

Surgical management of eventration of lung in a tom cat

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Abstract

Open thoracic injuries with pulmonary evisceration are always considered serious and death threats. A one-year-old domestic short hair tom cat weighing around 3.6 kg was presented to the Department of Veterinary Surgery and Radiology, VCC, RIVER with a history of wound in the thoracic region with respiratory difficulty after being bitten by a cat. On clinical examination, evisceration of the left caudal lung lobe was exposed outside. The animal was anaesthetized using xylazine @ 1 mg/kg and ketamine @ 5 mg/kg with butorphanol @ 0.2 mg/kg by intramuscular route, and maintenance of anaesthesia was carried out with 1% isoflurane. All vital parameters were monitored using Welch Allyn multiparameter monitor. Thoracorrhaphy was performed using polyglactin 910 size 2-0 covering the pleura and intercostal musculature. Lung inflation was performed at the end of the last suture. Post-radiographic examination revealed mild pneumothorax. Postoperatively, the animal was administered with oral cefpodoxime @ 10 mg/kg b.wt and tramadol @ 2 mg/kg b.wt for seven and three days, respectively. The sutures were removed on the 10th postoperative day, and the animal made an uneventful recovery.

Keywords: Cat bite wound, Emergency surgery, Evisceration of lung, Welch Allyn multiparameter monitor

Highlights

- Open thoracic injuries with pulmonary evisceration are always considered a serious and death threat.
- Pulmonary eventration is an uncommon condition in cat.
- Bite wound always brings us to concern for infection as they are highly contaminated.
- Pneumothorax can be triggered by wound from bite wound.
- Importance of cardiopulmonary resuscitation, anaesthetic protocol and monitoring of cardiovascular and respiratory parameters.

Thoracic traumas cause serious and potentially life-threatening injuries that are the result of blunt or penetrating conditions in dogs and cats (Pelosi *et al.*, 2008). Pulmonary eventration is an uncommon condition in cat due to disruption of intercostal muscle or mediastinal area, resulting from blunt trauma or a bite wound leading to herniation of lung lobes through the chest wall (Read *et al.*, 2007). Diagnosis is made through the history of trauma and the identification of increased volume in the thoracic region with the presence of crackling noises on auscultation. Confirmation can be done by means of chest radiographs, fluoroscopy or CT scan (Nafe

et al., 2013). In the present case, surgical management of eventration of lung in a tom cat is reported.

A one-year-old domestic short hair tom cat weighing around 3.6 kg was presented to the Department of Veterinary Surgery and Radiology, VCC, RIVER, Puducherry with a history of wound in the thoracic region with respiratory difficulty after being bitten by a cat. On clinical examination, evisceration of the left caudal lung lobe was seen outside (Fig. 1). Physiological parameters like heart rate, respiratory rate and rectal temperature were within normal range. Based on history and clinical observations, the case was diagnosed

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as eventration of lung lobe and emergency thoracorrhaphy was decided.

The anaesthesia was achieved by xylazine @ 1 mg/kg and ketamine @ 5 mg/kg with butorphanol @ 0.2 mg/kg by intramuscular route and maintenance of anaesthesia was carried out with 1% isoflurane. All vital parameters were monitored using Welch Allyn multiparameter monitor. The protruded lung lobe was replaced into the thoracic cavity, and positive pressure insufflation was performed using a sterile syringe. The lobe was positioned *in situ* (Fig. 2). Thoracorrhaphy was performed using polyglactin 910 size 2-0 covering the pleura and intercostal musculature, noting that in addition to protrusion there was no further damage. Lung inflation was performed at the end of the last suture. A bandage was applied to the thoracic region.

The post-surgery animal showed no sign of intense pain with smooth recovery (Fig. 3). Post-radiographic examination revealed an insufflated left caudal pulmonary lobe, radiolucent areas resulting from surgical access and mild pneumothorax (Fig. 4). After 24 h postoperative, the breathing showed harmonic movements without the presence of dyspnoea or tachypnea. Any postoperative complications were not encountered in the present case. Postoperatively, the animal was administered with oral cefpodoxime @ 10 mg/kg b.wt. and tramadol @ 2 mg/kg b.wt for seven and three days, respectively. The sutures were removed on the 10th postoperative day, and the animal made an uneventful recovery.

