Clinical and morphological investigations on the prevalence of lameness associated with femoral head necrosis in broilers
I. Dinev

Department of General and Clinical Pathology, Faculty of Veterinary Medicine, Trakia University, 6000 Stara Zagora, Bulgaria

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Clinical and morphological investigations on the prevalence of lameness associated with femoral head necrosis in broilers

I. DINEV

Department of General and Clinical Pathology, Faculty of Veterinary Medicine, Trakia University, 6000 Stara Zagora, Bulgaria

Abstract 1. The aim was to determine the prevalence of femoral head necrosis (FHN) as a cause of lameness in broilers, and to increase knowledge of its morphological features and aetiology. The studies were carried out in two farms (A and B) in Bulgaria, on 650,000 chickens from 38 flocks.
2. Lameness in broilers varied from 3-4% up to 15% for both farms. In affected flocks, mortality due to lameness ranged between 5-6% and 10%.
3. We documented lesions in 520 broilers with signs of lameness. Samples for histopathological examination were obtained from the femur—135 from farm A and 120 from farm B. The samples originated from different batches of broilers, during different seasons of the year, and from chickens originating from parent flocks of different ages.
4. *E. coli* was isolated in more than 90% of the bacteriologically tested samples with FHN associated with osteomyelitis. Our large-scale field tests showed that FHN was the commonest cause of lameness in broilers.

INTRODUCTION

Limb disorders were a serious problem during the 1980s; however, they have been overcome to a substantial extent through genetic selection and improving breeding technologies (Robinson, 2003). Limb diseases can however occur for various reasons, for example bacterial infections, which could cause necrosis of the femoral head (McKay, 2003).

The majority of conditions regarded as important causes of lameness are not infectious (McNamee and Smyth, 2000). Osteomyelitis of the femur was first reported as a cause for lameness in commercial broiler chickens in Australia (Nairn and Watson, 1972); the aetiological agent was *Staphylococcus aureus*. The condition, named at that time bacterial chondro-necrosis with osteomyelitis (BCO), was subsequently reported in broilers from various parts of the world: Australia, USA, Canada, and Europe (Griffiths et al., 1984; Riddell and Springer, 1985; Thorp et al., 1993; Randall and Reece, 1996; Thorp and Waddington, 1997; McNamee et al., 1998). Studies on commercial broilers in Canada showed that deformations of long bones were the primary causes of lameness, while arthritis and osteomyelitis were only associated with 10% of lameness-related losses during the last week before slaughter (Riddell and Springer, 1985). A decade earlier, a study by Thorp et al. (1993) in the UK, investigating cases of birds with thigh lesions, showed a high prevalence of BCO. Also, osteomyelitis was commonly diagnosed in birds with lameness, studied by Thorp and Waddington (1997).

Naturally occurring bacterial osteomyelitis with synovitis was found in turkeys from Australia (Nairn and Watson, 1972) and the USA (Nairn, 1973), where *S. aureus* was the...