A RETROSPECTIVE STUDY OF ORAL FRACTURES IN CATS AND DOGS PRESENTED TO UNIVERSITI VETERINARY HOSPITAL (UVH) FROM 2010 TO 2013

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A RETROSPECTIVE STUDY OF ORAL FRACTURES IN CATS AND DOGS PRESENTED TO UNIVERSITI VETERINARY HOSPITAL (UVH) FROM 2010 TO 2013.

BY

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It is hereby certified that we have read this project paper entitled "A retrospective study of oral fractures in cats and dogs presented to Universiti Veterinary Hospital (UVH) from 2010 to 2013, by Teh Ai Ling and in our opinion it is satisfactory in terms of scope, quality, and presentation as partial fulfillment of the requirement for the course VPD 4999 - Project.

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Abstrak daripada kertas projek dikemukan kepada fakulti perubatan veterinar bagi memenuhi sebahagian daripada keperluan kursus VPD 4999 – Projek

KAJIAN RETROSPEKTIF FRAKTUR MULUT DALAM KUCING DAN ANJING YANG DIPERSEMBAHKAN DI UNIVERSITI VETERINARY HOSPITAL DARI TAHUN 2010 HINGGA 2013

TEH AI LING

MARCH 2015

PENYELIA: DR. ROZANALIZA RADZI

PENYELIA BERSAMA: DR. LAU SENG FONG

Rekod perubatan dan radiograf untuk anjing dan kucing yang telah didiagnosis dengan fraktur mulut di Universiti Hospital Veterinar, Universiti Putra Malaysia antara 2010-2013 telah dikaji semula secara retrospektif. 137 fraktur kes oral dalam 88 kucing dan empat anjing telah dikenal pasti dalam kajian ini. Signalment pesakit, tanda-tanda

klinikal, jenis trauma, lokasi fraktur, jenis-jenis fraktur, pilihan rawatan, komplikasi diperhatikan dan tindak balas. Lokasi paling biasa fraktur oral dalam kedua-dua kucing (24%) dan anjing (50%) adalah fraktur tulang rahang. Fraktur rahang lengkap dan melintang adalah yang paling biasa berlaku dalam kucing (65%). Tetapi pada anjing 50% adalah fraktur rahang lengkap dan serong. Sebahagian besar kes telah dibawa masuk kerana kucing kemalangan jalan raya (59%) dan pada anjing (50%). Kebanyakan kes-kes yang dikemukakan dengan fraktur lokasi tunggal (72%). Fraktur yang paling biasa ialah luksasi temporomandibular persimpangan dan fraktur tulang rahang (dua lokasi), dan pemisahan symphyseal rahang, luksasi bersama temporomandibular dan fraktur tulang zygomatic arch (tiga lokasi yang berbeza). Majoriti kucing (46%) telah melalui pembedahan berbanding dengan anjing (50%) yang telah stabilkan dengan rawatan konvensional. Pendekatan pembedahan yang paling biasa adalah cerclage pembaikan wayar (62%) di kedua-dua kucing dan anjing. Kebanyakan kes-kes yang distabilkan melalui pembedahan mempunyai malocclusion (42%). Majoriti kes yang distabilkan pembedahan telah bertindak balas dengan baik (50%). Walau bagaimanapun, terdapat kes-kes yang distabilkan melalui pembedahan (79%) tetapi meninggal dunia sama ada sebelum pembedahan disebabkan oleh trauma yang teruk atau selepas pembedahan kerana komplikasi lain.

Kata kekunci: Fraktur oral, luksasi temporomandibular persimpangan, pemisahan symphyseal rahang dan cerclage wayar.

ABSTRACT

An abstract of the project paper presented to faculty of veterinary medicine in partial fulfillment of the course VPD 4999 – Project

A RETROSPECTIVE STUDY OF ORAL FRACTURES IN CATS AND DOGS PRESENTED TO UNIVERSITI VETERINARY HOSPITAL (UVH) FROM 2010 TO 2013.

TEH AI LING

MARCH 2015

Supervisor: Dr. Rozanaliza Radzi

Co-supervisor: Dr. Lau Seng Fong

The medical records and radiograph for dogs and cats that had been diagnosed with oral fractures at Universiti of Veterinary Hospital, Universiti Putra Malaysia between 2010 to 2013 were reviewed retrospectively. 137 of oral fractures cases in 88 cats and four dogs were identified in this study. Patient signalment, clinical signs, types

of trauma, locations of fracture, types of fractures, treatment options and complication were noted. The most common locations of oral fracture in both cats (24%) and dogs (50%) were mandibular fractures. A complete and transverse mandibular fracture was the most common fractures type in cats (65%). But in dogs 50% was complete and oblique mandibular fracture. Majority of the cases were brought in due to road traffic accident cats (59%) and in dogs (50%). Most of cases presented with single location fractures (72%). The most common multiple fractures were temporomandibular junction luxation and mandibular fractures (two locations), and mandibular symphysis separation, temporomandibular joint luxation and zygomatic arch fractures (three different locations). Majority of cats (46%) were surgically stabilized compare to dogs (50%) which were stabilized with conventional treatment. The most common surgical approach was cerclage wire repair (62%) in both cats and dogs. Most of cases stabilized surgically has malocclusion (42%). Majority cases stabilized surgically were responded well (50%). However, there were cases stabilized surgically (79%) but died either before the surgery due to severe trauma or after the surgery due to other complication.

