



THE TREATMENT OF A TORTOISE WHICH HAS TRAUMATIC ARTHRITIS CASE BY USING THE DIMETHYL SULFOXID (DMSO)

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Abstract

In this presentation, we discuss a tortoise case with traumatic arthritis and treatment outcomes of Dimethyl sulfoxide (DMSO).

The materials, In Gümüşhane Health Vocational High School mascot, a tortoise with a complaint of lameness was presented. Anamnesis and clinical examination confirmed the diagnosis of traumatic arthritis then subjected to treatment with dimethyl sulfoxide (DMSO).

Clinical examination, severe lameness in the right 3rd leg ; the nail was broken and the joint was inflamed. Treatment is not applied to chronic course arthritis which develop within a short period of time becoming difficult to cure. Treatment with dimethylsulfoxide (DMSO) is preferred because of its anti-inflammatory, analgesic and tissue permeability enhancing effects.

As a result, all the often encountered tortoise animals with arthritis, are diagnosed easily by history; clinical examination and physical examination of the synovial fluid are treated with dimethyl sulfoxide (DMSO) which made a successful therapy.

Introduction

Inflammatory disease of the joints is called arthritis^{1,2,3,4}. Wounds caused by the effects of trauma and degradation, stuffings in some broken ends of bone contusions accelerate the joint disease or constitute a direct cause affecting the normal articular function of the joints exposed to direct trauma. Synovitis shaped and accelerated the incidence of a progressive degenerative disorder^{3,5}. Clinical symptoms of joint disease varies according to the region location by the violence and disorder⁴. The disease manifests itself by a hot and painful swelling of the joints. Due to increased stretch of synovial joint capsule and the tables involved in edema mainly the peripheral portion. Mild or moderate pressure and passive movements of the joints evoke pain due to stretch of the joint capsule. Mild or moderate in a press lameness occurs in the extremities^{3,4}. Local temperature increase on palpation, pain and lameness are the most important clinical symptoms press^{3,6,7,8,9}. Normal synovial fluid is viscid, clean, clear, colorless or straw yellow in color^{10,11}. In acute traumatic events it takes a dark yellow or reddish color^{5,10,12}. Synovial fluid is opaque in chronic traumatic and degenerative conditions and includes swimmers materials^{10,12,13}.

Treatment of chronic Arthritis developing within short duration course in untreated patients are difficult to be treated. Septic arthritis in turtles usually cause lysis and sclerosis of the joint environment. Usually exposed to trauma cues are back legs and front legs. Eye and head trauma are rarely seen. The front leg injuries heal quickly in about 1 month¹⁴. Treatment of traumatic arthritis with DMSO (Dimethyl sulphoxide) is used either alone or in combination with corticosteroids to reduce soft tissue swelling and inflammation that occur after acute trauma³. DMSO posses an anti-inflammatory, analgesic, bactericidal effects, increase the tissue permeability and also has an antioxidant effect. Furthermore, although toxic but when purified and diluted (especially with saline and Ringer's lactate) it loses its toxicity and stop arthritis resulting in oxygen free radicals by connecting the degradation of hyaluronic acid, which is important for the joint^{15,16}.

In this article, land tortoise (*Testudo graeca*) cases with traumatic arthritis are encountered and aimed to present the results of treatment with (Dimethyl sulphoxide) DMSO

Description of Cases

The case material, Gumushane with the Health Professions High School mascot, A 5-years-old black female tortoise (*Testudo graeca*) with lameness was created and introduced. In clinical examination, it had a broken nail with severe lameness of the 3rd. right front leg and was found to inflamed joints.

Turtle case showed a remarkable general weakness and loss of appetite. For exact diagnosis, synovial fluid was subjected to physical examination. Physical examination of the synovial fluid was opaque, dark reddish in color and was found to coagulate quickly. Turtles with traumatic arthritis diagnosed by History, clinical examination and physical examination of the synovial fluid were treated with DMSO (Dimethyl sulphoxide) .

Resimler

A 20% DMSO solution diluted with Ringer's lactate was used for treatment. After aspiration of the pathological synovial fluid of diseased joints a joint lavage by repeated intra-articular injection of 1-2 ml of the 20% DMSO solution and aspiration was done until the aspirated liquid is clear (Art. Phalanges to distalis) . Process was repeated every other day beside checking turtle's daily activity until they return to normal. Within Two weeks of continued treatment the joint swelling, lameness and pain improvement were observed with normalisation of the synovial fluid.

Discussion and Conclusion

Arthritis is the term used for Inflammatory diseases of the joints ^{1,2,3,4}. The causes of joint diseases may be divided into two groups predisposing causes and constructive causes ^{3,4}. Predisposing factors; structural and predisposing causes, broken ground, defective foot care, inheritance, endocrine disorders, trauma, chemical degradation, old age, nutritional disorders. The constructive reasons; are referred to as infectious and non-infectious causes ⁵.

In turtles trauma, insect bites or injuries resulting from burns can cause infection ¹⁷. On physical examination, abscesses in the joints, edema or swelling of the distal extremities-which is not controlled, in the presence of growth and wear nail, the flexibility of joint cont¹⁸. When the diagnosis of arthritis is confirmed, treatment should be started without delay because chronicity develops within a short time in untreated cases becoming difficult to treat reflected on the outcome results. Antiseptic precautions to the joint area before the start of treatment should be applied. For this purpose, diluted betadine is preferable for superficial injuries in turtles and used safely ¹⁹.

Traumatic arthritis treatment in our case with 20% DMSO (Dimethyl sulphoxide) prepared in Lactated Ringer's solution was injected intra-articularly and preferably the joint lavage done with aspiration method. The DMSO (Dimethylsulphoxide) acts as an anti-inflammatory, analgesic, bactericidal, tissue permeability enhancer and acts as an antioxidant by binding to the resultant free radicals normally occurring in osteoarthritis causing degradation of the important hyaluronic acid of the joint ^{15,16}.

In an experimental study done by OGDEN, JA et al., in a sea turtle of 250 kg with septic arthritis and osteomyelitis they met and did not find any information about the turtle's joint disease in their literature scan. As a result of their work on frequent cases of arthritis in mammals and reptiles, they concluded that turtles having thin and avascular epiphyseal cartilage possessed an increased susceptibility to arthritis and osteomyelitis²⁰.

PHILBEY AW et al left Coxofemoral septic arthritis in a 5-years-old female black turtle confirmed by Magnetic Resonance Imaging and Computed Tomography scan of the joint showing increased thickness of the joint capsule and yellow synovial fluid ²¹.

As a result, all the arthritis often encountered in the tortoise animals are diagnosed easily by history, clinical examination and physical examination of the synovial fluid and dimethyl sulfoxide (DMSO) was made a successful therapy.

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Annexure



Figure 1. View of Joint before joint lavage



Figure 2. stabilization of the joint and determining the location of the input



Figure 3. Aspiration of synovia and joint lavage



Figure 4. View of the joint after lavage with DMSO