

POXVIRUS INFECTION IN DUCKS

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SUMMARY: An outbreak of a poxvirus infection among batches of ducks of different age groups on a farm was reported. The affected ducks had nodular wart-like growth of various sizes mainly on the unfeathered areas of the face, around the eyelids and on the feet. Lesions were also observed in the lightly feathered areas in the neck region. Histopathological changes in the diseased tissues and on the chorioallantoic membranes were typical of a poxviral infection.

Key words: poxvirus, duck

INTRODUCTION

Avian poxviral infections have been reported in many bird species which range from domestic fowls to wild birds. The disease is manifested mainly in three different forms namely the cutaneous form, which is characterised by cutaneous wart-like growth on unfeathered skin, diphtheritic form with lesions in the mouth region and infections of the nasal chambers (Cunningham, 1978).

Reports on the natural occurrence of avian pox among ducks and other waterfowls are scanty and no detailed descriptions of the disease in these species are available. This paper describes an outbreak of the disease among ducks on a farm.

CASE REPORT

A flock of 80 Khaki Campbell ducklings was raised on a backyard farm. They were allowed to roam freely during the day in the rice fields but were confined to a small overcrowded enclosure at night. There was no history of previous disease occurrence or vaccinations against fowl pox in the flock and in the avian population in the surrounding area.

The problem was first observed when the ducklings were four weeks old. About 10 percent of the flock were having small nodular warty growths around the eyelids, at the base of the bill, the legs and the webs. These nodular lesions enlarged rapidly as the age of the ducklings increased. Some of the lesions coalesced to form larger masses. By the time the ducklings were eight to ten weeks old, 60 percent of the ducklings were showing lesions. The lesions on the face and legs were very prominent and bled easily on friction.

Mortality rate among the affected flock was about 40 percent. The disease lingered in the flock until it reached the laying stage when a complete resolution of the lesions amongst all the affected ducks was noticed.

In the meantime, two more batches of 40 ducklings each were introduced about two months apart. A 30 percent mortality was observed in the first batch, with the ducklings showing similar lesions. When the second batch of ducklings were two weeks old, veterinary assistance was sought.

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Physical examination of the two-week-old ducklings revealed mild conjunctivitis with moderate to severe lacrimation and slight swelling over the infraorbital sinuses. Nodular warty growth was not obvious. The flock was kept under observation. At three weeks old, small raised papular lesions were noticed on the eyelids and they enlarged with age (Fig. 1). At six weeks of age the lesions were nodular and firm. They bled easily on friction. Some had serous discharge and were covered with crusts and granulation tissue. Growths at the base of the bill, when large enough, blocked the external nares



FIG. 1: Raised nodular lesions on the eyelids and at the base of the bill of a duckling with poxvirus infection

causing difficulty in breathing. Lesions on the legs and webs tended to become very large (2–3 cm in diameter) and caused difficulty in locomotion (Fig. 2). This hampered the birds in the search for food. Thus all the younger ducklings which were affected were underweight and were in poor body condition. The nodular lesions started to heal when the ducklings were about three and a half months old.

Three birds were sacrificed for necropsy examination. Lesions were restricted to the external cutaneous surfaces. No significant gross lesions were observed in the internal organs. Samples from cutaneous pox lesions were submitted for histopathological examinations and standard virological procedures for isolation and identification of the causal agent.

RESULTS AND DISCUSSION

The distinctive features of poxviral infection were obvious in the cutaneous lesions, histopathological sections and on the chorioallantoic membrane (CAM) of embryonated chicken eggs. Histopathological sections of skin and CAM revealed a proliferative and hyperplastic epithelium with severe ballooning degeneration. Large eosinophilic intracytoplasmic inclusion bodies were evident in these swollen cells.

