

What's your Diagnosis?

Emily Gaugh, Class of 2011

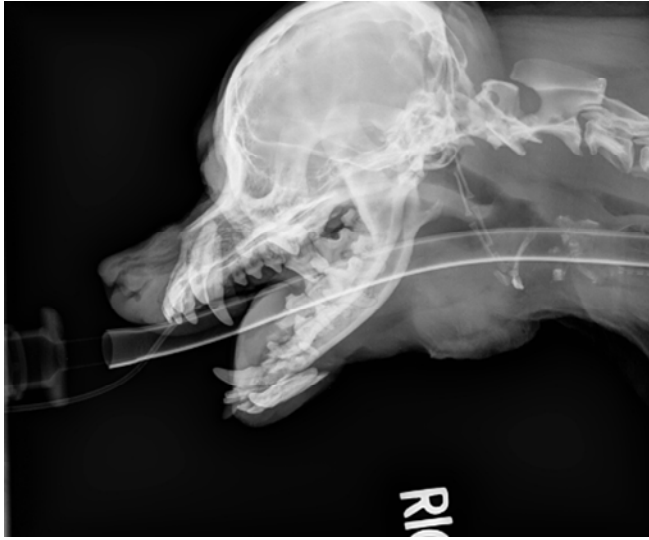
"Luna" 9 y/o FS Chihuahua

Presenting Complaint: Fractured mandible

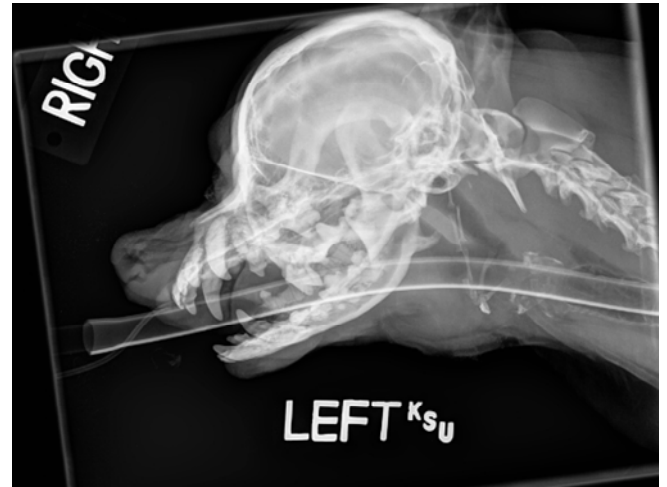
History:

- The patient was attacked by another dog one week ago and sustained injury to the mandible. The patient was being syringe fed and her pain was managed by use of buprenorphine.
- Referral radiographs showed bilateral mandibular fractures and suspect fracture of the mandibular symphysis based on palpation
- Physical Exam: The patient was bright, alert, and responsive. Vital parameters were within normal limits. The mandible was constantly held in an open position and pain was elicited on palpation and manipulation of the cervical region. No proprioceptive deficits found.
- Biochemical abnormalities included: Hyperglycemia (161mg/dL; reference range 73-113mg/dL), hypoalbuminemia (3.3g/dL; reference range 3.4-4.2), increased alkaline phosphatase (211 U/L; reference range 1-142 U/L), and increased CK (431 U/L; reference range 128-328 U/L). The hyperglycemia is attributed to an increase in glucocorticoids during a stress response. The hypoalbuminemia is most likely caused by an inflammatory response releasing cytokines, which can cause a decreased synthesis of albumin. Increased alkaline phosphatase is consistent with increased osteoblast activity from the bone lesions in the mandible. Increased levels of CK are usually attributed to muscle trauma. Blood work following the initial insult are not available, therefore, it is difficult to assess whether the CK was markedly elevated at that time and is in the process of decreasing, or if the mild elevation seen currently is due to a more recent trauma such as the blood draw.
- CBC revealed a neutrophilic left shift (1.3 K/uL; reference range 0-0.3 K/uL), and monocytosis (1.0 K/uL; reference range 0.1-0.8). These are consistent with a chronic inflammatory response. An erythrocytopenia (4.84 M/uL; reference range 5.5-8.5 M/uL), Hemoglobinemia (11.0 g/dL; reference range 12-18 g/dL), and anemia (HCT=32%; reference range 37-55%) were also present.
- Blood Pressure: 135mmHg, within normal limits

Radiographs:



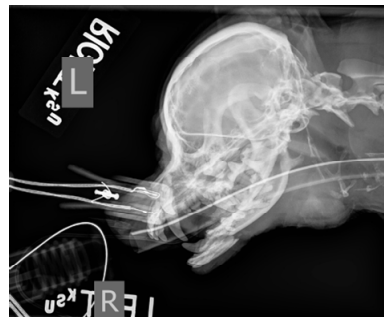
Right Lateral



Left Lateral



DV



Oblique

Radiograph Interpretation:

- Transverse fracture of right hemi mandible with ventral displacement, mild comminution between the root of the canine tooth and the first premolar.
- Left hemi mandible has suspect mal alignment, but a fracture gap cannot be identified.
- Avulsion of the trachea from the larynx with caudal displacement from the hyoid apparatus. Cranial tracheal rings are closer together than the caudal rings.
- One of the styloid bones is ventrally located in relation to its corresponding bone.
- Small fracture off the cranial and lateral left wing of the atlas.
- Large amount of soft tissue swelling of the ventral cranial cervical region, consistent with edema or hemorrhage.
- Interpretation: Dental radiographs required to determine exact fractures of the rostral mandible. Right rostral mandibular fracture, left rostral mandibular fracture suspected. Avulsion of the hyoid apparatus from the larynx and from the styloid cartilage. Small fracture from the left wing of the atlas.

Treatment:

- The patient was taken to surgery immediately following radiographs for repair of the mandible
- A rostral bilateral mandibulectomy was performed

Outcome:

- The patient was fed soft food 16 hours following surgery and monitored for any aspiration or difficulty breathing. No abnormalities were detected.
- Since the animal was recovering well from surgery and showing no clinical signs of her tracheal avulsion, she was sent home on pain medication, antibiotics, and strict instructions to restrict activity level while the mandible is healing.

Mandibular fractures can be repaired in several different ways. These include; interdental fixation, temporary muzzle coaptation, fixation with orthopedic hardware, or a mandibulectomy. Temporary muzzles can be used in dolicephalic dogs to aid in keeping the mandible in position until permanent repair can be conducted. Interdental fixation is a useful method in animals that have the majority of their teeth intact by use of acrylic splints or wire loops. A rostral mandibulectomy can be performed up to the level of the 2nd and 3rd premolar. This method was chosen for this patient due to the location of the fractures and ease of procedure.

Tracheal avulsion is a condition usually created by trauma and hyperextension of the neck and can be associated with dyspnea, aspiration of food and water, or coughing. If the soft tissue structures surrounding the trachea and larynx remain intact, clinical signs may not be evident or not present until long after the initial insult. In this patient, there were no apparent clinical signs and she was able to eat and drink on her own. The owner was informed to watch for any decompensation and to seek veterinary advice immediately should any of these signs develop.

References:

C. Martin, J. Masters, *Textbook of Veterinary Surgical Nursing*; 2007, Page 215.