

## **The Pathology of Bovine Rotavirus Infection in Calves That Confirmed by Enzyme Linked Immunosorbant Assay, Reverse Transcription Polymerase Chain Reaction and Real-Time RT-PCR**

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**Abstract :** Rotavirus is one of the main etiologies of neonatal diarrhea in bovine calves that causes significant economic loss in Bangladesh. The present study was carried out to investigate the pathology of neonatal enteritis in calves due to bovine rotavirus infection in south-eastern part of Bangladesh. Rotavirus was identified by using ELISA, RT-PCR (Reverse Transcription Polymerase Chain Reaction), real-time RT-PCR. We examined 12 dead calves with history of diarrhea during necropsy. Among 12 dead calves, in gross examination, 6 were found with pathological changes in intestine, 5 calves had congestion of small intestine and rest one had no distinct pathological changes. Intestinal contents and/or faecal samples of all dead calves were collected and examined to confirm the presence of bovine rotavirus A using Enzyme linked immunosorbant assay (ELISA), RT-PCR and real-time RT-PCR. Out 12 samples, 5 (42%) samples revealed presence of bovine rotavirus A in three diagnostic tests. The histopathological changes were found almost exclusively limited in the small intestine. The lesions of rotaviral enteritis ranged from slight to moderate shortening (atrophy) of villi in the jejunum and ileum with necrotic crypts. The villi were blunt and covered by immature epithelial cells. Infected cells, stained with Haematoxylin and Eosin staining method, showed characteristic syncytia and eosinophilic intracytoplasmic inclusion body. The presence of intracytoplasmic inclusion bodies in enterocytes is the indication of viral etiology. The presence of rotavirus in the affected tissues and/or lesions was confirmed by three different immunological and molecular tests. The findings of histopathological changes will be helpful in future diagnosis of rotaviral infection in dead calves.

**Keywords :** calves, diarrhea, pathology, rotavirus