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174 – Nutritional diseases VII

Vitamin K deficiency

Vitamin K acts as a co-factor in the synthesis of prothrombin, osteocalcin and some other calcium binding proteins.

Mechanism

Deficiency of vitamin K affects prothrombin – a key component of the blood clotting mechanism and this prolongs the blood clotting time. Affected chicks can bleed to death from minor cuts and bruises, which would have been of no consequence had they occurred in a normal chick.

Vitamin K deficiency is relatively rare but can occur following the accidental consumption of warfarin-based rodenticides or over dosage with certain sulphonamides, such as sulphaquinoxaline.

Clinical signs

Clinical signs can occur as early as two weeks of age. Externally they appear as haemorrhages in places that are easily bruised or abraded, such as feet and wings. Internally, hepatic petechiation and gizzard bleeding may be seen. Chicks can become anaemic from exsanguination and the development of hypoplastic bone marrow.

Vitamin K deficiency in breeders can be associated with increased embryonic mortality late in incubation, characterised by dead haemorrhagic embryos.

Treatment

Treatment is by the administration of vitamin K. Although normal blood clotting can resume in as little as four hours, recovery from anaemia and the disappearance of the haemorrhages takes much longer.