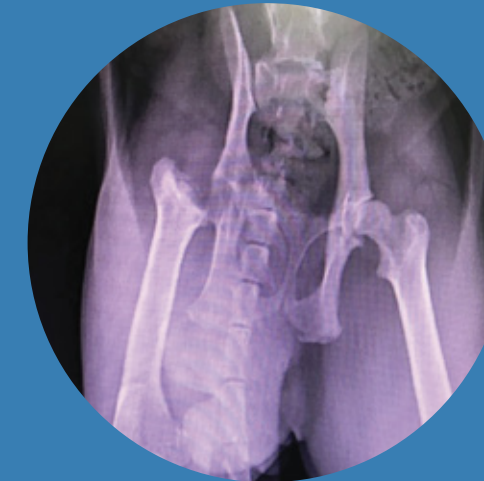


UNIVERSITY



2018
Antinol®
**Cat Case
Study Contest**

01

**NUTRACEUTICAL TREATMENT OF
FELINE FHNE AND HIP DYSPLASIA
IN AN 8-MONTH OLD CAT**

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Abstract

A Persian male cat named KaoMalt aged 8 months and 20 days and 2.8 kg body weight had a high fall injury that resulted in lameness. It was diagnosed with right hip luxation and left hip injury. While waiting for surgical treatment, the cat was treated with NSAIDs to control pain and inflammation. After the operation on the right femoral head (right FHNE), the cat received antibiotics and NSAIDs for 10 and 3 consecutive days, respectively. Two weeks after the operation, the lameness and pain of the right hip, as observed from palpation, still remained, but the cat began to bear partial weight. PCSO-524[®] was then prescribed and the gait analysis was performed to measure the angle of joint movement. The monitoring showed increased angle of joint movement and decreased lameness score. This was consistent with the owner report that described less hiding behavior of the cat and improved high jump performance and better quality of life.

Keywords:

Femoral head and neck excision, cat, PCSO-524[®], lameness, hip dysplasia

Introduction

Hip luxation is usually caused by traumatic injury, for example, car accident (Andy Moores, 2006). Animals with osteoarthritis or hip dysplasia are also at risk of hip luxation, since the femoral head and acetabulum do not fit well. The unfitted joint results in movement deterioration, chronic pain and inflammation.

Hip luxation is the condition that the femoral head is dislocated from the acetabulum. The common form of dislocation is craniodorsal luxation (Andy Moores, 2006). Treatment of hip luxation includes relocation of the femoral head in the correct position, with or without operation, and closing suture of the joint capsule, stabilization of femoral head and acetabulum using external materials, replace the joint with an artificial joint, and femoral head excision.

Open reduction operation in animals with osteoarthritis or hip dysplasia may not be appropriate. The alternative treatments are replacement with artificial joint or femoral head excision. The femoral head excision is aimed for reducing pain caused by hip trauma. There has been reports of femoral head excision in cats suffering from femoral head and neck fractures, femoral capital physeal fractures, coxofemoralluxations, acetabular fractures and osteoarthritis. Some clinical reports showed satisfactory results, however, dorsal dislocation of the femur after the operation has been found (Fui W Yap, et al., 2015).

The femoral head excision can restore the hip joint movement, of which after the operation, uses muscle surrounding the hip to stabilize the femur. Later the scar tissue is formed between the femoral head and acetabulum, called false joint. Although the physical structure of the false joint is different from the normal joint, it does not cause pain while animals move. In case of significant muscle atrophy or chronic trauma, this surgical technique may not be able to restore the full function of the leg. In this case, physical therapy, medication, and nutraceutical treatment are necessary. Methods for monitoring of symptoms, pain and leg movement are various and can be different in detail between dogs and cats.

Pain assessment in cats with lameness or osteoarthritis is more complicated than in dogs since cats do not express pain as much as dogs. To evaluate pain in cats, the owner can help by observing daily activities of the cat, for example, high jumping ability can be used to assess the lameness score in cats (Fui W Yap, et al., 2015). There are tools to increase accuracy of pain assessment in cats with lameness or osteoarthritis; FMPI questionnaire by NC State University and gait analysis, for example.