Blunt or penetrating thoracic trauma typically results in catastrophic thoracic injuries in dogs and cats (Looney, 2001; Salci, 2003; Pelosi *et al.*, 2008). Clinical signs commonly encountered due to thoracic trauma are dyspnoea, pneumothorax, haemothorax, pulmonary contusion, rib fracture, flail chest, myocardial contusion or perforation (Pelosi *et al.*, 2008). Thoracic trauma cases are always urgent due to damage in the cardiorespiratory system. In the present case, only eventration of the lung lobe was noticed with respiratory

difficulty. The length of care, right after the trauma and the anaesthetic induction was of fundamental importance for stabilizing the patient's vital parameters, corroborating with the information that chest trauma is always an emergency and needs to be treated as such (Manoel *et al.*, 2019). In the present case, the evisceration of the left caudal lobe was quickly resolved by surgical intervention. All the air was removed from the chest cavity when making the last stitch in the thoracorrhaphy and negative pressure was established. Pre-operative radiograph was not done due to emergency; however, post-surgery thoracic radiographic examination revealed an increase in radiolucent volume in the left chest wall had the same radiographic characteristics of lung parenchyma as described by Thrall (2014) composed of a heterogeneous network of opacities created by the numerous and small spaces of air, vessels and bronchi within the lung structure. Bite wound always brings us to concern for infection as they are highly contaminated (Ploks *et al.*, 2016). The therapy for infection in this case, considering the fact that there was mild pneumothorax, oral antibiotic and analgesics were administered. Postoperatively, the animal showed no signs of pain, discharge from the surgical site or difficulty in breathing and made an uneventful recovery.

Overall, open chest injuries with evisceration of the pulmonary lobe are always considered serious and prompt treatment is of paramount importance to reset the respiratory and cardiovascular parameters. Therefore, cases of thoracic trauma should be assessed closely and managed with the necessary surgical procedures.

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Author's contribution: MV: Conceptualization, methodology, investigation and writing the original draft; AM, NG, STR, S: Writing, review and editing.

Eventration of lung lobe in a tom cat



Fig. 1. Evisceration of left caudal lung lobe (before surgery)

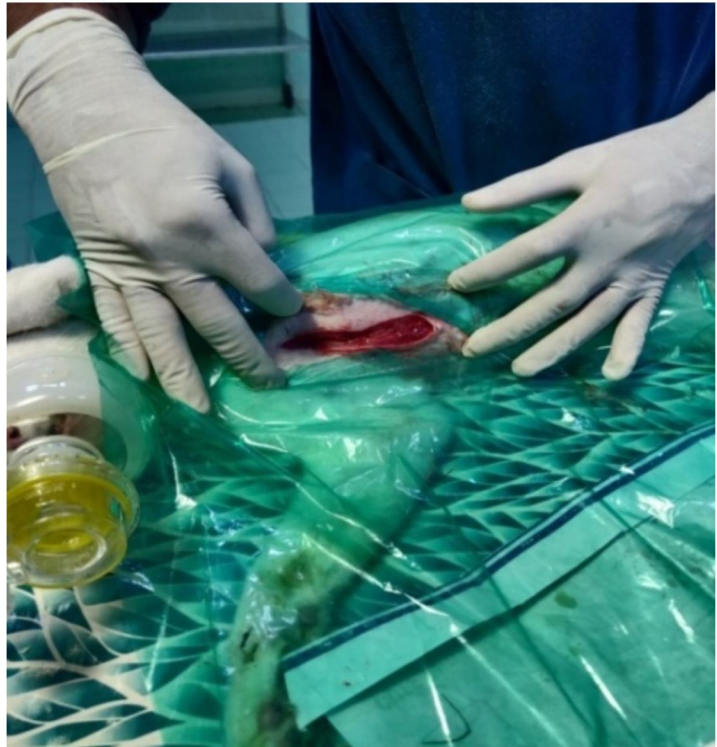


Fig. 2. Thoracotomy was performed and the lobe was positioned *in situ*



Fig. 3. Post surgery, animal showed no sign of intense pain with smooth recovery

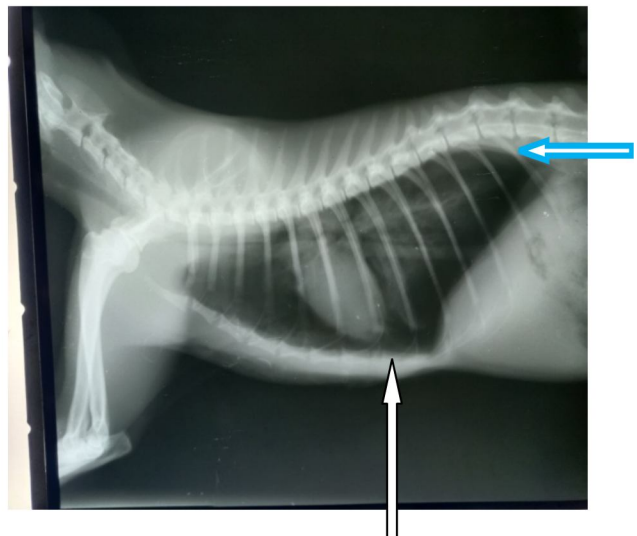


Fig. 4. Post operative x-ray- Insufflated left caudal pulmonary lobe, radiolucent areas resulting from surgical access (white arrow) and mild pneumothorax

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