International Poultry Production

Poultryhealth BYTES

Your own reference source on poultry health

Number: 284

Histomoniasis (Blackhead)

Introduction

Histomoniasis, commonly known as Blackhead, mainly involves the caeca and liver of various types of poultry and causes mortality as a consequence of damage to the latter. The disease is probably of most significance in turkeys, but can be seen in roasters, broiler breeders and table egg pullets.

This disease was first described as long ago as the 1890s and the role of caecal hetarakid worms or earthworms as intermediate hosts for the Histomonas parasite account for long periods of infectivity outdoors.

The early advice of not keeping turkeys and chickens together was because the disease is much milder in chickens which can harbour the disease and pose a threat to the much more susceptible turkeys.

Aetiology and life cycle

Histomonas meleagridis is a flagellated amoeboid protozoan having flagellated (caecal) and amoeboid (tissue) phases.

This parasite has a close relationship with the caecal worm Heterakis gallinarum. In the bird's caeca the histomonad leaves the larval H. gallinarum and multiplies in the caecal lumen and mucosa. Within a couple of days the tissue form enters the blood stream and is transported to the liver. In both caecal and hepatic tissues the parasite grows and multiplies causing tissue damage and necrosis. Occasionally other organs are invaded.

Earthworms can act as transport hosts in which heterakid worm eggs can survive and hatch. Outdoor poultry eat earthworms.

Transmission can also occur via direct contact with infected birds or their droppings. This does not require an intermediate host and so infection can spread quite quickly through a flock. The incubation period is up to two weeks but clinical signs usually occur 11 days post infection.

Pathogenicity

When it comes to infection with H. gallinarum, turkeys are the most susceptible form of poultry and usually experience mortality. As was mentioned earlier chickens experience a much milder form of this disease.

Severity of manifestation is age and breed dependent.

Surviving birds have experienced a degree of liver damage and so loss of flock uniformity is often seen.

Clinical signs

In turkeys clinical signs include yellow droppings, drooping wings, listlessness, anorexia, walking with a stagger, huddling, the holding of the head close to the body or tucked under a wing and deaths. In chickens clinical signs are often not detected or can be severe with high mortality.

Post mortem findings

In turkeys these are centred on the caeca and liver. The first lesions to occur are in the caeca and are initiated by the histomonads invading the caecal walls which become thickened and congested. Then the caecal lumens will with caseous exudate and ulceration of the caecal walls occurs. In severe cases this can result in perforation and peritonitis.

Liver lesions are very variable. Often circular areas of necrotic tissue with a diameter of about a centimetre and surrounded by a raised ring are often seen. In heavy infections these lesions coalesce at an early stage and can involve most of the liver. The liver may be tan coloured and swollen. Occasionally lesions are seen in the lungs, kidneys, spleen and mesenteries.

Diagnosis

Diagnosis is based on gross lesions, histopathology and demonstrating the presence of the Histomonas parasite.

Treatment and prevention

In many countries drugs that were once used to treat histomoniasis are no longer licensed (arsenicals, nitromidazoles and nitrofurans) and there is no vaccine available. Control is therefore based on prevention and this centres upon keeping birds and heterakid worm eggs apart.

It is prudent not to co-house chickens and turkeys and outdoor ranges can remain contaminated with heterakid eggs for literally years, making range rotation not very practical.

Rearing turkeys indoors reduces the occurrence of histomoniasis but, when it does occur, magnifies its spread and severity.

Strategic worming is an essential part of histomoniasis control.

Leucocytozoonosis is a protozoal that is characterised by infection of the blood and internal organs. This parasite's life cycle requires two hosts with sporogony occurring in insects and gametogony in a vertebrate host, such as poultry. The insect host is often simuliid flies or culicoid midges and so the disease occurs in areas where these insects occur, for example, southern and south eastern Asia.