There are reports of clinical monitoring that use clinical and radioactive examination and gait analysis in dogs and cats that had femoral head operation. The average time for recovery after the operation was 4-6 weeks in cats and small dogs (W. Off; U. Matis, 2010). Although some cats are able to bear partial weight on the legs after the operation and the owners are satisfied with the results, there may be some pain that still remains. Pain medication is therefore necessary. However, long term use of NSAIDs is not appropriate since they can have adverse effects on kidney and gastrointestinal tract.

Nutraceutical treatment such as essential fatty acid, one of which is the extract from New Zealand Green-lipped mussel, is recommended for treatment of inflammation in cats. The extract is consisting of several essential fatty acids that can reduce intra-articular pain or pain that remains after the operation. It is appropriate for reducing pain and improving quality of life in animals that continuous use of NSAIDs is prohibited

Case history

A Persian male cat named KaoMalt aged 8 months and 20 days and 2.8 kg body weight had a high fall injury during the morning. Later that day, the cat was submitted to the animal hospital at Kasetsart University, Bang Khen campus. The cat refused to walk, had no urination and elimination, was depressed but able to eat.

Examination

Physical examination of the cat showed normal mucous membrane, no sign of dehydration, normal heart and lung sound. Palpation found enlarged urinary bladder, with clear yellow-colored urine when squeezed. Neurological examination did not find any abnormality. Orthopedic examination found that the cat refused to walk, the right hind limb did not bear body weight and showed sign of pain when standing was assisted. Grinding noise was noticed at the right hip and the thumb test indicated that it was not normal. Pain was identified at the left hind limb when the hip was stretched but the leg could bear body weight. The two front legs were normal.

Hematological test

The test done before surgical treatment showed only slightly high white blood cell count. Ten days after the surgery, the blood count was normal.

Table 1. Hematological test results

Parameter	Before surgery 13/11/2018	After surgery 30/11/2018
PCV (%)	34.80	35.80
RBC ($\times 10^6$ /cu mm)	8.72	8.87
MCV (fl)	39.91	40.36
MCHC (gm%)	35.63	35.47
MCH	14.22	14.32
WBC ($\times 10^3$ /cu mm)	19.70	13.40
SEGS	87	66
LYMPH	8	30
MONO	1	2
EOS	3	0
BASO	1	2
PLATELETS ($\times 10^3$ /ul)	337.00	458.00
PROTEIN (gm%)	6.00	7.00
BUN (mg%)	-	19.00
CREATININE	-	0.95
Blood Mor.	normal	normal
Blood Parasite	negative	negative

Radiographic examination

The x-ray examination of the hip showed dislocation of the right hip joint in craniodorsal direction. The left femoral head did not have round shape but fitted in the acetabulum.

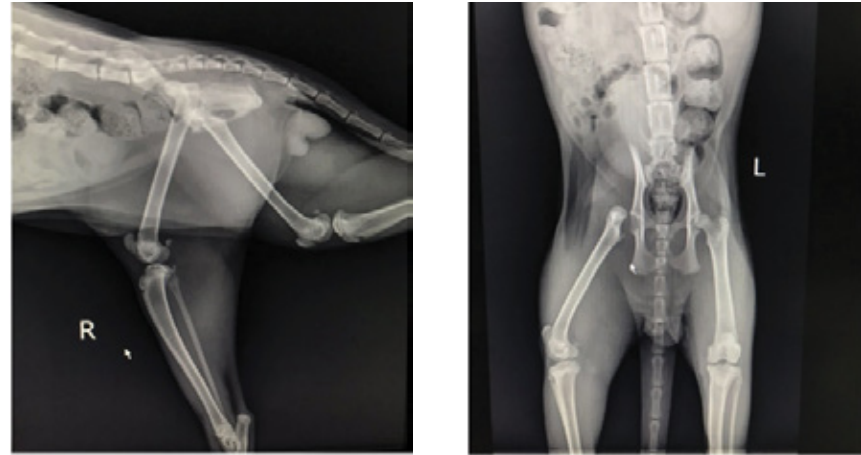


Figure 1. Craniodorsal luxation of the right hip

Treatment and outcome

The cat was treated in the first day of hospital visit with NSAIDs injection (Tolfenamic acid, Tolfedine[®] 4 mg/kg) for pain and inflammation control. The medication was prescribed for oral administration for another 3 consecutive days. After the treatment, the right leg remained unable to bear weight but the left leg was fine. Surgical treatment, femoral head excision, was then recommended and was performed on day 7 after the injury.



