Case Report

SUBCUTANEOUS EMPHYSEMA AND PNEUMOMEDIASTINUM IN KITTEN—A RARE CASE REPORT

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The present paper reports Subcutaneous emphysema and pneumomediastinum in a kitten. The occurrence of subcutaneous emphysema and pneumomediastinum is a rare condition in cat. The condition was diagnosed with the help of radiography and clinical investigation. Non haemolytic streptococci were indentified from cultural examination of blood. The case was managed with amoxicillin-cloxacillin injection and the condition was resolved completely within two weeks.

Keywords: Subcutaneous emphysema, Pneumomediastinum, Sucking skin wound, Streptococci

INTRODUCTION

Subcutaneous emphysema is a condition, in which air or other gases accumulates in the subcutaneous tissue resulting in soft-tissue distension. The acute onset and a distinct crackling sound (crepitus) upon palpation, characterizes this entity. The various causes of subcutaneous emphysema include soft-tissue infection with anaerobic-gas-forming bacteria (Clostridium spp.), occasionally following surgery, trauma (such as penetrating injuries), spontaneous rupture of lung tissue or sucking skin wound through negative pressure. The rupture of the tracheobronchial tree is a common cause and should be suspected in any animal with generalized subcutaneous emphysema. Generalized subcutaneous emphysema may also occur spontaneously and the causes include Valsalva’s maneuver during labor, yelling, sneezing, nose blowing, asthmatic attacks, and intestinal perforation (Bauer and Currie, 1988). Pneumomediastinum is a rare condition in which free air or gas is present in the mediastinum. Because the mediastinum communicates with the subcutaneous tissues in the neck through the thoracic inlet and with the retroperitoneum through the aortic hiatus, gas will spread between those three regions and cause subcutaneous...
emphysema and/or pneumoretroperitoneum (Maclin, 1939). This paper communicates a case report of subcutaneous emphysema and pneumomediastinum in a kitten and its successful management.

CASE HISTORY AND CLINICAL OBSERVATION

A three month old kitten was brought to the University Veterinary Hospital, Kokkala with a history of anorexia and subcutaneous swelling on the neck, thoracic and abdominal regions since two days. The kitten had been in fight with a cat four days earlier. Detailed clinical examination including hematological examination and radiography were carried out. On clinical examination, the kitten was dull and not active, showed slight dyspnea, had strong femoral pulses and generalized subcutaneous emphysema (Figure 1). A small cutaneous puncture wound was present in the cervical region. No pain was observed while palpation of emphysematous area. Blood was collected from the saphenous vein for the haematological examination and for culture.

The temperature, pulse, respiration were 101.2 °F, 20/min, 120/min and the mucous membranes were pale. Thoracic and cervical radiography confirmed the presence of generalized subcutaneous emphysema and pneumomediastinum (Figure 2). The values of hemoglobin, erythrocyte count, PCV were 8.7 g/dl, 5.6 millions/cu mm and 35% respectively. Total leucocyte count was 21200/cu.mm with differential count of granulocytes 47.6%, lymphocytes 49.8% and monocytes 2.6%. The platelet count was 1,42,000/cu mm. The cultural examination of blood revealed the presence of nonhaemolytic streptococcus organism.

TREATMENT AND DISCUSSION

The condition was diagnosed as generalized subcutaneous emphysema and pneumomediastinum. The observations noted such as crepitus sound on palpation, air trapped in subcutaneous tissue was confirmed with radiography and the latter revealed both the presence of pneumomediastinum and subcutaneous emphysema (Figure 2).
similar observations were also noted by (Bauer and Currie, 1988). It was reported that crepitation on palpation is pathognomonic for subcutaneous emphysema (Saleem et al., 2010).

Haematological examination revealed severe leucocytosis, hypochromia and this might be due to overwhelming streptococcal infection which might have entered the body through the skin wound. The possibility of rupture of the tracheal bronchial tree was excluded with the thoracic radiography. Patel et al. (2010) reported, occurrence of subcutaneous gas gangrene with bacteria such as group a streptococci, clostridium perfringens, staphylococcus aureus and vibrio ulnificus. Since neither gas producing organism nor rupture of tracheal bronchial trees were indentified in the present case, the origin of the air in this case might be due to the small sucking wound present on the skin and due to the escaping of air through that sucking wound. This was in accordance with Tanwar et al. (1983), who reported air entering the subcutaneous space through skin wounds as one of traumatic causes of generalized subcutaneous emphysema. It has also been reported that subcutaneous emphysema occurs when air is introduced into the fascial planes of the connective tissue through a site of trauma. Mucosal or skin flaps act as one-way valves and probably the negative pressure in the subcutaneous tissue, act as the suction force for the air to be sucked in. The trapped air is often limited to the subcutaneous space in the head and neck. However, it can disperse deeply along the fascial planes of the neck and result in para- and retropharyngeal emphysema, with potential extension into the thorax and mediastinum (Saleem et al., 2010). In the present case also, the trapped air in the subcutaneous tissue might had dispersed and extended into mediastinum and resulted pneumomediastinum similar to the previous reporter.

Treatment was initiated with inj. Amoxycillin cloxacinil @ 10 mg/kg body weight IV for first three days, followed by oral administration for 5 days and inj Melonex @ 0.3 mg/kg on the day of presentation and second day. The small wound on the skin was applied with pencilin ointment. By the second day the animal was shown improvement in activity and resumed feeding by the third day. There was no further progression of subcutaneous emphysema during the course of treatment and resolved completely by two weeks. No recurrence was noticed up to two months of observatory period. The emphysema will spontaneously resolve over 1-2 week in uncomplicated cases (Saleem et al., 2010). It was also reported by other pioneers that attention to the primary problem should stop the inflow of air, and resorption will occur gradually over days or week through sucking skin wounds (Tanwar et al., 1983). Pneumomediastinum is an uncommon self-limiting benign condition that is frequently over-investigated and over- treated due to concern for missing an aero-digestive injury. (Mufarrej et al., 2008).

CONCLUSION
The generalized subcutaneous emphysema with pneumomediastinum due to suking skin wound is a rare case. Here an indirect trauma created, acted as a one way valve, allowing the air to enter the facial planes of neck, mediastinum, face; it is a very rare cause of such happening.

REFERENCES


