

## Diagnosis and management of pneumothorax in a dog

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**P**neumothorax in dogs is characterized by the abnormal accumulation of air within the pleural cavity, impairing normal lung expansion and resulting in respiratory distress, tachypnea, and potential lung collapse. The condition occurs across all ages and sexes and may arise from trauma or underlying disease processes (Pawloski and Broaddus, 2010). Thoracic trauma - such as vehicular accidents or bite injuries - is a common cause in both dogs and cats (Suter and Lord, 1984; Thrall, 2007). Because pneumothorax can rapidly compromise oxygenation, prompt veterinary intervention is essential.

An 11-month-old female dog was presented with a history of falling from a height one day prior, accompanied by inappetence and dyspnea. On examination, the animal was dull, with pale conjunctival mucosa, a respiratory rate of 66/min, heart rate of 130 bpm, and rectal temperature of 101.1°F. The dog exhibited an extended neck posture and open-mouth breathing - typical signs of pneumothorax (Stafford and Martin, 2008), likely due to reduced lung expansion from air accumulation in the pleural space.

The dog was immediately stabilized with oxygen therapy via face mask to prevent hypoxemia and cardiovascular compromise (Stillion and Letendre, 2015). Once respiration stabilized, survey radiographs in right and left lateral recumbency revealed

pneumothorax (Fig. 1), confirming a diagnosis of closed pneumothorax, commonly resulting from thoracic trauma without overt chest wall penetration (Bjorling and Whitfield, 1986).

Thoracocentesis, a definitive treatment for dyspnea caused by pneumothorax or pleural effusion (Stafford and Martin, 2008), was performed using a 20-gauge IV cannula and three-way stopcock at the 7<sup>th</sup> intercostal space in left lateral recumbency. The procedure was conducted without sedation due to the patient's cooperative nature and existing respiratory distress. Approximately 500 mL of air was aspirated, resulting in marked improvement in breathing and restoration of normal mucous membrane color. Thoracocentesis has similarly been reported as effective in comparable cases (Pawloski and Broaddus, 2010).

Follow-up radiographs showed reestablished sternal heart contact and improved caudal lung expansion (Fig. 2). Nebulization with salbutamol was administered to achieve bronchodilation before discharge, consistent with its known rapid smooth muscle relaxation and airflow enhancement (Mensing and Volmer, 2007; Dowling, 2024). The dog was prescribed antibiotics and NSAIDs for five days and recovered uneventfully, with no recurrence of respiratory distress.

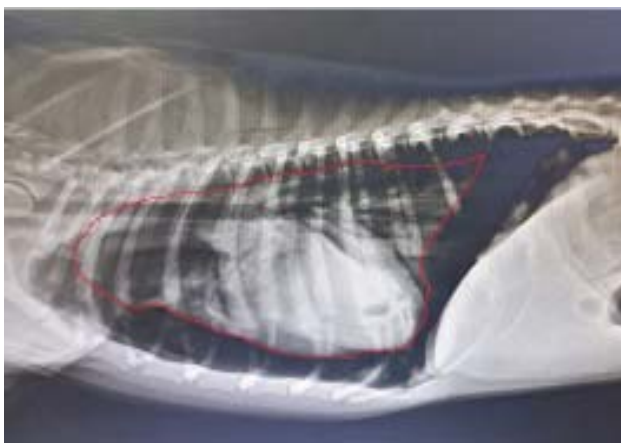


Fig. 1: Reduced lung space marked with red



Fig. 2: Reduced pneumothorax and increased lung space

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