Figure 2. Radiographic image after the surgery

Oral administration of antibiotics (Amoxiclav, Clavamox[®] 20 mg/kg) for 10 consecutive days and NSAIDs (Tolfenamic acid, Tolfedine[®] 4 mg/kg) for 3 consecutive days was prescribed after the surgery. Cold pressure was applied 2-3 times per day. The cat roaming was restricted for at least 1 month. The cat returned 10 days after the surgery for monitoring and suture removal. The surgical wound was in good condition. The right leg, which was operated, could bear some weight but the lameness remained at 3/5 score. Grinding sound was not detected from palpation of the right hip. However, the cat showed pain when the right hip was stretched.

Two weeks after the surgery, gait analysis was used to evaluate the weight bearing of the legs. Lameness score 3/5 of the right leg was identified. No grinding sound but slight pain, limited joint movement angle, muscle atrophy, and inability to jump was detected. The movement range of the right hip was 76/148. The weight bearing of the left leg was normal and no signs of pain was shown. Administration of FMPI questionnaire resulted in 63.53% score.

Since transportation of the cat for follow-up and physical therapy was not convenient, oral administration of PCSO-524[®] 1 capsule per day for 1 month starting 2 weeks after the surgery was prescribed. The follow-up was schedule 2 and 4 weeks after finishing PCSO-524[®].

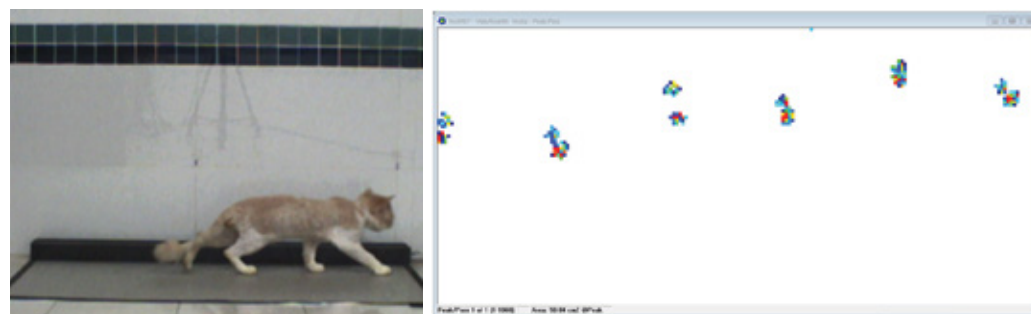
Gait analysis examination and questionnaire administered on the owner 2 weeks after finishing PCSO-524[®] treatment showed that there was improvement on weight bearing of the operated leg and the cat's daily activities. The second follow-up scheduled 1 month after finishing PCSO-524[®] treatment found that the weight bearing was slightly improved. The questionnaire administration showed better performance of daily activities. Lameness score of the right hind limb was 2/5 and no grinding sound from the right hip palpation. Lameness score of the left hind limb was 0/5, however, the cat showed some avoidance when left hip was palpated. PCSO-524[®] 1 capsule per day for 2 weeks was prescribed again. Two weeks later, the lameness score of the right and left leg was 1/5 and 0/5, respectively, and there was no sign of pain during palpation. Movement angle of the hip joint and score from the questionnaire was shown in Table 2.

