TRACHEAL RUPTURE IN A DOG

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The incidence of generalised subcutaneous emphysema with tracheal trauma in dogs is very low as compared with the incidence in large animal (Scott, 1978) Tracheal rupture has been infrequently described in cats (Ryan and Smith, 1972; Kennedy, 1976; Barber and Rawlings, 1981 Braunwar et al., 1984). Reed (1965) and Chauliflower et al., (1972) have reported this condition in dogs.

A seven year old non-descript male dog with severe subcutaneous emphysema (Fig. 1) since three days was admitted to the small animal clinic. Three days prior to admission the dog had run away from home and had a fight with street dogs. The owner noticed the swelling around the neck and head within a few hours after the incidence. A private veterinarian treated the animal administering antibiotics and antihistaminics. By the third day the emphysematous swelling with crepitations had spread all over the body except distal extremity of the limbs. On examination, the dog was found dull and the subcutaneous crepitous swelling was very extensive over the head, neck and body. No external wound could be detected. Temperature, pulse and respiration were normal. Except for the frequent cough there was no serious respiratory distress. Mild dyspnœa was noticed whenever the animal was put on the table for examinations. Mucous membrane was neither pale nor cyanotic.

Three stab incisions were made on the skin at different sites and to some extent the entrapped air was evacuated by massaging towards the site of opening. Parenterally Doxycycline (100 mg) and Betamethasone sodium (4 mg) with 60 ml of 5% dextrose solution were given intravenously. The incised wounds were dressed with Terramycin liquid (Pfizer). Even after continuing the treatment for three days no improvement was noticed and so radiographs of the cervical region were taken. The X-ray revealed subcutaneous emphysema with tracheal rupture near the larynx (Fig. 2). Hence it was decided to perform tracheorrhaphy.

After premedications with atropine sulphate, anaesthesia was induced and maintained with 2.5% solution of thiopentone. A cuffed endotracheal tube was used for intubation. A midline cutaneous incision was made on the ventral aspect of the neck to expose the
Fig. 1
The dog with severe subcutaneous emphysema

Fig. 2
X-ray revealed subcutaneous emphysema with tracheal rupture (arrow)

Fig. 3
The tear was nearly half the length of the inter annular ligament
larynx and the anterior half of the cervical trachea. The subcutaneous emphysematous tissue, to a depth of about 5 cm was carefully dissected. Sternohyoideus muscles and sterno-thyroidus muscles were separated to expose the trachea. A tear was noticed in the annular ligament between the 2nd and 3rd tracheal rings on the left ventrolateral aspect. The rent was nearly one half of the ligament’s circumference (Fig 3). After debridement the tracheal rent was closed with two interrupted eversion mattress sutures using sterile cotton thread. A continuous suture was inserted over sewing the sutured line. The muscles were apposed with interrupted catgut sutures. The skin wound was closed with provision for drainage. Post operatively Doxycycline 100 mg i/v was given for three days. Emphysema subsided over the entire body and by the tenth day the dog had completely recovered.

Endotracheal intubation was carried out without difficulty even though the tear in the interannular ligament was half way through its diameter. Endotracheal intubation in such cases are not without complications and may cause further damage to the trachea (Hill, 1974) To minimise the possibility of further damage Harvey and O’Brain (1972) suggested careful examination of the larynx and neck prior to the intubation with the endotracheal tube.

Aronstan et al., (1961) and Harvey and O’Brain (1972) recommended simple silk and braided silk respectively for suturing trachea. Chaulifoux et al., (1972) treated similar cases by simple interrupted catgut sutures, anchored in the adjacent cartilaginous rings. Scott (1978) used monofilament stainless steel wire for tracheorrhaphy in a horse. Non-suture repair techniques for tracheal wound, using fascia and plastic adhesives and nylon mesh for covering large holes in trachea have been tried by Beall et al., (1963) and Shaff (1963) to avoid untoward sequelae, such as leakage and stenosis. However the use of sterile cotton thread sutures for anastomosis in this case was quite satisfactory, since cotton is less irritating than silk catgut and well tolerated by tissues.

SUMMARY

Generalised subcutaneous emphysema in a dog caused by cervical tracheal rupture and its successful surgical treatment by tracheorrhaphy is recorded.

REFERENCES


