

Dorsal scapular luxation and its surgical treatment in a cat

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Abstract: Scapular luxation observed in small animals is caused by trauma-induced due to rupture of the muscles which connect the scapula to the thoracic wall (m. serratus ventralis, m. trapezius and m. rhomboideus) and as a result, dorsal dislocation of the scapula occurs. This rare type of luxation is more common in cats compared to dogs. The aim of this study is a long-term follow-up of surgical treatment in a cat with scapular luxation that treated surgically using cerclage wire. Caudal corner of the scapula was exposed by dissection of the infraspinatus and teres major muscles for open reduction and internal fixation. After reaching the area, two holes opened to the caudal corner of left scapula by one cm distance with drill tip and cerclage wire was passed through the first hole, through the sixth costa and the wire was tightened after taken from the second opening. In postoperative radiography right after surgery, pneumothorax was diagnosed as determined intraoperatively and iatrogenically, and thoracentesis was applied to the patient. There was no other complication in the cat that was followed for a long time postoperatively. According to the information obtained from the patient's owner, the cat could use its extremity very comfortably even shortly after the operation, it has been found that there is no limping, except mild posture disorder. As

a result, open reduction and internal fixation via using cerclage wire has good results and observed as a good treatment option in dorsal scapular luxation in cats.

Keywords: Cat, dorsal luxation, internal fixation, scapula.

Bir kedide şekilleden dorsal skapular luksasyon ve cerrahi sağaltımı

Öz: Küçük hayvanlarda gözlenen skapular luksasyon, scapulayı göğüs duvarına bağlayan kasların (m. serratusventralis, m. trapezius ve m. rhomboideus) travmaya bağlı ruptürü ile oluşur ve scapula'nın dorsal'e dislokasyonu ile sonuçlanır. Ender gözlenen bu luksasyon şekli kedilerde köpeklere göre daha çok rastlanılır. Bu çalışmada sol skapular luksasyon şekilleden bir kedide serklaj teli kullanarak gerçekleştirilen cerrahi sağaltımın uzun dönem takibi amaçlanmıştır. Scapula'nın kaudal köşesi açık redüksiyon ve internal fiksasyon için infraspinatus ve teres major kaslarının diseksiyonu ile açığa çıkarıldı. Bölgeye ulaşıldıktan sonra 1cm arayla dril ucu ile iki delik açıldı ve serklaj teli ilk delikten ve altıncı kostanın etrafından geçirildikten sonra açılan ikinci delikten çıkararak sıkıştırıldı. Operasyondan hemen sonra alınan radyografide intraoperatif ve iatrojenik olarak meydana geldiği belirlenen pnömotoraks teşhis edildi ve hastaya torakosentez uygulandı.

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Postoperatif uzun süre takip edilen kedide başka bir komplikasyona rastlanmadı. Hasta sahibinden edinilen bilgiye göre kedinin operasyondan kısa süre sonra bile ilgili ekstremitesini çok rahat kullandı, hafif derecede postür bozukluğu dışında herhangi bir topallığının olmadığı bilgisine ulaşıldı. Sonuç olarak dorsal skapular luksasyonda tedavi seçeneği olarak açık redüksiyon-internal fiksasyonun kediye iyi sonuç verdiği gözlandı.

Anahtar sözcükler: Dorsal luksasyon, internal fiksasyon, kedi, skapula.

Introduction

Scapular luxation observed in small animals is caused by trauma-induced due to rupture of the muscles connecting the scapula to the thoracic wall (*m. serratus ventralis, m. trapezius ve m. rhomboideus*) and results in dorsal dislocation of the scapula. This rare type of luxation is more common in cats compared to dogs. Scapular luxation may be accompanied by costa fracture, pneumothorax, brachial flexor injury and pulmonary contusion (1,3). Clinically, the limping occurs during the

acute phase of the lesion. The dorsal subluxation of the scapula is generally occurred after jumping, falling or bite wounds directly. The subluxation is diagnosed radiologically and clinically by the movement of scapula towards dorsal during stepping (2,4).