Table 2. Percentage of weight bearing on 4 legs, questionnaire score, joint movement angle, and the treatment

Date (Weight)	LH	RH	LF	RF	% Questionnaire	ROM RH	ROM LH	Antinol
6 Dec 2018 (2.76 kg)	39.13% (1.08)	23.19% (0.64)	80.43% (2.22)	79.71% (2.20)	63.53%	76/148	70/150	-
19 Dec 2018 (2.80 kg)	35.36% (0.99)	29.26% (0.82)	81.07% (2.27)	77.5% (2.17)	74.12%	-	-	After 2 weeks administration
15 Feb 2019 (2.9 kg)	31.03% (0.9)	31.71% (0.92)	74.48% (2.16)	72.41% (2.1)	76.47%	-	-	1 month after termination
1 Mar 2019 (2.94 kg)	33% (0.97)	35.03% (1.03)	76.19% (2.24)	79.59% (2.34)	78.82%	70/154	68/154	After 2 weeks administration



Figure 3. Radiographic image 14 weeks after surgery



of weight bearing performance using gait analysis

Conclusion and Discussion

Hip luxation in cats usually caused by injury. The most common hip luxation is the craniodorsal luxation. Clinical signs of hip luxation include hip joint pain, lameness, poor weight bearing, and grinding of the hip joint (Harry W Scott, 2006). Animals with hip dysplasia are at high risk of hip luxation. In this case, the hip luxation was caused by accident, but the cat may be at risk due to prior hip dysplasia as indicated by dysplasia of the left hip. Diagnosis of hip luxation was done by radiographic examination, identification of luxation position, and other assessments, for example, fracture of acetabulum, femoral head and neck, and hip dysplasia (Harry W Scott, 2006).

Conservative treatment of hip luxation can be successful in some cats with pseudoarthrosis but chronic lameness may occur in cats that do not recover within 2 weeks after the occurrence. Close reduction treatment is successful in about 50% of cases, while the other 50% can have recurrence of the incident. When recurrent hip luxation occurs, open reduction or FHNE is necessary. The prognosis of the surgery is good if done as soon as possible after the injury. Osteoarthritis is a possible complication after the surgery since the joint surface is disturbed from the injury or the surgery (Harry W Scott, 2006). FHNE surgery is recommended when there is recurrence of hip luxation, fracture of acetabulum, fracture of femoral head and neck, and hip dysplasia. It can be used as treatment of choice for hip luxation in cats. Prognosis after the surgery is good in cats. Most cats can recover and walk within 5 weeks after the surgery and can resume normal hip function within 5 months after the surgery (Harry W Scott, 2006).

The right hip luxation in this case was caused by injury in an accident. Pain of the left hip was detected. Surgical treatment was performed at 1 week after the luxation on the right femoral head. NSAIDs and cold pressure for pain control was applied by the owner at home during 3 days after the surgery. Monitoring at 10-14 days after the surgery found lameness, limited movement angle of the hip joint, muscle atrophy, refusing to jump, and less interaction with the owner. Nutraceutical treatment using PSCO-524[®] consecutively was then prescribed with the termination of NSAIDs and other physical therapy due to inconvenience of transportation. The follow-up showed promising response and improved performance and quality of life. The tools for monitoring included gait analysis, joint movement angle assessment, and administration of questionnaire for the owner. By the end of 2 week-administration of PSCO-524[®] alone, the cat had improved weight bearing and leg function. This was consistent with the owner report that the cat performed better daily activities such as high jumping, more energetic and playful.

Most of the cats that receive femoral head and neck excision show improved clinical signs in the long term, depending on the severity of the injury prior to the surgery. Complications after the surgery include alteration of movement angle of the joint, of which the most common is increased angle of hip stretching and slightly reduced leg length. The complications can lead to joint degeneration which requires regular monitoring after the surgery. The monitoring of this case found deterioration of the left hip from gait analysis assessment. The left hind limb showed less weight bearing when compared to the right hind limb at the 14th week after surgery when the right leg showed improved weight bearing after administration of oral medication. When the cat returned from 1 month of loss to follow-up, the left leg showed less weight bearing starting from the 12th week after surgery. When oral medication was administered for 2 weeks, the weight bearing of the left leg was improved, however still not as good as the right leg.

Treatment of hip dysplasia in cats using administration of non-steroidal anti-inflammatory drugs (NSAIDs) is not appropriate for long-term treatment due to adverse effects on kidney and gastrointestinal tract. Kidney disease is common in senile cats with osteoarthritis, therefore NSAIDs must be avoided in these cats. Nutraceutical substances used for medication usually consist of essential fatty acid, especially omega-3, which has anti-inflammatory effect (Zawadzki M, 2013). The cat in this case received oral PCSO-524[®], of which omega-3 is the main active ingredient, resulting in improved body movement and quality of life. The cat also showed improvement of high jump performance. This is consistent with a study of omega-3 fatty acid efficacy in osteoarthritic dogs that reported better movement and increased blood omega-3 and decreased blood omega-6 in dogs fed high omega-3 diet (James K, 2010).

