoelomic metastasis to other organs in peritoneal cavity.

References

- Anderson, N.V., and Johnson, K.H. (1967) Pancreatic carcinoma in the dog. *J Amer Vet Med Assoc* 150:286–295.
- Brown, P.J., et al. (1994) . Multifocal necrotizing steatitis associated with pancreatic carcinoma in three dogs. *J Small Anim Pract* 35:129–132.
- Hafner, S, Reece, RL. and Williams, SM (2013). Other tumours, in; Swayne, D.E., Glisson J.R. McDougald, L.R., Nolan, L.K., Suarez, D.L., Nair. V.L., (Eds) Diseases of Poultry, 13th Edn, pp. 604-673
- King, J.M. (1995) Obstructive perilobular fibrosis of the pancreas. *Vet Med* 90:533.
- Kircher, C.H., and Nielsen, S.W. (1976) Tumours of the pancreas. *Bull WHO* 53:195–202.
- Kirey, T.T., Toshkov, I. and Mladenov, Z.M. (1986). Virus-induced pancreatic cancer in guineafowl: A morphologic study. *Journal of National Cancer Institute*, 77, 713-720.
- Munster, M., and Reusch, C. (1988) Tumours of the exocrine pancreas in the cat. *Tierärztliche-Praxis*, 16:317–320.
- Okoye, J. O. A. & Ilochi C. C (1993) Pancreatic adenocarcinoma in guinea fowl, *Avian Pathology*, 22:2, 401-406
- Reece, R.L. (1992). Observations on naturally occurring neoplasms in birds in the State of Victoria, Australia. *Avian Pathology*, 21, 3-32
- Rowlatt, U. (1967) Spontaneous epithelial tumours of the pancreas of mammals. *Brit J Cancer* 21:82–107.