

## A Case of Cutaneous and Diphtheritic Pox in a Five Weeks Old Turkey Poults

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**Abstract:** Outbreak of turkey pox was reported in unvaccinated turkey poults of 5 weeks old in a private household. Affected birds showed both cutaneous and diphtheritic form of pox lesions. Several coalescing, round nodular lesions were found in the eyelids, head, legs and some were superficially ulcerated. Post mortem examination revealed diphtheritic necrotic membranes lining the oral cavity and upper respiratory system in all the birds. Histopathological examination of the skin lesions showed large clusters of hypertrophic and hyperplastic epidermal stratified squamous epithelium, surrounded by dense fibroblastic stroma, swollen pale keratinocytes with a foamy, vacuolated cytoplasm and Bollinger bodies. Based on the clinical, post mortem and histopathological examination the disease outbreaks were confirmed as turkey pox. The Client was advised to apply gentian violet (gentamycin) spray externally and to give Gendox<sup>(R)</sup> (gentamycin and doxycycline) antibiotic powder @ 4 gm/ litre of drinking water along with B- complex vitamin for 5 days. Clinical signs in the affected birds disappeared completely in 6 weeks post treatment with only two of the birds having permanent blindness of the affected eyes.

**Keywords:** Turkey, pox, cutaneous and diphtheritic form

### INTRODUCTION

Avian pox is a common and economically important viral disease of chickens, turkeys, pigeons and canaries and it has been identified in more than 60 wild bird species [1]. Pox is a slow-spreading disease characterized by the development of discrete nodular proliferative skin lesions on the non-feathered parts of the body (cutaneous form) or fibrin necrotic and proliferative lesions in the mucous membrane of the upper respiratory tract, mouth, and esophagus (diphtheritic form) [2]. A concurrent systemic infection may also occur.

It is caused by large double stranded DNA virus belonging to the genus Avipox and family Poxviridae. The virus replicates in the cytoplasm of cells and can remain alive in a dried scab for upto ten years Hofstad, 1983 [3]. The present report records the concurrent occurrence of cutaneous and diphtheritic form of turkey pox disease in a private household.

### Case History and Observation

On 25<sup>th</sup> August, 2016 a client from Mabera Area, Sokoto presented a 3 turkey poults to the Avian Clinic of the Veterinary Teaching Hospital, Usmanu

Danfodiyo University, and Sokoto, Nigeria with complaints of in appetite, eye blindness and nodular lesions around the eyes. The poults were seven in number and kept semi intensively with their mother and fed with bran and leftover food. History revealed that all the seven poults were affected, two died and the live ones were having the blister like lesions in the eyelids, head, and legs (Plate 1.2) in the initial stage and after two or three days the blisters coalesces and formed firm masses at the eyelids (Plate 1.4), beak and legs (Plate 1.2). The flocks had not been vaccinated against pox or any other disease. There was also no history of medications.

On clinical examination, several coalescing, round, brownish, rough and firm nodular lesions were found at the eyelids, head, and legs (Plate 1.2) and some were superficially ulcerated. On visit to the pen it was observed that there were a lot of mosquitoes and other insects as the cage were placed near the gutter that drained dirty water from the house. Other species of birds (chickens and pigeon) were also noticed. Based on the history and clinical examination the disease outbreak was suspected for turkey pox.



**Plate 1.1: Nodular lesions on the eye**



**Plate 1.2: Pox lesions on the legs of turkey poult**



**Plate 1.3: Pox lesions on the pads of turkey poult**



**Plate 1.4: Pox lesions on the eye of turkey poult**

### Plan of Action

(i) To conduct thorough physical examination (ii) to take relevant samples to laboratory (iii) symptomatically treat the poults and (iv) to give advice on prevention and other management issues

### Differential Diagnoses

Turkey Pox  
Avitaminosis A  
Chronic Respiratory Disease  
Neoplasms

### Tentative Diagnosis

Turkey (avian) Pox

### Samples Collected

Eye lesion swab

### Laboratory Result

**Bacteriology:** *Escherichia coli*

### Histology

Histological sections of skin containing the nodular lesions had cords and large clusters of markedly hypertrophic and hyperplastic epidermal stratified squamous epithelium, surrounded by dense fibroblastic stroma. Lesions consisted of swollen and pale keratinocytes with a foamy, vacuolated cytoplasm and single, round, dense eosinophilic intracytoplasmic viral inclusions (identified as Bollinger bodies). Inclusions distended the cell cytoplasm, producing cell necrosis. Some of them had clear, unstained, central rounded spaces. The superficial epidermis of the lesions was ulcerated with eosinophilic, amorphous keratinaceous crusts and necrosis. Based on the clinical, post mortem and histopathological examination the disease outbreak was confirmed as turkey pox.

### Confirmatory Diagnosis

Turkey pox

### Treatment/Management

Cutaneous pocks were scarified and lesions cleaned with diluted chlorhexidine solution. Gention violet containing gentamycin spray was sprayed on the scarified lesions. 0.2 mls of 20% gentamycin sulfate was administered intramuscularly. V&E<sup>(R)</sup> (Vitamins and Electrolytes) was prescribed at 1gram per liter of drinking water.

### Advice and Recommendations

(a) Keep different species of birds away from each other (b)vaccinate birds regularly (c)vaccinate against pox regularly at appropriate time ( at 4 to 6 weeks of age)

### DISCUSSION

Avian pox is a mild to severe slow developing viral disease relatively of birds resulting in morbidity and mortality among all age groups and sexes and is distributed worldwide in commercial poultry [3, 4]. The

diagnosis of a pox virus infection could be suspected by external clinical examination and gross lesions [5], but it was necessary to confirm the disease in the cutaneous form by the presence of characteristic Bollinger bodies in epithelial cells of epidermis observed in histopathologic analysis, or by virus isolation [5, 6].

In the present case the gross lesions ((Plates 1.1, 1.2, 1.3 and 1.4) in the turkey poults were compatible with an avian pox diagnosis, and this fact was confirmed by the histopathologic analysis performed on the poults. Pox virus is not fatal in all infected individuals, but it can reduce viability and predispose affected birds to secondary infection [7]. Avian pox was a transmissible disease that was spread by biting arthropods such as mosquitoes and mites, and aerosols generated from infected birds, or the ingestion of contaminated food or water [8]. Mosquitoes feed on a viremic bird or contaminated lesion and then feed on a healthy bird, transmitting the virus. It is believed that mosquitoes can harbor the virus for a month or more. In the present case mosquitoes were considered to be an important vector for the spread of turkey pox virus among the poults. An increase in fowl pox cases has been seen to match the mosquito season [1]. There is no successful treatment for turkey pox. Antibiotics can be administered to control secondary bacterial infections, particularly in birds with respiratory lesions. In this case antibiotics and proper sanitation of the pen may help. Proper management was recommended to ensure good sanitation and proper vaccination for effective disease prevention in subsequent flock.

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