Pulpy Kidney Disease in Sheep and Goats

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Abstract
Post mortem examination of sheep and goats of differing ages done at Department of Veterinary Pathology, revealed soft and pulpy kidneys, congested and hemorrhagic epicardium, edema, congestion and consolidation of lungs. Examination of urine revealed severe glucosuria, ketonuria and hematuria. Histopathology of kidney revealed tubular nephrosis. Intestine and renal medulla showed gram positive rods.

Key words: Necropsy, Pulpy kidney disease, Goat, Lamb, Pathology

Pulpy kidney disease is an acute toxemic disease caused by Clostridium perfringens Type D and is recognized worldwide as a common, frequently fatal disease of sheep and goats of all ages. These Clostridial organisms are normal inhabitants of the alimentary tract and appear to be in a relatively quiescent state. Changes in the diet which contains more amount starch triggers the disease, because of the sacchrolytic properties, the bacteria proliferate and liberate very potent toxin which causes damage to the intestine as well as other organs. This can result in fatalities, particularly in the non-vaccinated animal or in the newborn lamb or kid whose dam has not been vaccinated.

Materials and Methods
Two sheep and three goats of differing ages were brought for post mortem examination on different dates in the month of September, 2014. After postmortem examination and recording of gross findings in tissues viz., kidney, liver, lung, heart, intestine and brain were collected in 10% neutral buffered formalin. Tissues were processed routinely, 4μ thin sections made, stained with haemotoxylin and eosin and subjected to histopathological examination. Urine samples were also collected for the biochemical evaluation.

Results and Discussion
External examination of the carcass revealed good body condition with rigor mortis, soiled greenish diarrhoeic material around the anus and distended abdomen. Grossly, both kidneys were very soft and pulpy (Fig.1) which was in concurrence with the findings of Miyashiro et

Fig 1. Soft and Pulpy kidney – Goat

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Fig 2. Subacute interstitial nephritis - kidney – Lamb
al. (2007) in a goat affected with enterotoxaemia. Mesenteric lymph nodes were enlarged. Intestinal lumen was filled with brownish grey porridge like contents. Pericardium contained about 2 ml of clear colourless pericardial fluid and epicardium of heart was congested. Lungs revealed severe edema and emphysema. Same findings were observed in experimental enterotoxaemia of sheep by Uzal et al. (2004). Trachea and bronchi contained colorless frothy fluid and tracheal mucosa revealed congestion. Meninges over the cerebrum revealed congestion. Biochemical examination of urine revealed severe glycosuria, ketonuria and hematuria. Smith and Sherman (2009) also observed similar findings in goat affected with enterotoxaemia.

Histopathological examination of the kidney revealed tubular nephrosis, interstitial nephritis (Fig.2), renal cortical hemorrhages, diffuse severe patchy areas of medullary congestion and capillaries in the medulla contained bacterial clumps. Khan et al. (2008) observed similar lesions in kidney along with interstitial edema in deer affected with enterotoxaemia. Intestinal mucosa revealed rod shaped organism in H & E staining and it was confirmed as gram positive rods by Gram’s staining (Hornitzky and Glastonbury, 1986). Lungs revealed severe congestion, multifocal moderate mononuclear cell infiltration, emphysema and edema (Fig.3) and the edema fluid was more eosinophilic and more protinaceous (Uzal et al., loc cit and Khan et al., loc cit). Mesenteric lymph node and spleen revealed lymphoid cell depletion. Liver showed multifocal mild necrotic hepatitis, centrilobular necrosis (Fig.4), multifocal vacuolar changes and sinusoidal congestion. Both cerebrum and cerebellum revealed focal perivascular hemorrhage and perivascular edema.

References


