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Subcutaneous Emphysema (Windpuff) in a 13 Weeks Old Pullet: Case Report

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Abstract: A known but rare condition of poultry and its management is being reported. The condition can be easily managed when notice early and treatment instituted on time. Simple use of needle puncture was able to relieve the condition a normalcy was achieved within a week.

Key words: Subcutaneous, emphysema, pullet, commercial farm, Nigeria

INTRODUCTION

This term subcutaneous emphysema merely means, "Gas under the skin" and is sometimes called windpuff (Riddle (1997)1). The condition is rarely observed in commercial poultry flocks today due to improved management systems. The gas is usually air, which has penetrated the subcutaneous tissues through a skin wound or as the result of damage to part of the respiratory system (Saif *et al.*, 2003). In poultry and pigeons, it is as a disorder caused by air escaping from the respiratory system (air sacs, lungs and trachea). In such cases, the escaped air accumulates in the sub cutis and inflates the skin. Some are of the opinion that air is pumped into the surrounding tissues by the tongue and other muscular movements associated with swallowing, from a wound caused by something sharp in the pharynx or the throat. The accumulated air then diffuses down the neck and produces a puffiness of the overlying skin (Saif *et al.*, 2003).

Emphysema can also arise when certain gas-forming anaerobic bacteria related to those which cause the smell in gangrene, multiply in a deep and therefore airless wound. Such changes are preceded by obvious illness and loss of function of the part concerned, it showing reddish, green or black discoloration associated with coldness and insensitivity (Miroslav and Nelly, 1950). This usually follows upon a very severe and probably painful inflammation. By the time the puffiness is apparent the bird is usually dying or dead.

The mechanism in all cases is similar. Puncture wounds and cuts involving layers of skin and muscles do not stay immediately opposite one another, since the layers slide over each other during movement. If the surface layer is concave and its elasticity allows it to lift, then air is drawn in. The air is then trapped and is pushed on the easiest course, which is along the planes between skin and muscle or between layers of muscles. This type of emphysema is harmless but can be alarming to the owner, especially when the bird

blows up into a grotesque shape within a few hours (<http://www.mcallister.com/avian.html>, 2006).

Once access of air is stopped, however, the gases are slowly absorbed. Part of the air can usually be removed with a hypodermic needle and syringe, but the tissues will refill if the point of entry is not closed.

Case Report: On 17th march 2008 a 13 weeks old pullet from a commercial flock of 3500 birds was presented to the veterinary clinic, Mohammed Lawan College of Agriculture Maiduguri, Borno state, Nigeria. The main complaint was the bird has been unable to feed and was observed to have gas accumulation under the skin.

RESULTS AND DISCUSSION

Close examination revealed that there was generalized gas accumulation under the skin (Fig 1 and 2), lost of weight and pallor of skin. There was no sign of wound, laceration or any skin break to suggest the point of entry of gas.



Fig 1: Swollen head, eyes and neck due to subcutaneous emphysema



Fig. 2: Subcutaneous emphysema in 13 week old pullet with ballooning of lateral

A tentative diagnosis of subcutaneous emphysema of unknown etiology was made. Treatment was done by gently puncturing the skin over the body with sterile 18G hypodermic needle and extracting the air then applying penicillin ointment over the area to prevent bacterial contamination and further gas entry. Needle punch was done over several areas of the skin until considerable reduction of gas volume was evident. Oxytetracycline was administered through drinking water at

recommended dose for 5 days to combat secondary bacteria contamination. The bird was kept in isolation and fed by and attendant on the first day, by the fourth day the bird resumed feeding on its own. When subcutaneous emphysema is detected early the prognosis is favorable and bird can resume normal activities within a week. Caution should be exercised when puncturing the skin to avoid introduction of infectious agents as well as damage to internal organs. This paper describes the successful management of a rare case in commercial pullet.

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