Nigerian Veterinary Journal
Vol 36 (3) 1236-1239
CASE REPORT

Outbreak of Femoral Head Necrosis in Japanese Quails in Maiduguri, Nigeria.

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INTRODUCTION

Infectious or non-infectious disorder of the extremities in domestic poultry was a serious problem in the past, but the incidence has been reduced to a great extent through genetic selection and improved breeding (Dinev, 2012). Osteomyelitis (bacterial Chondronecrosis) as a cause of lameness in commercial broiler chickens was first reported in Australia (Nairn and Watson, 1972) and subsequently, reported in broilers in various parts of the world such as USA, Canada and Europe (Thorp and Waddington, 1997; McNamee *et al.*, 1998). Thorp *et al.* (1993) carried out studies in the UK on cases of thigh lesions in birds, and the results revealed a high prevalence of the condition. Osteomyelitis in broiler chicken is mostly associated with *Staphylococcus aureus*(McNamee *et al.*, 1998; Mc-Namee and Smyth, 2000). *Escherichia coli* was isolated in more than 90% of cases of femoral head necrosis associated with osteomyelitis in broiler chickens in Bulgaria (Dinev, 2009). In similar cases in turkeys, in Australia (Nairn and Watson, 1972), and in USA, *Staphylococcus aureus*was the commonest isolate as reported by Nairn (1973) and Wyser*et al.* (1991). The present report describes the outbreak of femoral head necrosis associated with thigh muscle and coxofemoral joint inflammation caused by *Staphylococcus sp* and *Salmonella sp* infections in Japanese quails.

CASE HISTORY

The quails from a local farm in Maiduguri were brought in to the Poultry Clinic of the Veterinary Teaching Hospital, University of Maiduguri, with the complaint of abnormal gait of birds. There was mortality of 20 out of 100 (20%) among females and 20 out of 26 (76.9%) among the males. The morbidity was extensive on physical examination. Carcasses were presented for necropsy.

Necropsy

Carcasses were subjected to detailed postmortem examination following the procedure described by Majó and Dolz (2011).

Bacteriological Culture and Antibiotic Sensitivity Test

Pyogenic samples from the affected necrotic femoral head and the cheese-like exudate expressed from the incised swelling on the thigh were aseptically collected and submitted to the laboratory (Bacteriology Unit, Department of Veterinary Microbiology and Parasitology,

University of Maiduguri) for bacterial culture and identification and subsequent antibiotic sensitivity test using Standard procedures (Ochei and Kolhatkar, 2000).

RESULTS and DISCUSSION

An outbreak of femoral head necrosis associated with purulent inflammation of the musculoskeletal tissues of the thigh and coxofemoral joint due to *Staphylococcus* sp and *Salmonella* sp infections was diagnosed. *Staphylococcus aureus* (McNamee *et al*., 1998; Mc-Namee and Smyth, 2000) and *Salmonella* (Vegad, 2007) have been reported to cause musculoskeletal lesions in various poultry species.

Physical examination of the birds revealed signs of swelling at the thigh, extending sometimes, to the coxofemoral joints resulting in postures such as unilateral paralysis, limping, extension and drooping of the wings while moving, and complete inability to move (Fig. 1). These quails might have had bacteraemia with a consequent localization of the organisms in the musculoskeletal tissues of the thigh and synovial membrane of the coxofemoral joint through the blood supply (Daoust, 1978).

The use of one or both wing tips by the quails for support during locomotion was in agreement with the report of Thorp *et al.* 1993. The inability of some of the quails to move due to the condition was similar to the report of Nairn and Watson (1972) where affected broilers were reluctant to move in the advanced stage of the disease. The affected quails that were unable to move eventually died, probably due to inability to access feed and water as described by McNamee and Smyth (2000).

Fig 1: Photograph of a japanese quail using the wing as support during locomotion.

Necropsy revealed cheese-like purulent exudate from the muscle swelling around the proximal part of the thigh (Fig. 2b). The femoral head inside the coxofemoral joint had rough surface, was markedly enlarged and covered with creamy exudate (Fig. 2c).

The infection localized around the proximal femoral region as was similarly reported by Nairn and Watson (1972) and McNamee *et al.* (1998), perhaps because of its predilection. The infection and the associated lesions were in the muscle, extending to the proximal femur, coxofemoral joint and the femoral head.

