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Clinical Article

ULTRASONOGRAPHIC EVALUATION OF PULMONARY ABSCESS IN ADULT HORSE: CASE REPORT

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SUMMARY

A twelve years old stallion was presented to teaching veterinary clinical complex with history of chronic respiratory distress for last 2 weeks. On clinical examination, congested mucous membrane, tachycardia, tachypnoea with presence of wheezes on auscultation were noticed. Physical examination revealed severe dyspnea with flaring of nostrils, abduction of elbows and thoracoabdominal respiration. The hemato-biochemical findings include leucocytosis with neutrophilia and increase in Creatine phosphokinase and Lactate dehydrogenase. Thoracic ultrasonography showed multiple circumscribed hypoechoic shadow surrounded by pulmonary parenchyma, indicative of pulmonary abscess. Unfortunately, the horse succumbed during the course of treatment due to severe respiratory distress at hospital and necropsy and histopathological examination were carried out.

Keywords: Dyspnea, Horse, Pulmonary Abscess, Tachypnoea, Ultrasonography.

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The horse possesses several unique physiological responses to exercise that allow for an increased capacity for oxygen transport. The maximum oxygen consumption reached by the Thoroughbred race horse may exceed 160 ml/kg/min, a value that is about double than that of a human athlete. Any respiratory dysfunction can cause a further decline in ventilation and gas exchange, and therefore respiratory diseases are the major cause of exercise intolerance and poor performance.

A twelve years old Kathiawari stallion was presented to TVCC with the history of chronic respiratory distress since last 2 weeks. The physical examination of the horse showed severe dyspnea with flaring of nostrils, abduction of elbows and thoraco- abdominal respiration. Bilateral yellow-greenish nasal discharge with intermittent coughing at expiratory phase of respiration was noticed. Clinical examination revealed temperature 103.7 °F, congested mucous membrane with lacrimation, tachycardia, tachypnoea with presence of wheezes on thoracic auscultation.

The hemato-biochemical examination from jugular vein blood showed leukocytosis with neutrophilia and increase in Creatine phosphokinase and Lactate dehydrogenase levels.

A caudo-dorsal thoracic radiography was performed in standing lateral approach with 90 kv, 20 mA and 90 cm FFD. The radiograph showed lung abscess with pulmonary consolidation and multiple soft tissue densities (Fig. 1). Similar radiographic findings were reported by Lakritz *et al*. (1993); Copas (2011) and Giguere *et al*. (2011) in their studies in horses characterized by gas fluid interface with focal soft tissue opacity on lung parenchyma representing pulmonary abscess.

The thoracic ultrasonography of horse showed multiple or conjoined lung abscesses on left lung with circumscribed hypoechoic shadow (Fig. 2) surrounded by pulmonary parenchyma in accordance with Copas (2011) and Huber *et al*. (2018).

The treatment was initiated with Azithromycin @10 mg/kg SID, PO; Tab. Rifampicin @ 10 mg/kg, PO SID and Tab. Rantac @ 6.6mg/kg PO BID with fluid therapy. Similarly, Buckley *et al*. (2007), Giguere *et al*. (2011) and Suryawanshi *et al*. (2019) used Rifampicin and Azithromycin therapy for treatment of *Rhodococcus equi* induced lung abscess in foals and adult horses.

The horse died on the next day of presentation and postmortem examination was performed. Lung lobes showed presence of diffused whitish nodules (Fig. 3) measuring approximately about 6-15 mm on lung surface. Some of the nodules were located deeply in the lung parenchyma on cross section. Vengust *et al*. (2002); Ozsoy and Haziroglu (2009) and Perez-Ecija *et al*. (2016) studied necropsy in foals with *R. equi* lung abscess and revealed that, varying diameter of nodules on lung parenchyma with necrotic foci and thickening of lobe borders indicative of lung consolidation as reported in present study.

Histopathological examination of lung abscess showed presence of pneumonic changes with chronic

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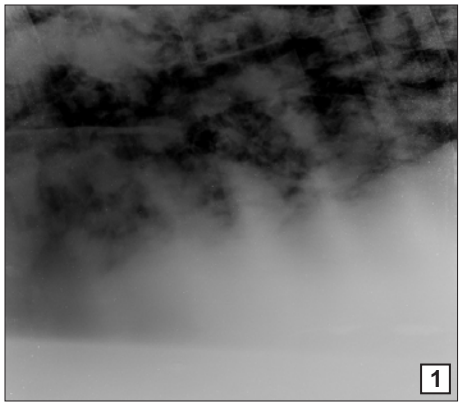
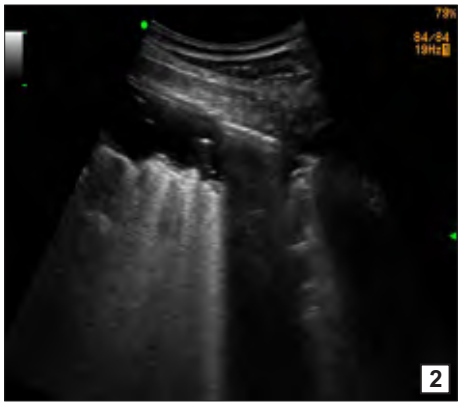

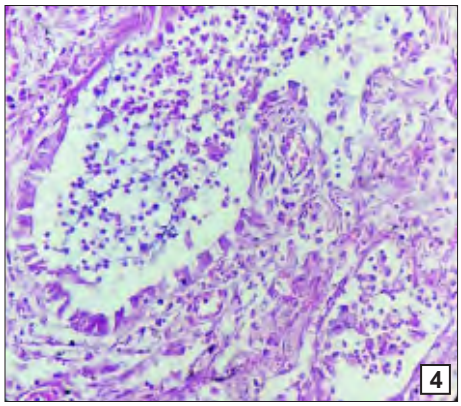

Fig. 1-4. **(1)** Lateral thoracic radiograph of caudodorsal projection showing pulmonary consolidation and multiple soft tissue density;

(2) Thoracic Ultrasonography showing multiple conjoined lung abscess with hypoechoic shadow;

(3) Gross lesions of lung showing presence of multiple whitish nodules;

(4) Histopathology of lung abscess showing inflammatory cell population in alveolar lumen.

active inflammatory foci with proliferation of fibrous tissue in lung parenchyma and thickening of alveolar epithelial wall with clearly evident degenerative changes. Vascular congestion and focal hemorrhages along the alveolar wall were noticed. The alveolar lumen population was filled with inflammatory cellular population mainly comprised of neutrophils, lymphocytes and macrophages (Fig. 4). Similar histopathological findings were reported by Vengust *et al*. (2002) and Ozsoy and Haziroglu (2009) in their study and summarized that, foal with *R. equi* infection showed purulent bronchopneumonia, increased numbers of fibroblast, large no. of lymphocytes, plasmocytes and neutrophils. Degenerated neutrophils surrounded by macrophages, lymphocytes, plasma cells and fibroblasts were noticed (Perez-Ecija *et al*., 2016).

Thus, the case of pulmonary abscess in horse was diagnosed with ultrasonography, performed necropsy and histopathological study.

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