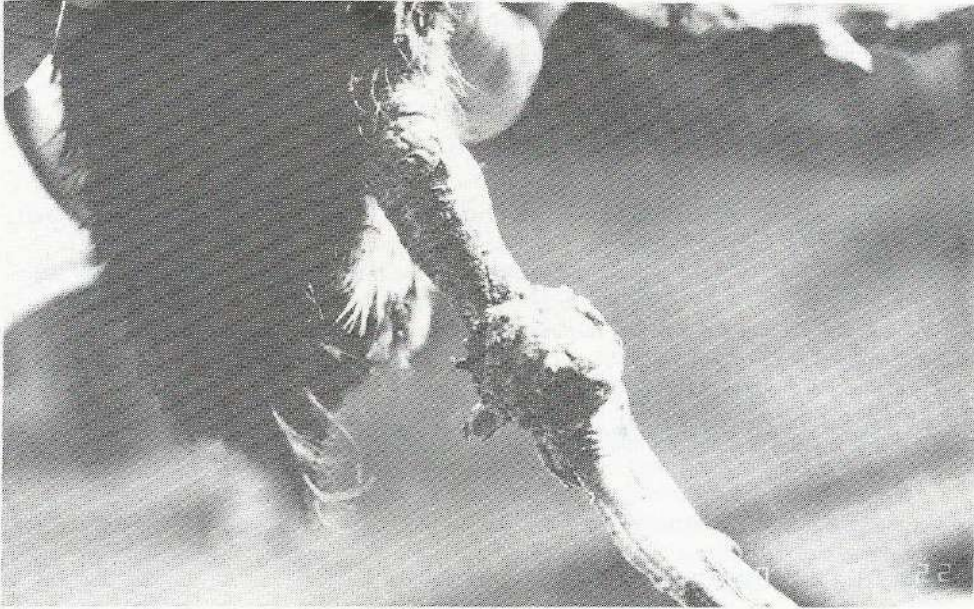


FIG. 2: Large nodular growth on the leg of a duckling with poxvirus infection

Due to the absence of literature on natural poxvirus infection in ducks and other waterfowls, no meaningful comparisons could be made between this case and other incidences. Montgomery *et al.* (1980) described similar cutaneous lesions in a whistling swan which underwent a complete resolution after a period of time. Ronohardjo *et al.* (1986) observed in Alabio ducklings similar warty growths around the eyes, edges of beaks and corners of mouth but growth on the legs were rarely seen. Kirmse (1967) experimentally infected ducks and geese with a strain of fowl poxvirus that was highly virulent to chickens. The non-purulent conjunctivitis observed in this experimental study is consistent with our observations of a natural infection. The eye form of the disease which was associated with purulent conjunctivitis leading to blindness has been described (Anon., 1984). However, Kirmse (1967) did not notice any cutaneous lesion in the non-feathered head region nor any development of large masses of cutaneous growth. This differed from the lesions seen in the present case and also those reported by Montgomery *et al.* (1980), Ronohardjo *et al.* (1986) and Anon. (1984). In all these cases, no internal lesions were observed at necropsy.

From the manifestation of the poxvirus infection seen in this case and those described in the literature, it is difficult to ascertain whether the avian poxvirus causing lesions in this case is of the fowl pox type or a type that is specific for ducks. Anon. (1984) described the poxvirus in ducks as different from the known types of avian poxviruses and it is not known to infect chickens and pigeons. Changes seen in the histopathological sections and on CAM were similar in most aspects to the other avian poxvirus infections but further characterisation tests need to be carried out to differentiate the virus in the present case.

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RINGKASAN

JANGKITAN VIRUS CACAR PADA TERNAKAN ITIK.

Satu wabak penyakit cacar di kalangan beberapa kumpulan itik dalam berbagai peringkat umur di laporkan. Pada itik yang berpenyakit terdapat ketumbuhan pada kawasan yang tidak berbulu terutama pada muka, kawasan kelopak mata dan kaki. Lesi juga ditemui pada kawasan yang kurang bulu di leher. Perubahan histopatologi dalam tisu berpenyakit dan pada membran korio-allantois adalah tipikal bagi jangkitan virus cacar.