USING OF ELASTIC OSTEOSINTESIS IN TREATMENT OF DIAPHISAR FRACTURES

Muste A., I. Oana, A. Timen, Fl. Beteg, C. Ober

Universitatea de Științe Agricole și Medicină Veterinară Cluj-Napoca
Calea Mănăștur 3-5
E-mail: muste-aurel@email.ro

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Abstract. This work present a method of elastic osteosintesis in case of simple or comminuted diaphisar fractures in dogs and cats. It takes in study 11 dogs and 6 cats with diaphisar fractures at femur, radius and ulna levels, places where was applied this method. The method consist in using of two metallic broches which get an arch form and which will be insert in medullary channel through orifices made above focus of fracture. We consider that is an simple method, with little invasion and with very good results.

INTRODUCTION

Diaphisar fractures have an important incidence in canine and feline species. The incidence is high especially because of numerous trauma (blows, fallings, road accidents) present in most of cases accidentally. For diaphisar fractures, the modalities of surgical treatment are a lot both in dog and cat. Like remedial therapy it impose priority intramedullary nailing or nailing with help of plates with screwes. In this context, we tried an alternative in case of this fractures which is elastic osteosintesis.

MATERIAL AND METHOD

Our observations were performed on a number of 11 dogs by different races and ages and 6 cats, with diaphisar fractures (Table 1).

Table 1. The casuistry studied

<table>
<thead>
<tr>
<th>Nr. crt.</th>
<th>Species</th>
<th>Race</th>
<th>Age (years)</th>
<th>Sex</th>
<th>Fracture</th>
<th>Localization</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Canine</td>
<td>Common</td>
<td>3 years</td>
<td>F</td>
<td>Tibia</td>
<td>Diaphisar</td>
<td>Elastic osteosintesis</td>
</tr>
<tr>
<td>2</td>
<td>Canine</td>
<td>Doberman</td>
<td>2,5 years</td>
<td>M</td>
<td>Femur</td>
<td>Diaphisar</td>
<td>- II -</td>
</tr>
<tr>
<td>3</td>
<td>Canine</td>
<td>Common</td>
<td>5 years</td>
<td>F</td>
<td>Tibia</td>
<td>Diaphisar</td>
<td>Cominuted</td>
</tr>
<tr>
<td>4</td>
<td>Canine</td>
<td>Caniche</td>
<td>8 months</td>
<td>F</td>
<td>Radius and ulna</td>
<td>Diaphisar</td>
<td>- II -</td>
</tr>
<tr>
<td>5</td>
<td>Canine</td>
<td>Germann brach</td>
<td>3,5 years</td>
<td>M</td>
<td>Femur</td>
<td>Diaphisar</td>
<td>Cominuted</td>
</tr>
<tr>
<td>6</td>
<td>Canine</td>
<td>Common</td>
<td>6 years</td>
<td>M</td>
<td>Tibia</td>
<td>Diaphisar</td>
<td>- II -</td>
</tr>
<tr>
<td>7</td>
<td>Canine</td>
<td>German Sheperd Dog</td>
<td>4 years</td>
<td>M</td>
<td>Femur</td>
<td>Diaphisar</td>
<td>- II -</td>
</tr>
</tbody>
</table>

368
The casuistry was formed from specimens presented at Clinic of Surgical Pathology from Faculty of Veterinary Medicine for diagnosis explanation and treatment. For the realization of this method were used metallic brooches for osteosintesis. For the success of reactivation is need by a radiography of the region. After visualisation and diagnosis establishment, in case of diaphisar fractures, elastic osteosintesis can be an alternative very efficacious.

Surgical technique: is relatival simple. The surgery is performed under general anaesthesia, by neuroleptanalgesia (Acepromasine + Ketamine) after that the surgical place is prepared by well-known techniques (clipping, erasement, asepsis). It follows effectuation of local anaesthesia with Procain 2% or Xiline 1% in dose of 5 ml. Above the focus of fracture at a distance by 3-5 cm (depend on dog size) both on internal and external faces of the limb, it makes an incision of the skin, hypodermic connective tissue and musculature (better by dilaceration) till the bone segment level. It practice than a careful hemostasis of the region, after that, with a proper borer it will be perform an orifice through that can penetrate the brooch. For every fracture it uses two brooches which will have a semicircle form (elliptical) with length who must excel interior the focus of fracture. For do not harm bone compact, the extremities of brooches will be adjust, will be round off in thay way that do not disturb through their presence. The same manual labor it perform on the opposite side, ending with the orifice from compact of bone. After that the brooches were ready, this will be inserted in medullary channel through the orifice from bone compact situated in the superior plane of this, imprinting a direction in inferior plane in that way that this go over by focus of fracture and ending somewhere in compact of bone at a distance of 3-5 cm by this.

RESULTS AND DISCUSSIONS

Elastic osteosintesis by usage of brooches permit to fractured extremities the catching of this without opening of fracture focus, that favor formation of healing calus. By the way of brooches insertion, the focus of fracture is not opened and sanguineous content will be resorb very quickly, that let place for a hemorrhagic calus matrix. That is very important in this method is the fact that after reinstalment the extremities of fractured bone have a some mobility that represent a stimulant for reconstruction of a final calus. Another advantage of this method is represented by the fact that the insertion and extraction of the brooches it makes
very easy when are effectuated this manual labores. Also, against of fixation by intramedullary method when the organism feels and look for bone trauma, by this method this aspect the orifice effectuated in the compact of bone is relativaal small. With a very big importance is the advantage of this method in the extraction of brooches, because is adequate a local anaesthesia for the fixation of brooch extremity and for extraction of this. In our casuistry we do not observed the situations where the brooch was adhesive in calus or to be difficult the extraction of this. The calus of fractures was effectuated adequate without observing pathological forms of the calus. By the point of view of brooches tolerance in the focus of fracture, in all the situations we studied we did not inregistrated advers reactions, exception made a single case, which after a week after the insertion of brooches manifested an easy lameness with increasing tendency.

CONCLUSIONS

In the treatment of diaphisar fractures, alongside of intramedullary nailing and nailing with help of plates with screwes, the method of elastic osteosintesis is better by the good results which are obtained. The elastic osteosintesis method is better in our opinion against by intramedullary nailing because the facility and simplicity with it is effectuated and because of a minor trauma during the intervention. In application of this method, the most attention must be accordant for arching and adjusting the brooches in that way that they penetrate relatival easelly in medullary channel, to excel the focus of fracture with aproximately 3 cm for creating an adequate consolidating and the extremities from medullary channel to be dull. The extremities staying outside can remain above the skin protected by a protective bandage or can be placed under the skin in that way do not disturb the tissues. The aspect of brooches introduced in the medullary channnel is that of a two semicircles with the concavity towards outside, each acting in inverse effect and this aspect make possible the maintainig of the fracturated extremities in the focus of fracture.

In the casuistry studied we did not observed reactions by rejection of brooches like abscesses, phlegmons, osteitis, osteomielitis, etc, reason which for we recommend the usage of this method.

BIBLIOGRAPHY