RUNTING AND STUNTING SYNDROME IN YOUNG BROWN CHICKENS

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RUNTING and STUNTING syndrome (RSS), also called malabsorption syndrome (MAS), has been known in broiler chickens since 1970. The onset of this syndrome is typically seen around five d of age, and it is most obvious around two weeks of age. The affected birds are uneven in size and 5% to 15% of the birds can be affected in a flock. Other clinical signs such as diarrhea, lethargy, anorexia, and increased mortality can also be observed. Gross pathology includes watery contents in the small intestine. Microscopically, there is increased cellularity of the lamina propria, blunting and fusion of the villi, and cystic dilatation of crypts. The cause of RSS is not known and it has been attributed to poor nutrition and environment and diseases primarily caused by viruses. Among viruses, rotavirus, reovirus, astrovirus, parvovirus, and other small round viruses have been demonstrated to be associated with RSS. RSS is a common condition described primarily in white broiler chickens but it has not been described in brown chickens.

Several cases of RSS were observed in seven to 24 d old brown chickens submitted to CAHFS that had a history of depression, diarrhea and failure to gain weight and increased mortality. Gross pathology included dehydration, watery contents in the small intestine, and the ceca were occasionally distended with frothy contents. Microscopic lesions ranged from increased cellularity with infiltration of heterophils in the lamina propria and blunting of villi to severe crypt dilatation, which was more prominent in the proximal small intestine. In some cases, viruses including rotavirus, reovirus, and 25 to 30 nm viruses were identified by electron microscopy by a combination of negative stain and transmission electron microscopy (TEM). In one case Rickettsia-like organisms were identified in the cytoplasm of enterocytes by TEM. Salmonella spp. was isolated from the intestine in some cases. Attaching effacing E. coli (AEEC), cocccoid-shaped bacteria attached to the enterocytes, and long segmented filamentous organisms (LSFO) were occasionally observed in the intestine of a few chicks.

CHARACTERIZATION OF A NOVEL CHICKEN ASTROVIRUS ISOLATED FROM INTESTINAL HOMOGENATES OF RSS-AFFECTED CHICKENS

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ABSTRACT

RUNting Stunting Syndrome (RSS) has been an important disease in the broiler industry since its first report in 1970s. Isolation of responsible pathogen candidates is fundamental to understand the pathogenesis of the disease and for vaccine development. Although some viruses have been suggested as pathogens, no viruses have been identified as responsible pathogens. Recently, a new chicken astrovirus (CKAstv) was proposed as possible RSS pathogens (6). To isolate a virus which might play a role in RSS filtered intestinal homogenate of RSS-affected chickens was passaged on different cell lines. Using a polyclonal antiserum specific for the capsid protein of the new CKAstv specific immuno-fluorescence was observed in LMH cells. Exclusion of presence of other viruses that might be related to RSS was conducted by PCR and RT-PCR and serological methods. In addition, the isolate is antigenically different from the known CKAstv 1 and CKAstv 2 as indicated by absence of a specific signal by indirect immuno-fluorescence IFA and Western blot. The complete genome sequence of new CKAstv was