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Treatment of mandibular symphysis fractures in a pregnant domestic cats

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ABSTRACT: A pregnant domestic cat was found in an accident and was taken to the West Java Provincial Animal Hospital in Cikole. Physical examination showed that the cat's body temperature was 35.6°C and bleeding was found in the eyes, nose, and mouth. Palpation of the dexter and sinister mandibular bones showed loose bones, and palpation of the abdomen showed that the fetus was still moving. Radiographic examination of the head showed that in the dorsoventral position, the mandibular bones were visible at the right and left mandibular symphysis separated by a radiolucent border. The cat was diagnosed with fracture of the mandibular bone symphysis. Therapy is performed by orthopedic surgery through the installation of a wire or surgical wire to connect the two dexter and sinister mandibular bones. After surgery, cats are administered antibiotics, anti-inflammatories, and multivitamins, with special consideration for pregnancy conditions. The dexter and sinister mandibular bones were fixed on the 8th day after surgery.

Keywords:
mandibular, symphysis fracture, surgical wire, pregnant cat, orthopedic surgery

■ INTRODUCTION

A fracture is a condition of discontinuity or fragmentation of bone due to trauma or pathological conditions (Reksodiputro & Aldino 2017). The mandibular symphysis is a part of the mandibular bone in the form of a midline located on the rostral median of the two hemimandibulae, which acts as a growth center to determine the shape of the anterior mandible (Özer *et al*. 2016). A condition in which a fracture occurs in the middle of the mandibular bone is called mandibular symphysis fracture (Prasetyo & Pratiwi 2019). Traffic accidents are a common cause of separation of the mandibular symphysis in cats. Other causes include falls from heights, fighting with other animals, firearm injuries, periodontal disease, and neoplasia. Separation of the mandibular symphysis can be easily diagnosed through inspection and palpation of the free movement of one hemi-mandible against another (Özer *et al*. 2016). Pregnancy is another factor to be considered in surgical procedures. Generally, surgical procedures are postponed until the animal gives birth to prevent the effects of defects and death of the fetus (Kafiabadi *et al*. 2022). This paper reports the treatment of mandibular symphysis fractures in pregnant cats at West Java Provincial Animal Hospital.

■ CASE

Signalement: A pregnant female domestic stray cat named NN, approximately 2 years old, had a traffic accident and was taken to the West Java Provincial Animal Hospital at Cikole Bandung. **Anamnesis**: The cat bleeds from the nose, mouth, and left eye and does not want to eat (Figure 1). **Physical examination**: The cat's rectal temperature was 39°C. When examined, the patient looked in pain with his mouth open, and his left canine teeth were not visible. The upper and lower jaws appeared to be misaligned, and palpation results showed that the dexter and sinister mandibles could be moved easily.

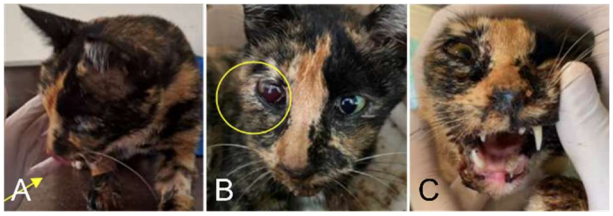

Figure 1. (A) Blood exiting the nose and mouth (arrow), (B) redness in the eyes (circle), and (C) condition of the jaw after the blood was cleaned.

Supporting diagnosis: The results of a lateral radiographic examination showed that the canine tooth on the left was broken. There was an increase in opacity along the nasal sinus tract. The dorsoventral radiograph showed that the mandibular bones right at the dexter and sinister mandibular symphysis were separated by a radiolucent line appearance. The bones of the dexter mandible were slightly more advanced than those of the sinister mandible were. Ultrasound

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examination found the fetus was moving (alive). Other supporting diagnostics, such as hematology, were not carried out because cat's condition had entered the emergency category due to difficulty eating orally and pain when inserting a nasogastric tube; therefore, action had to be taken immediately. **Diagnosis**: Based on the anamnesis, physical examination, and examination results, cat was diagnosed with a fracture of the mandibular symphysis. **Prognosis**: Fausta. **Therapy**: Surgery was performed using the surgical wire technique.