Keyword: Oral fractures, temporomandibular joint luxation, mandibular symphysis separation, cerclage wire

1.0 Introduction

Skull or also known as entire head skeleton, is casing to enclose the brain and sensory organs (de Lahunta, 2013). One of important part in skull which is more related to this study is oral skeletons. It consists of maxilla (upper jaw), mandible (lower jaw), temporal bone, and zygomatic bone.

Maxilla is consisting of friable bone which forms a firm structure. It consists of incisive, maxilla and palatine bone (Bojrab et al., 1990). Incisive is the region where it contains six incisor teeth, maxilla the largest bone of face consists of all the cheek teeth. The palatine bone forms the caudal part of hard palate and cranial wall of pterygopalatine fossa. Mandible which consists of left and right part is connected by a fibrous joint. Each part of mandible consist of mandibular body (bear incisor teeth and molar teeth) and ramus (non-tooth bearing part, consist of coronoid, condyloid and angular process). Zygomatic bone which rostrally articulate with maxilla and caudally forms a long suture with zygomatic process of temporal bone, and forms rostral half of the zygomatic arch. The zygomatic process of temporal bone exceed the zygomatic bone rostrolaterally and forming zygomatic arch. The ventral base of zygomatic process formed mandibular fossa which articulates with mandibular condylar to form temporomandibular junction (de Lahunta, 2013).

Muscle associated with oral cavity play a major role for the oral structure to function as a whole. The five main muscles of mastication are masseter, medial

pterygoid, lateral pterygoid, temporalis and digastrics muscle. Opening of mandible is assisted by digastrics muscle and closing of mandible by masseter, medial and lateral pterygoid muscles.

Fracture is defined as dissolution of bony continuity with or without displacement of fragments. It is caused by two main factors; extrinsic and intrinsic factors. Extrinsic factor consists of direct violence and indirect violence such as bending forces, torsional forces, compressional forces and shearing forces. Intrinsic factor consists of muscular actions and pathological condition. These two main factors influence the occurrence of fracture of bones (Nunamaker *et al*., 1985). Mandibular fracture was reported to be more common types of fractures in dogs (Fernanda *et al*., 2005). He reported incidence of maxilla fracture is low compare to mandible. This is due to anatomical influence where the maxilla is more resistant to fracture with line of debility and resistance (Haskell *et al*., 1994). Kitshoff *et al*., 2013 reported least incidence of fracture at condylar region due to protective effect of masticatory muscles.

Trauma is reported to be the main cause of oral fracture etiology (Fernanda *et al*., 2005). Trauma can be road traffic accident, high rise syndrome, fighting, violence, gunshot and etc. other pathological condition such as oral neoplasia, periodontitis and iatrogenic can contributed to oral fractures. The alveolar bone resorption following periodontitis reduce the bone integrity and strength and consequently lead to fractures.

D.vnuk reported the common clinical signs shown in high rise syndrome are epistaxis, hard palate fractures, limb fractures as well as thoracic trauma. During fall, cats were instinctively extended their limbs and therefore the impact is at the limb. However, when the maximum velocity is achieved, the vestibular system is no longer stimulated and the cats extend their limb horizontally and cause injury on head or thoracic region. Other clinical signs such as deviated mandible, mouth bleeding, pain and crepitus upon palpation are related to mandibular fractures. Inability to close mouth is related to temporomandibular joint luxation. Swelling of periorbital region is related to zygomatic arch fractures (Scott *et al*., 2007).

Surgical approaches are one of the treatment options for oral fracture. The techniques consist of circumferential wiring, acrylic splints, percutaneous skeleton fixation, bone plating and partial mandibulectomy. Tape muzzle as a non-surgical treatment provide temporary stabilization for jaw fracture. It is indicated in young animal due to its rapid healing potential as well as to avoid disruption of tooth and skeletal development (Milella., 2015). Circumferential wiring is indicated for symphyseal fractures and acrylic splints for fracture rostral to first molar. Mostly comminuted fractures can be repair by using percutaneous skeletal fixation. Bone plate provides a rigid stabilization but malocclusion is possible after fixation due to error in reduction. Extensive trauma or infection is repaired by using partial mandibulectomy (Marreta., 1998).

1.1 Justification

Few studies were done on the review and comparison of common oral fractures and surgical repair in cats and dogs, the complication that arises from these cases and progression of the patient several years after the treatments. Thus my study will focus on retrospective study of oral fractures in cats and dogs for a four year period from the year 2010 till 2013. The information gathered from the study will be useful for the veterinarians in treatment and prognosis in cats and dogs with oral fractures.

1.2 Objectives of study

The aims of my study are to:

1. Identification and classification of common types of oral fracture in dogs and cats
2. To review the surgical and non-surgical treatment approaches.
3. To determine the complication that arises after the fixation of oral fractures in dogs and cats.

9.0 References

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