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**Olgu Sunumu**

# PROTEUS INDUCED DISCOSPONDYLITIS THE FIRST CASE REPORTED IN AN ANATOLIAN SHEEPDOG

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## Bir Kangal Köpeğinde İlk Defa Bildirilen Proteus'a Bağlı Diskospondilitis Olgusu

**Özet:** Olgumuzu, cerrahi kliniğine getirilen 4 yaşlı erkek Kangal ırkı köpek oluşturdu. Hasta, yaklaşık 10 günden beri arka ayaklarına basamama şikayetiyle getirildi. Alınan anamnezde; hayvanın iştahsız olduğu, giderek zayıfladığı, genel durumunun kötüleştiği ve 1 yaşında iken üriner sistem enfeksiyonuna yakalandığı öğrenildi. Direkt radyografi görüntülerinde $T_6$-$T_9$ intervertebral aralıkta daralma ve komşu vertebralarda lizis gözlendi. Miyelografiden önce alınan beyin omurilik sıvısının mikrobiyolojik incelemesinde *Proteus* spp. tespit edildi. Hayvanın durumu göz önünde bulundurularak ve sahibinin de isteği üzerine ötenazi yapıldı.

**Anahtar kelimeler:** Diskospondilitis; kangal; proteus.

**Summary:** Our case was 4 years old Anatolian Sheepdog, brought to the surgery clinic. The Anatolian Sheepdog was brought in with a complaint of inability to use the hindlegs for approximately 10 days. In the anamnesis the patient was reported to have no apetite, that it had lost weight, it's general condition was deteriorating and that it had had a urinary system infection when it was 1-year old. In the radiographs an abnormal appearance was observed in the $T_6$-$T_9$ intervertebral space and the mentioned vertebrae. Considering the overall condition of the patient and upon the owner's request, the animal was euthanised. Microbiological examination was done on the cerebrospinal fluid (CSF) taken before mycelography. The result showed that *Proteus* spp. had grown.

**Key words:** Discospondylitis; Anatolian Sheepdog; proteus.

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## Introduction

Discospondylitis is an infection of an intervertebral disk with concurrent osteomyelitis of contiguous vertebrae with several known etiologies **(15, 18, 20, 21)**. Hematogenous dissemination of bacteria from the urinary tract, endocardium, oral cavity or skin is the most common source of infection. Other causes of discospondylitis include mycotic infection or iatrogenic infection, e.g. complications secondary to intervertebral disk surgery or foreign body migration **(1, 7, 9, 13, 15, 17, 18)**.

The source of infection in the dog is not established in most cases. In one study, 25% of the dogs had urinary tract infection. However a cause and effect relationship between concurrent urinary tract infection and discospondylitis has not been established. Skin is reported as the source of infection in only one case of discospondylitis. In another study of a kennel of dogs, discospondylitis was diagnosed in 69% of the dogs in a six-month period. No direct relationship between a single source of infection and disease was established in this study **(19)**.

The diagnosis of discospondylitis is confirmed by radiography. Radiographic signs include bony lysis of affected vertebral endplates, occasionally the vertebral bodies, and also bony proliferation of infected vertebrae that may lead to bridging of affected disk space **(10, 11, 16, 18, 20, 21)**. Most of the discospondylitis lesions are observed in the thoracic and lumbar areas and less frequently in the cervical region **(3, 9, 13)**. Development of radiographic abnormalities may not be evident for two to four weeks after infection **(3, 9)**. Additional diagnostic imaging such as myelography, computerized tomography (CT) scan and magnetic resonance imaging (MRI) can be useful to better prognosticate cases with worsening clinical symptoms despite appropriate treatment or those with severe neurological deficits **(8, 14)**. In the last ten years, the use of scintigraphy was recommended too; an increase of the activity was observed till the third day **(13)**. Myelography is mandatory before surgical decompression is considered. If myelography demonstrates a compressive lesion, hemilaminectomy or dorsal laminectomy can be performed to decompress the spinal cord and obtain samples for culture **(4)**.

The treatment should be based on large spectrum antibiotics, analgesics and rest. The choice of the antibiotics depend on blood and urine analysis and serological tests (especially for *B. canis*). Till the tests were availables a staphylocal effective antibiotic must be recommended. In case of *B .canis* infection, tetracycline and aminoglycoside combination must be recommended. **(3, 5, 9, 13, 18)**.

The medical treatment of aspergillosis is only possible in earlier detection of the disease. Amphotericin B was selected in vaste fungal infections and itraconazole, ketoconazole or hamycin in prolonged therapies **(2, 3, 9, 12)**.

Discospondylitis with mild and pronounced neurologic signs and no response to medical treatments were apt to surgical intervention **(3, 13)**.