Case story

At the physical examination of the three years old, male and crossed breed cat brought to Ankara University, Faculty of Veterinary Medicine, Department of Surgery, it has been observed that by the time of stepping the left scapula was luxated dorsally. At the orthopedic examination, it was observed that the cat had no pain. According to the information obtained from the patient's owner, it was understood that this lesion of the cat was not acute. The diagnosis of luxation of the scapula was confirmed radiographically (Figure 1). Except for the scapular luxation, there was not observed other pathologies detected radiographically and clinically like bone fractures etc.



Figure 1:The radiographic image of left scapular luxation.

Sekil 1:Sol scapular luksasyonun radyografik görünümü.

General anesthesia protocol of the case: Induction of general anesthesia 4 mg/kg intravenous propofol (Pofol®1%, Fresenius Kabi, Germany), and maintenance is done with (Isoflurane®, Eczacıbaşı-Baxter, Turkey) and oxygen mixture. Preoperative analgesia was ensured with meloxicam (Anaflex®, Hektaş, Turkey) 0.3 mg/kg SC (7 days) was used postoperatively. Related extremity was shaved after general anesthesia and was lied down on the operation table sideways lying lateral position. Asepsis of the shaved area was provided by 10% benzalkonium chloride firts (Zefiran®, İlsan), 10% iodine solution after (Batticon®, Adeka).

The caudal corner of the scapula was exposed by the dissection of m. infraspinatus and m. teres major for open reduction and internal fixation. After reaching the area, two holes were opened by one cm distance with the drill tip and cerclage wire (20 gauge) was passed through the first and

sixth costa and compressed after taken out from the second opening (5). The m. rhomboideus and trapezius were sutured with absorbable material near the insertion at scapula but m. serratus ventralis could not be sutured. Later, the area was closed as usual. In postoperative radiograph, pneumothorax was diagnosed as determined intra-operatively and iatrogenically. There was not any finding related to pneumothorax in radiography obtained preoperatively. This complication is thought to be occurred during passing the cerclage wire around the sixth costa and it was recovered by applying the patient thoracocentesis furthermore, there was not any problem observed related to this case (Figure 2). There was not any finding related to the pneumothorax in radiography taken right after the thoracocentesis and on the tenth day of post-operation. Subcutaneous emphysema, dyspnea or pain were not observed during the progressive era.



Figure 2: The radiographic image of pneumothorax formed as *iatrogenically*.

Sekil 2: İatrojenik olarak şekillenmiş pnömotoraksın radyografik görünümü.

Discussion and Conclusion

Carpal flexion bandage was applied to the case for two weeks. By the end of two weeks, bandage was removed and movement limitation was suggested. In the literature data it has been emphasized that; in cats with acute cases when the scapula was brought to its normal position, it is enough for the Velpau sling treatment and when the bandage application is complicated or the patient is a dog then, there might be a need for internal fixation. However, our case is chronic as well as early mobilization aiming so, the internal fixation application was preferred. During the

post-operative physical examinations, the patient could even use the related extremity after a very short time (two-weeks post-operative). The applied cerclage wire was observed to prevent re-luxation in scapula in the needed time until the muscles gain their functions back. As the most common complication due to the literature data, the reason for unsuccessful fixation due to cerclage wire broke is early weight bearing and incorrect or insufficient use of bandage (1,3). In the second postoperative month radiography, the cerclage wire was found to be broken however, luxation was not repeated.



Figure 3: The radiographic image of the ruptured cerclage wire.

Sekil 3: Kopmuş serklaj telinin radyografik görüntüüsü.

According to the same literature data; as the location is very mobile, the applied cerclage wire would break anyway but if there is no failure in the implant in the time needed to heal the muscles in the region, the luxation would not repeat (1). The cerclage wire in the case in this study also broke, however, since forelimb functioned properly and

re-luxation did not occur then it is thought that the cerclage wire remained stable at the needed time. Also radiographically, it was found that the scapula retained its connection with the chest wall and re-luxation did not occur (Figure 3). The implant has been removed although it does not cause any pain. As a result, this method is risky since

it needs passing the wire from the chest cavity, it has been agreed as effective, and permitting early mobilization and using the extremity in a short period.

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Geliş Tarihi: 02.06.2017/ Kabul Tarihi: 12.07.2017

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