Evaluation of gross pathological changes in turkey poults fed experimentally with aflatoxin and T-2 toxin

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The contamination of food and feed by mycotoxins has been characterized by the World Health Organization (WHO) as significant sources of food-borne illnesses. Experimental mycotoxicoses were induced singly and in combination in 48 newly hatched turkey poults (Meleagris gallopavo - Beltsville small white) for a period of 0 to 13 weeks by feeding diets containing 100 ppb AF and 1 ppm T-2 toxin. The AF was produced on rice while T-2 toxin was produced on corn grits using Aspergillus parasiticus NRRL 2999 and Fusarium sporotrichioides respectively. The AF and T-2 toxin from cultures were quantified by TLC. Weighed amounts of powdered culture material was incorporated into the toxin free diet and were adjusted to 100 ppb AF and 1 ppm T-2 toxin. A detailed post mortem was conducted on sacrificed bird during the 7th week and 13th week of experimental period. Weights of liver, spleen and bursa of Fabricius and gross lesions were recorded. Only relative spleen weights significantly (P<0.05) increased in the toxin treated groups except T-2 when compared to the control. The AF fed birds during the 7th and 13th week revealed enlarged and congested, pale or patchy yellowish discoloured liver and translucent gall bladder distended with thin, light green bile. The kidneys were mildly congested. Duodenum contained excess mucus mixed contents and bursa of Fabricius was mildly enlarged. The study revealed pale to congested liver in the T-2 toxin fed poults yellowish necrotic plaques in the hard palate and ventral surface of the tip of the tongue and milder oral lesions during the 7th and 13th week respectively. The results observed during the 7th and 13th week in AF-T-2 toxin treated birds were poor bodily condition, liver was reduced in size, pale to yellowish discoloured, soft and friable, congested kidneys, swelling, encrustations, necrosis and plaque lesions in the lateral commissures, of the hard palate and tongue. Kidneys were mildly congested. Mucus mixed contents was seen in intestine. Spleen
appeared shrunken. Bursal plicae were oedematous. Gross lesions observed in AF treated birds could be due to direct and indirect effects of toxins. In T-2 toxin treated birds, the gross lesions in the oral cavity and intestine could be due to direct effect of toxins in the epithelial cells causing necrosis. In combined treatment group, the lesions observed were severe in organs like liver, kidney, bursa of Fabricius which might be due to additive effect of toxins.