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Traumatic pneumothorax in a hunting Chippiparai dog and its management

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Abstract

A 3.5 year old, male chippiparai dog was presented to Veterinary Clinical Complex with a history of trauma during hunting. Clinical examination revealed dyspnoea, paroxysmal breathing pattern and drooping of head with orthopneic posture and wheezes over the thorax. Hematobiochemical analysis revealed hemoconcentration, leukocytosis, hypoglycemia and elevated blood urea nitrogen. Thoracic radiography revealed traumatic pneumothorax. Bilateral needle thoracocentesis was performed with administration of antibiotics and corticosteroids. Recovery was noticed after 3 days.

Keywords: Traumatic pneumothorax, orthopneic posture, radiography, thoracocentesis, recovery

Introduction

Traumatic pneumothorax is the most frequent type, usually closed and most often due to blunt trauma, fallen from height, road traffic accident, encounter with large animal and recent anaesthesia with endotracheal intubation (Elisa M. Mazzaferro, 2010) ^[1]. Therapeutic thoracocentesis is indicated in traumatic pneumothorax cases only if the respiratory rate is 45-60 breaths per minute or more (Selk *et al.*, 2009) ^[2]. Hence, this paper reports the successful management of traumatic pneumothorax in a dog by therapeutic thoracocentesis with no relapse.

Case history and observations

A 3.5 years old male chippiparai dog was presented to the Small Animal Medicine Unit of Veterinary Clinical Complex, Tirunelveli with a history of reduced appetite, respiratory distress and difficulty in walking since the previous day. The case was reported to have hit injury with another dog during hunting. Clinical examination revealed dull mentation with an orthopneic posture, dyspnoea with respiratory rate of 45 breaths per minute (Fig.1), paroxysmal breathing pattern and moderately sunken eyeball. Auscultation revealed mild wheezes in the thoracic region. Hematobiochemical findings revealed elevated PCV (50.7%) and leucocyte count (16000/cmm). Serum biochemistry revealed increased blood urea nitrogen (50.6mg/dL), low glucose (10mg/dL) other blood parameters were in the range. Thoracic radiography revealed air filled pleural space and elevation of heart from its sternal contact on left side (Fig.2). Hence, the case was diagnosed as closed pneumothorax associated with trauma.

Treatment and Discussion

The animal was placed in sternal recumbency and the site was prepared aseptically. A 20 gauge winged needle was inserted perpendicular to the chest wall along cranial aspect at the 8th intercostal space. From the thoracic region, around 2 litres and 1 litre of air on left and right side was aspirated by the needle thoracocentesis respectively and continued until negative pressure was obtained (Fig.3). Active aspiration of air relieved the respiratory distress and the respiratory rate returned 35 breaths per minute. Post intervention, the animal was able to walk and breathe easily (Fig.4). Enrofloxacin @5mg/kg b.wt and prednisolone @ 1mg/kg b.wt were administered to overcome the traumatic pulmonary contusion. The treatment was continued for 3 days and no relapse of pneumothorax could be noticed. Closed traumatic pneumothorax is the most common form of pneumothorax observed in dogs and often the result of trauma during hunting or an accident where the rupture of lung parenchyma leads to escape of air into the pleural space (Shales, 2012) ^[3]. Radiographic imaging ruled out the pulmonary involvement/leisons and fracture of ribs.

Similar findings also recorded by (Venkatesakumar *et al.*, 2018) [4] and Deepa (2016) [5]. In this case no air leaks and relapse could be noticed on third and seventh day of therapeutic thoracocentesis which was in concordance with the findings of (Ranjithkumar *et al.*, 2018) [6], and (Rehbein *et al.*, 2019) [7] who also reported absence of leakage of air noticed after one or two thoracocentesis procedures. Hemoconcentration and elevated BUN values might be due to dehydration. Hypoglycemia could be due hyporexia associated with trauma and corrected by intravenous polyionic solutions. A favourable prognosis for closed traumatic pneumothorax could be recorded since the dog was free from other wounds and injuries such as spinal fractures which could interfere the healing and favourable prognosis (Rehbein *et al.*, 2019) [7].

In summary, pneumothorax is potentially a life threatening condition and affected patients need to be stabilized immediately by thoracocentesis. Therapeutic thoracocentesis via active aspiration is found to be safe and provides better levels of procedural comfort with clinically appreciable dyspnoeic improvement in the dog. If untreated or with faulty thoracocentesis procedure, the condition may relapse as iatrogenic pneumothorax which would be much complicated with a fatal outcome.



Fig 1: Orthopedic posture with paroxysmal breathing

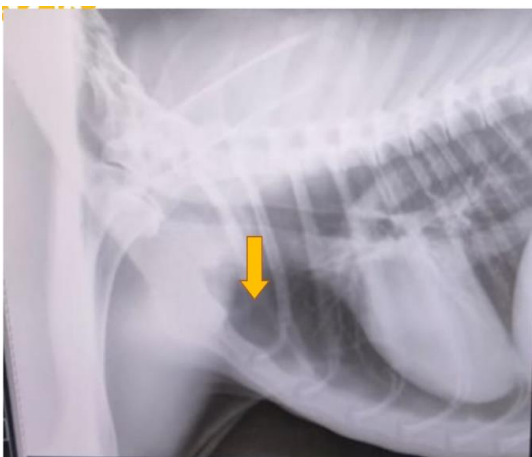


Fig 2: Lateral thoracic radiography showing presence of free air in the thoracic cavity (Yellow arrow)



Fig 3: Aseptic winged needle thoracocentesis



Fig 4: Normal condition after thoracocentesis.

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