References

1. Andy Moores. Decision making in the management of hip luxations in dogs and cats. In Practice 2006; 28: 570-576.
2. Fui W Yap, Andrew L Dunn, Paloma Garcia-Fernandez, Gordon Brown, Ross M Allan and Ignacio Calvo. Femoral head and neck excision in cats: medium- to long-term functional outcome in 18 cats. Journal of Feline Medicine & Surgery 2015; 17(8): 704-710.
3. W. Off; U. Matis. Excision arthroplasty of the hip joint in dogs and cats Clinical, radiographic, and gait analysis findings from the Department of Surgery, Veterinary Faculty of the Ludwig-Maximilians-University of Munich, Germany. Vet Comp Orthop Traumatol 2010; 23: 297-305.
4. Harry W Scott, Ronald McLaughlin, FELINE ORTHOPEDICS 2006: 184-191.
5. Zawadzki M, Janosch C and Szechinski J 2013. Perna canaliculus lipid complex PCSO-524[®] demonstrated pain relief for osteoarthritis patients benchmarked against fish oil, a randomized trial, without placebo control. Mar Drugs. 11(6): 1920-1935.
6. James K. Roush; Alan R. Cross; Walter C. Renberg; Chadwick E. Dodd; Kristin A. Sixby; Dale A. Fritsch; Timothy A. Allen; Dennis E. Jewell; Daniel C. Richardson; Phillip S. Leventhal; Kevin A. Hahn. Evaluation of the effects of dietary supplementation with fish oil omega-3 fatty acids on weight bearing in dogs with osteoarthritis. J Am Vet Med Assoc 2010;236:67-73.



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2018 Antinol® Cat Case Study Contest



Pharmalink and Vetz Petz® would like to thank everyone involved with the Antinol® research competition

At Pharmalink and Vetz Petz® we have a passion for Scientific Research and know that only this type of scientific proof is good enough to prove the benefits of ANTINOL® to the Veterinary community and owners alike. We also share the Vets passion for providing the best care for companion animals. This level of care and the credibility that goes with a Veterinarians recommendation cannot be achieved in good conscience if we do not have the participation and co-operation of the scientific community and Veterinarians alike. So we will continue to provide funding for projects that help companion animal owners and their Veterinarians to provide the best care for our beloved companion friends.

We would also like to offer a special thanks to ALL the committee members, Dr. Achinee and DKSH for their hard work organizing and hosting this very and unique event. You have graciously PROVIDED your time and vast experience and for that we thank you VERY much.

This project is the first of its kind for Pharmalink and Vetz Petz® and we are very excited about the research opportunities that have been shown as result of this competition. The future of Antinol® research is very bright and we are very thankful to everyone in loved.

John Dennis Waitzer
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Antinol® Contest has been organized successfully for 3 years since 2016 in Thailand. The key objective of this scientific contest is to encourage knowledges sharing amongst the Vet practitioners on how to treat the companion animals inflammatory cases safely & effectively by using Antinol® in conjunctive with others medicines especially the NSAIDs (Non Steroidal anti-inflammation drugs) which is the drug of choices of anti-inflammatory problems. However as we know apart from the high efficacy of NSAIDs it also can cause serious side effects such as renal or liver damage if it's used too long or no close monitoring when applied in animals.

Recently we have seen the increasing trend of cats populations adopted as the companions ; Cat is the specie that has quite limited type of anti-inflammatory drug with safely applied. Therefore 2018 Antinol contest would like to promote the Vet practitioners to share their knowledges and experiences of using Antinol® as the drug of choices of anti-inflammatory cases in cats to demonstrate the option of safe and effective treatment which has been very successful applied as the combined therapy from different cases study in this contest resulted Antinol® is become commonly used as the safe choice of anti-inflammation in cats.

Dr. Achinee Runcharoen
DVM
CEO ASIA



2018 Antinol[®] Cat Case Study Contest