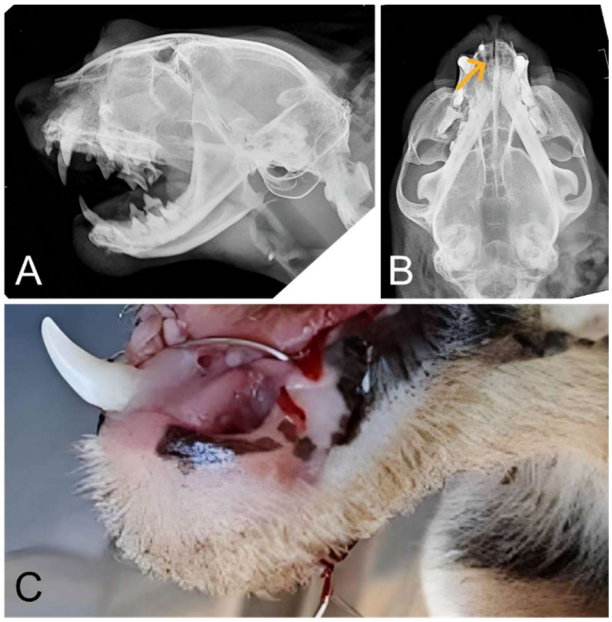

Figure 2. (A) Cat X-ray results in the lateral view, (B) dorso-ventral view (yellow arrow shows symphysis fracture), and (C) surgical therapy via surgical wire installation.

■ RESULTS AND DISCUSSION

Based on the results of the physical examination, clinical findings, and palpation results of cat confirmed by radiological examination, a fracture in the dexter mandibular bone and increased opacity in the sinus space were observed. This condition indicates inflammation; therefore, the diagnosis of cat was a fracture of the mandibular symphysis.

A fracture is a condition of discontinuity or breakage of fragments in the bone that occurs due to trauma or pathological conditions (Reksodiputro & Aldino 2017). A fracture occurring in the middle of the mandibular bone is called a mandibular symphysis fracture (Prasetyo & Pratiwi 2019). The most common etiology of fractures of the mandibular symphysis in cats is traffic accidents, such as those experienced by cat NN (Johnson & Hulse, 2002). Hypersalivation, pain when opening the mouth, and not wanting to eat are symptoms of mandibular symphysis fracture. Follow-up cranium radiographic examinations were performed in right dorsoventral and lateral views.

Treatment was performed by repositioning and fixation of the mandibular bones between the right and left mandibular bones. The most common method used in mandibular fracture cases is the surgical wire technique for healing and reconnecting bones (Harasen 2008). The surgical stage begins with the inserting of an 18G needle as a wire guide, starting from the skin under the left mandibular area penetrating the soft tissue above it (left buccinator muscle) and directed through the soft tissue under the mandibular bone to the right buccinator muscle and upward through the right labia. The surgical wire was inserted into the 18G needle and guided until it met the other end of the wire (Figure 2) and then tightened by rotating the tip link (Fossum *et al*. 2013).

The therapy given after surgery is the antibiotic Intra-mox-150 LA® 0.4 ml s1dd on the first, 3rd and 5th days, as well as administration of Ofloxacin 3 mg/kg BW s2dd for 7 days. Anti-inflammatory and painkillers, namely Dexamethasone 0.25 ml s1dd, were also administered for up to 7 days. Supportive therapy was also administered, namely Catosal® 0.4 ml s1dd for up to 7 days and Vitol® 0.4 ml and Calcidex® 0.4 ml each s1dd on the first, 3rd, 5th and 7th day. Dexamethasone is considered safer than meloxicam in pregnant cats; however, it is administered at a very small dose, namely, ⅓ of the normal dose (0.25/kg BW), to minimize the risk of contraindications. The progress of therapy showed that the dexter and sinister mandibles were fixed, and the cat could eat on its own.

■ CONCLUSION

Treatment of fractures of the mandibular symphysis is performed using orthopedic surgery by installing a surgical wire to reconnect the bones. Postsurgical therapy was performed based on considerations of pregnancy conditions. On the 8th day the mandibular bone was fixed with good progress.

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