## Case Report

This report describes a case of thoracal discospondylitis in a dog. A four years old male Anatolian sheepdog, weighing 24,5 kg was presented with a gradual onset of hind limb lameness. Progressive symptoms and a history of lethargy, anorexia, a stilted gait, reluctance to move and fever (temperature: 40°C) was noted. A continued worsening of current symptoms was observed. A complete blood count, chemistry profile and urinalysis revealed no abnormalities. The owner noted that approximately three years ago, the dog had jumped from a higher place and had a paraparetic period following this incident. An urinary tract disease was diagnosed and treated after this evenement.

Abnormal physical findings like resistance to any movement of his back and, on flexion mildly painful reactions were observed. There were no noted abnormalities according to the international neurological scale. He was reluctant to move his entire body and appeared very depressed.

The differential diagnoses for the thoracal pain and fever were: discospondylitis, meningitis (septic or steroid responsive), intervertebral disk disease, or systemic fungal infection. The differential diagnoses also included the possibility of traumatic lesions such as fracture luxations or subluxation as well as congenital malformation.

A complete blood count and urinalysis were within normal limits. Results of a chemistry profile revealed a non-significative increase of alkaline phosphatase (149 U/L) and calcium (11.5 mg/dl). A 20 gauge intravenous catheter was placed in the right cephalic vein and intravenous fluids (lactated Ringers solution) were administered. Preanesthesia was realised with xylazine (Rompun®, Bayer, Turkey) at a dose of 1 mg/kg IV and anesthesia was started with ketamine (Ketalar®, Eczacıbası, Turkey) at a dose of 5 mg/kg IV. Survey cervical and thoracic spine radiographs were taken under anesthesia. Evident bony lesions were noted on plain film radiographs, high suspicion of diskospondylitis was notified. The radiographs revealed destructive osteolysis of the cranial endplate of $T_6$ and an amplified extent to $T_6$-$T_9$ vertebras (fig. 1). The decision to perform the myelogram was based on the rapid progression of the neurological symptoms, with the possible consideration of a ventral slot hemilamenectomy and fusion being required if symptoms worsened. When the myelogram demonstrated only mild focal area of cord impingement the decision of conservative medical management versus surgical intervention was prudent. Myelogram was realized with iohexol (Omnipaque®, Nycomed, Ireland) at a dosis of 0.3 ml/kg and revealed an impingement at $T_4$-$T_5$.

A cervical CSF was collected and analized. No specific variations in biochemical parameters were noted. The bacterial (aerobic/anaerobic) of both CSF and blood examination revealed the presence of *Proteus* spp. in CSF.

He was diagnosed with a thoracal spinal cord impingement at $T_4$-$T_5$ associated with an aggressive ankylosing spondylitis-diskospondylitis between $T_6$-$T_9$ due to *Proteus* infection. Conservative management with long term antibiotic therapy based on microbial culture or response to the medication and needle aspiration of the discospondylitic lesion was suggested to the owner who decided definitely to the euthanasia of the animal.

**Figure 1.** Radiographic appearence of discospondylitis site between $T_6$-$T_9$ (the area is surrounded with a white line).

**Şekil 1.** $T_6$-$T_9$ arasındaki diskospondilitis bölgesinin radyografik görünümü (beyaz çizgi ile çevreli bölge).

## Discussion

Discospondylitis was generally notified in large breed dogs and especially in Great danes and German Shepherd **(6, 7)**. This case is the report of the first case of disconspondylitis due to *Proteus spp.* registered in an Anatolian sheepdog in Turkey.

Hematogenous propagation, foreign body displacements, trauma including intervertebral disc or corpus vertebra growth plates, paravertebral infections and fall of disc surgeries are diskospondilitis potential factors **(3, 9, 10, 15, 17, 18, 20)**. Primary infection source was generally reported as the urinary tract **(10, 15, 21)**. The pathogenesis of the diskospondylitis remains in this case unclear. The initial trauma to the cervical endpoints, predisposing them to the diskospondylitis, may have occurred when the dog fall down 3 years ago and showed symptoms of urinary tract disease and paraplegia. This point of view correlate with litteratures and fortify the idea on the onset of the disease. The urinary tract disease reported 3 years ago, may have a result on the locally installation of the disease via blood stream in a predilective area created after the trauma.

$C_6$-$C_7$, $T_5$-$T_6$, $T_{13}$-$L_1$ ve $L_7$-$S_1$ intervertebral spaces are the most affected areas by discospondylitis **(6, 9, 13)**. In this case, the area was $T_6$-$T_9$ intervertebral space. In fact, any area of the spine could be affected. The impingement founded at $T_4$-$T_5$ was accepted like no effect based on the neurological findings cited in the material method. In dogs discospondylitis; microorganism generally isolated in blood, urine and bone samples was

*Staph. aureus* **(9, 21)**. In most of the CSF cultures negative results were obtained **(6, 15)**. In this case, the fact of finding *Proteus* spp. and to localise it in CSF was one the interesting points.

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