



TYPICAL CASES OF LIVER AND LUNG HYDATIDOSIS IN MURRAH BUFFALOES FROM PUNJAB (INDIA)

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Hydatidosis is one of the important zoonotic diseases caused by larval stages of *Echinococcus granulosus* with economic implications in terms of reduction in livestock production due to condemnation of infected organs of slaughtered animals (Umur and Kaaden, 2003). Buffaloes act as one of the intermediate hosts of parasite harbouring hydatid cyst mainly in organs like liver and lungs and has also been reported from several parts of India (Dhote *et al.*, 1992; Sharma *et al.*, 2000). The present communication reports hydatid cysts in Murrah buffaloes from Punjab (India).

Two Murrah buffaloes (10 and 4 year old) were presented for necropsy at Necropsy Annex, Department of Veterinary Pathology, GADVASU, Ludhiana, Punjab (India) with a history of respiratory distress and dystokia, respectively. A thorough necropsy was undertaken and cystic masses were noticed in the liver of first buffalo while second buffalo showed cysts in liver and lung. The cysts were counted and their size recorded. Randomly selected cysts were examined for fertility by standard method (Calero *et al.*, 1978). The cysts were incised open and cystic fluid collected and centrifuged. The sediments were examined microscopically for the detection of protoscolices. The various cystic parts of liver and lung were collected in 10% buffered formalin for histopathological studies. The tissue samples were processed for routine hematoxylin and eosin staining as per the protocol of Bancroft and Gamble (2008).

Necropsy of first buffalo revealed the presence of 78 hydatid cysts in liver replacing the entire parenchyma. The liver was enlarged because of the presence of these cysts. The cysts varied in size (1-18 cm) and were filled with clear watery fluid. The cystic fluid contained a large number of whitish pin-head sized brood capsules which formed hydatid sand (Fig. 1). Microscopic examination of sediments of cystic fluid revealed brood capsule containing scolices in various stages of development along with hooklets (Fig. 2).

Necropsy examination of second buffalo revealed innumerable cysts in lung (Fig. 3) and only few cysts in liver parenchyma. Lung cysts were smaller ranging from 1 to 10 cm while liver cysts were 5 to 14 cm in diameter. Cysts in lung were lined by a smooth membrane and contained watery fluid. The cysts in liver showed the same features but had thick capsule which gave gritty feeling while cutting. Most cysts were fertile. Heart showed hypertrophy of right side. The cysts were yellowish in colour and unilocular. Microscopic examination of cystic fluid in this case revealed similarity with first case.

Histopathological findings in liver revealed cystic structures and fibrous zone of concentrically arranged collagen fibers with abundant fibroblasts besides infiltrations of lymphomononuclear cells and a few neutrophils, eosinophils and giant cells. Histopathological examination of lungs showed cyst structures surrounded by foreign-body giant cells, dense eosinophils, leucocytes, macrophages, lymphocyte infiltration and fibrous tissue capsule. Besides this, inflammatory cell infiltration into the adjacent parenchyma was observed. Similar types of changes were reported by Ahmedullah *et al.* (2007). In present study cysts revealed germinal layer on which brood capsules of varying size were observed (Fig. 4). Pressure exerted by the cyst resulted in degenerative changes and atrophy of adjacent parenchyma besides congestion and haemorrhage (Dhote *et al.*, 1992).

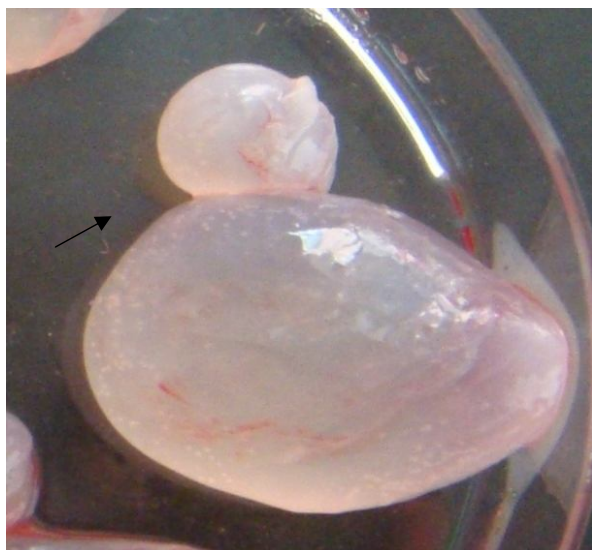


Fig. 1: Hydatid sand (Arrow) in the cyst



Fig. 2: Protoscolex with hooks

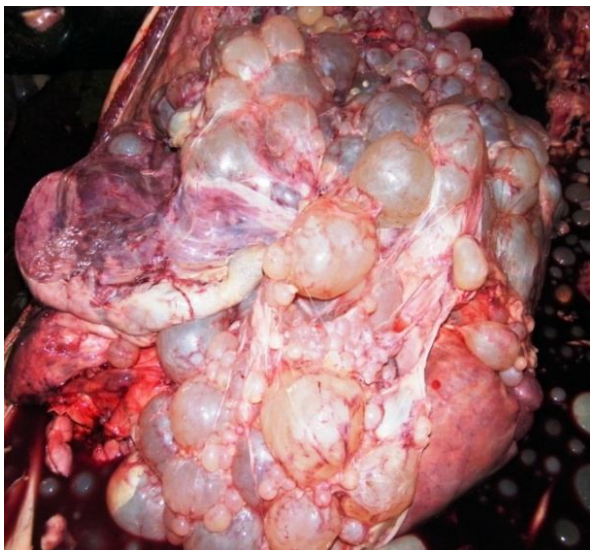


Fig. 3: Hydatid cyst of various sizes in lung

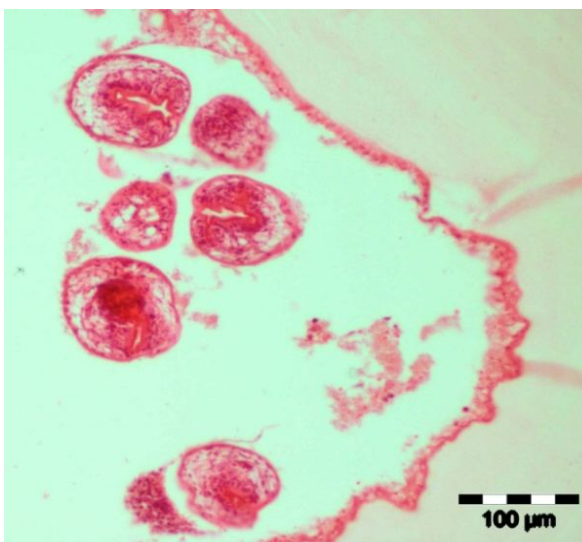


Fig. 4: Liver: Parasite on germinal layer inside (H&E X20)

In present study hydatidosis was found in the liver of first buffalo while second buffalo showed cysts in liver and lung. The other organs were unaffected in both the cases. These findings are concurrent with the observations of Sangaran *et al.* (2011) who reported highest prevalence of hydatidosis in lung and liver of buffaloes. Hydatid cysts recorded from buffaloes were mostly found to be sterile (Terefe *et al.*, 2012); however, our study reports the occurrence of fertile cysts from both the cases from Punjab (India). Similar reports of fertile cysts from buffaloes had been recorded by various workers (Sharma *et al.*, 2000; Fikire *et al.*, 2012).

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