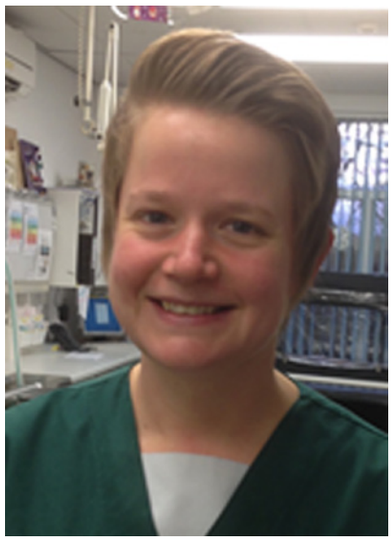

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Care of a cat with lip avulsion and brachial plexus injury

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Introduction

The patient described in this report is Albert, a neutered, male, domestic short haired cat, aged six years, weighing 4.45 kg. He presented, having been missing 48 hours, with left foreleg paralysis and a de-gloving injury to his lower jaw. It was suspected that he had fallen from a substantial height. Following a clinical examination, the veterinary surgeon admitted him for analgesia, stabilisation and treatment of a heavily contaminated facial wound.

Brachial plexus injury

Albert demonstrated left forelimb paralysis and, upon examination, a brachial plexus injury was suspected. The brachial plexus is the complex network of nerves extending from the neck to the axilla, which supplies motor, sensory and sympathetic fibres to the upper extremity (Johnson, Vekris, Demensticha and Soucacos, 2010). The immediate effect of such an injury is a variable degree of dysfunction depending on the severity. The mildest form is neuropraxia, which is a temporary disruption of function, and recovery usually occurs within three weeks (Merck Manuals, 2013).

Lip avulsion injury

The upper and lower lips attach to the adjacent bone by soft tissue structures called frenula. Traumatic injury may result in a tear and in this case the lower frenulum had been avulsed, resulting in mandibular exposure (Animal Dentistry and Oral Surgery Specialists LLC, not dated). There was heavy contamination of the area and the wound was estimated to be over 24 hours old.

Treatment

Albert promptly received an intramuscular injection of methadone (Comfortan, Dechra) (0.3mg/kg) and a subcutaneous injection of amoxicillin/clavulanic acid (Synulox, Pfizer) (8.75mg/kg). He was then placed into an incubator for oxygen therapy.

Despite his injuries, Albert was fairly bright and ambulatory, although he struggled with the paralysis of his left foreleg. Examination of the limb allowed movement of the shoulder and elbow but the carpus would not extend. There was some sensation in his medial paw. The findings were suggestive of partial radial paresis.

An intravenous catheter was placed in his right cephalic vein and Albert was anaesthetised. A thoracic radiograph was taken to rule out further injury; none was evident so surgical repair of his avulsed lip followed.

The wound was lavaged and debrided (**Figure 1**) prior to being sutured through the gingiva, around the teeth and through subgingival bone tunnels. Orpet and Welsh (2011) state that there is a significant risk of inhalation of blood and/or mucus following any oral/dental surgery, so Albert's airway was frequently monitored for obstruction.

Recovery was smooth and Albert was interested in food fairly soon following the procedure. This was initially encouraged, as food intake is essential for healing; all animals need to maintain appropriate levels of nutrition intake, especially when recovering from illness or injury (Tear and Wortinger, 2012). However, it was noted that as he took food he was putting

DOI: 10.1080/17415349.2015.1132023

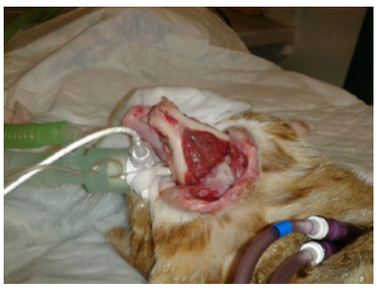

Figure 1. Lip avulsion injury following cleaning

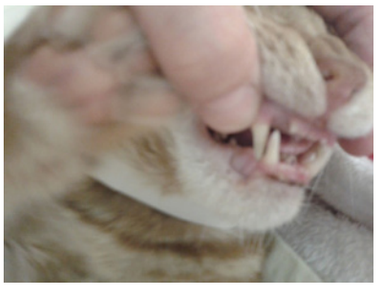

Figure 2. Albert's lip fully healed

pressure on his chin and this was pushing the sutured skin back off the mandible.

