

***Research Paper***

**CAUSES AND IMPACT OF TUMOUR ON BEHAVIOUR OF BIRD: A CASE  
STUDY WITH RESPECT TO SPOT BILLED DUCK *ANAS  
POECILORHYNCHA***

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**INTRODUCTION**

A spot billed duck *Anas poecilorhyncha* suspect with abnormal movements intended keen observations reveal lumps / bumps that made the bird awkward and uneasy. The tumor may be malignant or benign. There are literally hundreds of types of cancers that can affect vertebrate animals, everything from ovarian cancer and brain tumors, to leukemia, lymphoma and melanoma. Thus, Bird observed with neoplasms can develop malignancy at any time. This paper aims to discuss the cause of tumor (malignant or benign), carcinogenic and the biomarkers that will help to diagnose the stages of disease so as to improve the outcome and management of cancer in these beautiful creatures.

1. A tumor (Neoplastic growth) is mass of abnormal cells that may grow and spread rapidly. The life threatening tumor could either benign (non-cancerous) or malignant (cancerous) type. If it is a benign type it can be normally removed but malignant tumor invade other tissue and organs through metastasis. Metastasis is the process in which cancerous cells detach from tumor and spread in the body through blood stream or lymphatic system and germinate new secondary tumours in other parts of the body. On 1 October 1909, **Francis Peyton Rous** began his famous cancer virus transmission experiments at the *Rockefeller Institute, USA*, on a 15-month-old barred *Plymouth Rock hen* that had been brought to him by a farmer from Long a sarcomatous chest tumour that Rous successfully transplanted into other chickens that were related to the same brood. By 1911, he had shown that the cancer could be transmitted through cell-free tumour extracts and thus must be caused by a small transmissible agent, probably a virus. Cancers caused by viruses — such as non-infectious cancers — are biological accidents. Tumours do not increase transmissibility of viruses or enhance their replication fitness. A common misperception is that cancer viruses cause cancer to increase viral burden and transmission. Instead, tumours are 'dead-end' events for viruses. Only a small proportion of people infected with any of the human tumour viruses develop tumours and, of those people who do, they rarely (if ever) serve as sources for ongoing transmission.
2. The macrophage-like cells which are found in avian sarcomas are almost completely resistant to both NK-mediated lysis and to specific cell-mediated cytotoxicity. These cells are present most predominantly during the earliest phases of avian sarcoma growth. They are ASV infected and can be shown to produce progeny virus efficiently .

Although they do not appear to be transformed in any morphological sense and die after 16 to 25 days in tissue culture, they nonetheless may serve an important function in ASV-induced tumor growth, namely that of a reservoir for the continued production of progeny virus. Other investigators have demonstrated in both this and other models that macrophages can become infected and play an important role in progeny virus dissemination. The observation that these cells are resistant to both immune and natural cytotoxicity lends further understanding to the role which they may play in tumor development.

**Spot-billed Duck** (*Anas poecilorhyncha*), also called **Grey Duck**, is a common breeding resident of India. Locally called **Garm Pai or Gugral**, this bird is found in the wetlands of India. This large dark brown duck with scaly-pattern plumage. Bill is black with yellow, orange spot on the base of bill. Size: 60 cm. Found all over India in wetlands, freshwater vegetation covered lakes and reservoirs etc. with extensive emergent vegetation. This bird is sociable, often found in pairs. *Anas poecilorhyncha* that found with tumor protruded out at the neck under skin was regularly observed by keeping an eye over for a period of its stay on wetland and checked carefully for unusual lumps and bumps. The impact of tumor on bird was noted regarding behavioural pattern. Movies and photographs were taken every day with the help of Japan make CANON Power shot SX50HS camera. Identification of bird was made through standard literature. The big external tumors are usually detected a mass that seems unusual bulge underneath the beak and feathers of the neck of birds. As cancer is a complex multistep process, it is now obvious that many molecular events, including virus infection, function together to generate the transformed cellular phenotype (Fearon, et. al., 1990). The huge mass of the cell hampered every normal activity. The bird get inactive and isolated from the flock. Its feeding became troublesome as the tumour interferes swallowing of the bolus.

We made many significant breakthroughs in understanding how cancer starts and develops and helped characterise many aspects of the disease. We have led groundbreaking work on understanding the cell cycle, how DNA damage leads to cancer, mechanisms of cellular DNA repair, immune system and inflammatory responses to cancer, invasion and metastasis and genetic pre-disposition to cancer but that all is about the disorder related to man. It is necessary to implement certain comprehensive measures to treat such innocent creatures. Though enormous research have been done in knowing cancer and remedies over it in human being only. The question is to extend the same application for wild life.





**A Spot-billed Duck**  
(*Anas poecilorhyncha*)



**Duck with tumour**



**Duck with tumour**

#### REFERENCES

Fearon, E. R. & Vogelstein, B. A (1990) genetic model for colorectal tumorigenesis. *Cell* 61, 759–767 (1990).