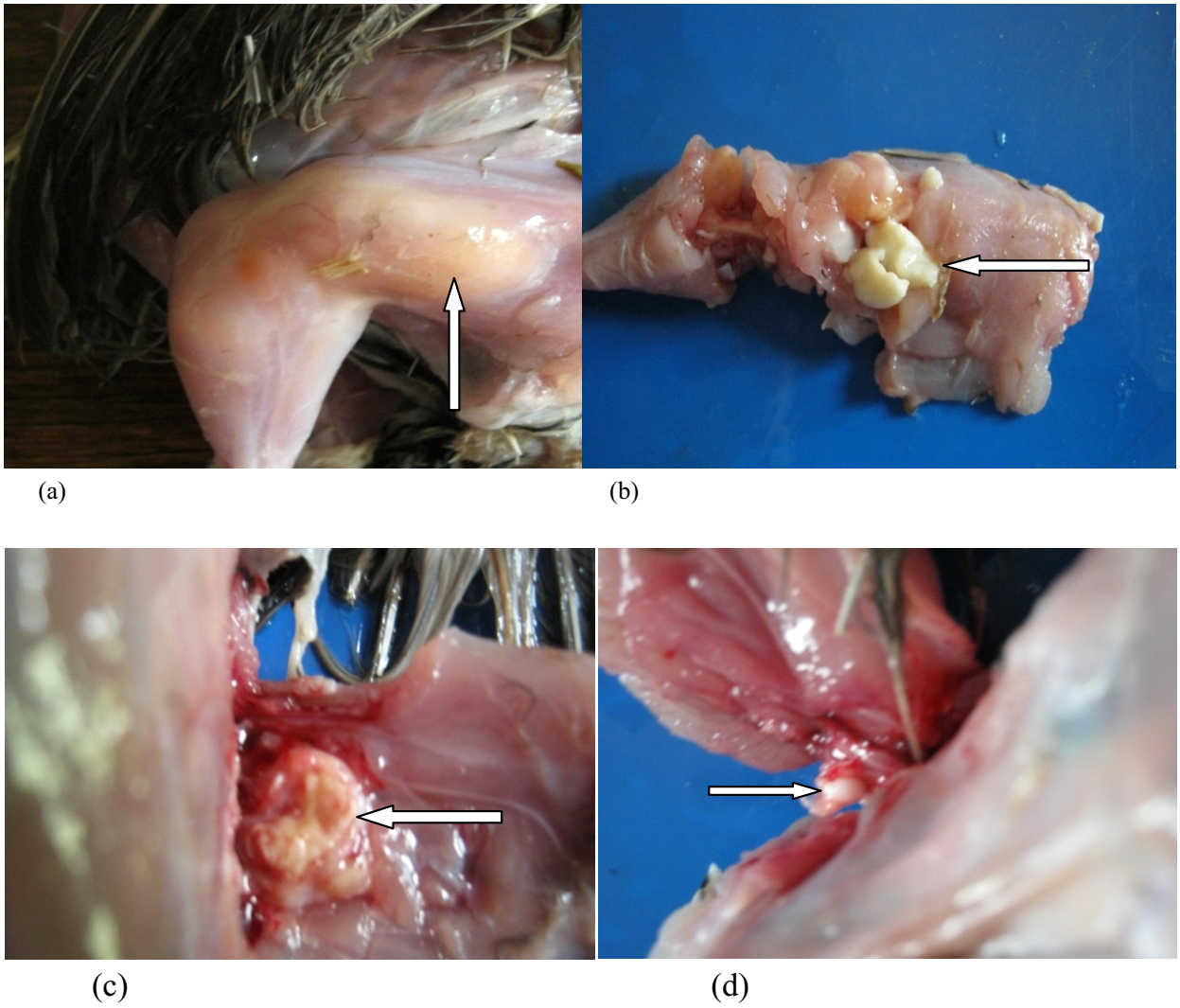

Fig 2: Photograph of a japanese quail showing (a) swollen thigh muscle (b) cheese-like materials expressed from the swollen thigh muscle (c) enlarged necrotic femoral head (d) normal femoral head.

Bacterial culture revealed *Staphylococcus sp* and *Salmonella sp*. Sensitivity test showed that both organisms were more sensitive to ciprofloxacin and co-trimoxazole. Enrofloxacin (related to ciprofloxacin) was used to treat the quails and they fully recovered after the treatment.

This case happened to be the first in quails in

this environment, and the diagnostic lesions associated with infections, as well as treatment regimens, to which the birds responded to favorably, should be noted by poultry clinicians.

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