The following day he was re-anaesthetised, the skin re-sutured and an oesophagostomy feeding tube was inserted, secured with a finger trap suture and light neck dressing, in order to provide water and nutrition while the lip healed. A tube placed into the oesophagus or stomach allows for bolus or continued rate infusion of nutrition (Lumbis and Chan, 2008).

Albert received a constant rate infusion (CRI) of Convalescence Support (Royal Canin), which was commenced at an initial rate of 0.5ml/kg per hour for 8 hours. This was increased by 50% every 8–12 hours until his resting energy requirement (RER) was reached. Albert's RER was worked out using the following calculation:

RER (kcal/day) = (30 x current body weight in kg) + 70

He weighed 4.45 kg so he required 203.5 kcal/day (Jack and Watson, 2014).

Analgesia continued with 6–8 hourly intravenous injections of buprenorphine at a dose of 0.02mg/kg.He was also prescribed meloxicam (Metacam Oral Suspension, Boehringer Ingelheim) (0.05mg/kg) for further pain relief and amoxicillin/clavulanic acid (Synulox Palatable Tablets, Pfizer) (15mg/kg) for antibiotic cover, both of which were easily administered via the feeding tube. Oral fluid was also provided via the tube along with liquid nutrition to aid convalescence. The dressing around the tube was changed every other day and the stoma site bathed, this was well tolerated.

A litter tray with low sides was provided so that Albert could step in and out easily without tripping. A bung was placed in the I/V cannula and the initial full dressing protecting the cannula was changed to a lighter one, which did not include his foot, in order to give him full use of the limb. Affection was frequently offered to Albert and received well; he was a very affectionate cat and efforts were made to keep him calm and happy. This was because stress has a considerable influence on wound healing (Ebrecht, Hextall, Kirtley, Taylor, Dyson and Weinman, 2004) so minimising stress for him wherever possible was essential. Albert remained in the hospital for five days while his lip healed and was discharged to the owner for continued tube feeding care and cage rest. The owner was advised to allow Albert out of the cage when present to encourage mobility; he was to remain in the cage when un-supervised.

Home time

Albert was seen by the veterinary surgeon four days after discharge. His vital signs were all within normal limits and the owners reported that he had been bright and happy at home. His lip was clean and healing nicely and he tolerated examination of his mouth well. The oesophagostomy dressing was changed and the stoma site bathed; the tube feeding had been going well. His left foreleg was still paralysed but he was able to move around the room well when having his time out of the cage.

On day ten following discharge the owners contacted the practice with a progress report. Albert was recovering well and the owner had seemed optimistic that his left foreleg was improving; when lying down and purring he had been 'making puddings' with both front paws. Two weeks after discharge he was offered wet food orally and the owners reported he had been keen to eat.

On day 21 following admission, the oesophagostomy tube was removed. Albert was eating and drinking well and walking on his left foreleg with only slight signs of occasional weakness (**Figure 2**).

Conclusion

A point of interest in the management of this case was to place an oesophagostomy feeding tube to avoid re-injury. We work hard to encourage our patients eat, however, in Albert's case, it caused further problems resulting in revision surgery. Six weeks after initial injury Albert's owners were delighted to report that he had fully recovered with no forelimb weakness.

In order to provide appropriate care, an understanding of the injuries sustained and how they affect the animal is essential. Supporting the patient through diagnostic tests and providing treatment to aid their recovery is a privilege and an integral part of the RVN's role.

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