



Successful Treatment Of Idiopathic Generalized Subcutaneous Emphysema In Kajli A Ram By Large Bore Injection Needle

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ABSTRACT

A case of generalized subcutaneous emphysema of an unknown etiology in a 1-year old Kajli ram is described. The ram was successfully treated by evacuation of accumulated air with the help of a 16 gauge needle inserted at 6 different sites. The affected ram recovered in 2 days.

1. Introduction

Generalized subcutaneous emphysema develops when air accumulates in subcutaneous area as a result of respiratory system distress. It is relatively uncommon in large as well as in small ruminants. Several different causes of this condition have been identified including trauma, surgical interventions, pulmonary emphysema and gas gangrene etc. However, in sheep and goats, generalized subcutaneous emphysema can also occur after the pneumonia and parturition (Roberson et al., 2012; Radostits et al., 2007). Occasionally, air enters into the subcutaneous region after it escapes from the respiratory system. Clinical signs include painless subcutaneous crepitation on palpation, onset of dyspnea and decreased feed intake. Treatment depends upon the cause of the condition. However, a closure of the entry point of the air and multiple skin incisions are required to remove the accumulated gas followed by supportive treatment (Radostits et al., 2007).

2. Case history

A 1-year old entire ram of Kajli breed, weighing about 50 kg was presented for treatment with a complain of spontaneously occurring accumulation of air almost all over the body. The ram was managed by tethering onto a post with no grazing. History revealed that the animal developed almost symmetrical subcutaneous emphysema two days ago that had gradually increased. The animal was treated with antibiotic and antihistamine by a quack but had remained non responsive to this treatment. Disfiguration of the ram was so alarming for the owner that he finally decided to recourse for professional treatment. There was no history of trauma or pneumonia but the ram would often butt with its two cohort rams. Feed of the animal comprised of alfalfa (*Medicago sativa*) fodder and a chickpea based concentrate. As per history, feed and water intake was almost normal.

3. Clinical examination and diagnosis

Clinical examination of the affected ram revealed a rectal temperature of 103.0F (39.4oC), pulse rate of 120 beats/min and respiration rate of 45 breaths/min. A slight watery nasal discharge was present. However, there was no cough and respiratory distress. The ram was slightly depressed but still playful with other two cohorts. Generalized subcutaneous emphysema was the most important sign noticed. Palpation from feet to head and from tail to brim of the nose revealed crepitating, sounds all over the body including testes. In addition, there was bilateral swelling on the cheeks and angle of the mandible in the jugular furrow area. Owing to generalized accumulation of air in the subcutaneous tissue, the animal appeared bloated and almost 30% larger than the its normal size. On deep palpation, the skin was palpably separated from the underlying muscles. On opening the eyes, a slight degree of chemosis was noticed. The presence of air in subcutaneous tissue around the eyes led to swollen eyelids and the ram could not see properly due to closure of palpebral fissures. The ear pinnae were the most affected body organ and presented the look of a gourd filled with air. A thorough physical examination did not reveal any evidence of trauma. Fecal examination of the ram was positive for a moderate number of nematode eggs. On the basis of clinical picture described above, a diagnosis of uncomplicated idiopathic generalized subcutaneous emphysema was deduced.

3. Treatment

A 16-gauge 3.8 cm long sterile needle was inserted obliquely into the subcutaneous space at six different sites viz. wither, on the side of face,

rump, loin, ear pinnae and at the junction of hind leg with the abdomen. The air below the skin was forcibly propelled towards the needle. A gush of air was produced on each manual propulsion of air. It took almost 40 minutes to completely remove the air that had accumulated in subcutaneous spaces all over the body. On each occasion of insertion of the needle, the area was sanitized with methylated spirit. The same was repeated at the time of removal of the needle after removal of air.

The following parenteral adjunctive treatment was administered after removal of air:

Enrofloxacin 100mg/ml, 2ml i.m. (Avifloxin®, Hilton Pharma, Karachi, Pakistan)

Pheniramine maleate 22.7mg/ml, 3ml i.m. (Phenvil®, Lawrance Pharma, Lahore, Pakistan)

Atropine sulfate 1mg/ml, 1ml i.m. (Atrostar®, Star Labs, Lahore, Pakistan)
Oxfendazole 22.5 mg/ml, 10 ml PO (Oxanzole®, Sana Labs, Faisalabad, Pakistan)

The ram completely recovered in 2 days without any further treatment.

3. Treatment

Generalized subcutaneous emphysema ensues when air/gas accumulates in subcutaneous region via aortic hiatus and cervical facial planes synchronous. It may also occur as a consequence of trauma (e.g. injury to respiratory system, fracture of the nasal bone, fracture of rib, traumatic reticulitis), surgical manipulations (e.g. rumenotomy, ruminal trocarization), pulmonary emphysema and gas gangrene infection (Akhtardanesh et al., 2007; Radostits et al., 2007).

Generalized subcutaneous emphysema has been reported in several species. Bauer and Currie (1988) reported this condition in a 5-year old Miniature Pinscher. The condition developed traumatically as a consequence of fight with another dog. Dog recovered after surgical manipulation. Iranian workers (Akhtardanesh et al., 2007) reported generalized extensive progressive subcutaneous emphysema in a dog that had been hit by a big timber falling on the dog's kennel. The subject recovered in 10 days without any treatment. In a horse, idiopathic generalized subcutaneous emphysema was reported by Caron and Townsend (1984). The problem resolved without any specific therapy. Indian workers (Rajesh and Jha, 2011) reported generalized subcutaneous emphysema in a non-descript goat as a result of a small cutaneous wound due to dog bite.

In human, treatment of spontaneous subcutaneous emphysema may require nothing more than bed rest, medication to control pain, and perhaps supplemental oxygen (Stiernberg, 1990).

X-rays can help in diagnosis but in many developing countries, the diagnostic facilities are rudimentary even for human being. In as much as the cause was dealt with in a village, use could not be made of this diagnostic intervention in the present case. Furthermore, air in subcutaneous tissue may interfere with radiography of the chest and obscure serious underlying causes such as pneumothorax (Criner and D'Alonzo, 2002). As also is the pitfall of ultrasound (Gravenstein et al., 2007). The exact point from which air leaks into the soft tissue can be spotted with CT scan (Wicky et al., 2000). The lack of availability of this expensive diagnostic tool precluded its use in spotting the exact cause of the subcutaneous emphysema in the subject of the present report.

In terms of severity of subcutaneous emphysema as well as the inciting etiology, the case described in the present report was an oddity as none of the etiologic factors associated with subcutaneous emphysema listed above could be traced. The ram responded very well to the removal of air with large bore needle. As far as could be ascertained, no documented study has heretofore reported the use of a large bore injection needle for the treatment of subcutaneous emphysema in animals.

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