Animal Chiropractic

Reversal of Paraplegia in a Four Year Old Shih Tzu Bichon Canine: A Case Study

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Abstract

Objective: To describe the resolution of paraplegia in the hind limbs of a canine utilizing chiropractic care.

Clinical Features: A four-year-old bichon frise/shih tzu mix canine presented for care with complete paralysis of the hind limbs. He had multiple previous episodes of moderate paraplegia that had been treated with courses of steroids. On the third occasion of paralysis the steroids did not resolve the issue. Instead, the canine worsened to the point where he was partly incontinent. Paraplegia is defined here as complete lack of function in both hind limbs, no muscle tone and lack of deep tendon reflexes.[1] After one month of treatment the dog was able to hold himself up on all four limbs for periods of ten minutes or greater. After four months of treatment the canine was able to walk normally.

Intervention and Outcomes: The patient was cared for using manual chiropractic adjustments characterized as high velocity, low amplitude thrusts to sites of vertebral subluxation. Over the course of four months the patient was seen sixteen times. Following these sixteen visits the canine's owners reported complete resolution of the hind end paralysis without need for steroids, anti-inflammatories or pain medication.

Conclusion: This case study provides supporting evidence that canines suffering from paraplegia may benefit from chiropractic adjustments to sites of vertebral subluxation.

Keywords: *chiropractic, subluxation, paralysis, paraplegia, canine, alternative health, adjustment*

Introduction

Alternative therapy for animals has been around for centuries. It has not been until recently, however, that several of these alternative options have become more commonplace. Despite there being a large range of options, the most commonly discussed alternative therapies include chiropractic, acupuncture and homeopathy.[2] For instance, there is research dating back to the early 20th century discussing the use of chiropractic on animals.[3] Scientific evidence to support these alternative therapies is truly lacking however, and there is still a great deal of controversy concerning the efficacy of these treatments.[4] The American Veterinary Medical Association noted in its 1996 revision of guidelines that there could be a great deal of benefit from chiropractic care for animals and more research needs to be done and classes provided to allow this therapy into current veterinary practices.[5]

Currently the practice of alternative medicine for animals is growing and can be found in the form of acupuncture, chiropractic, homeopathy, veterinary naturopathy, phytotherapy, hydrotherapy, etc. The various fields fall under the "holistic medicine" category and are considered a positive way to round out any veterinary practice. Holistic therapies focus on maintaining a state of homeostasis within the body and look at the patient as a whole, rather than limit care to a specific pathology.[6]

Much of what has become more utilized in humans has now gained traction in the animal world. Paralysis in canines is becoming an all too common symptom. Intervertebral disc disease, ruptured discs, herniations, bulges, degenerative myelopathy, polyneuritis and spondylosis can all lead to

varying degrees of paralysis. Each diagnosis is so incredibly different, yet the symptoms can mimic one another. Because animals are unable to vocalize what exactly is going on, anyone working with them has the job of being both detective and doctor. Often diagnoses are made strictly by process of elimination and very rarely are they definitive when paralysis is involved.

Chiropractic adjustments address vertebral subluxations. A subluxation, in terms of animal chiropractic, is defined as a shift in the normal structure of one vertebrae compared to those above and below, causing a biomechanical change that can interfere with nervous system function.[6] This interference can lead to a variety of symptoms depending on where the subluxation is found in the body. For instance, a study by Thude recently showed a correlation between lumbar subluxations and incontinence in canines.[7] In the case report below, a discovery was made connecting lumbar vertebral subluxations to paraplegia in a canine. As these subluxations began to improve, the paraplegia began to resolve. Because there are a wide variety of diagnoses associated with paralysis, it would be interesting to see how much of those cases also exhibit specific subluxations that could in fact be the main contributor to the paraplegia.

Case Report

History

The patient was a four-year old shih tzu/bichon mix named Ziggy. At the time of examination, Ziggy weighed approximately 12 pounds and was grey and white in color. Ziggy had always been a happy and active dog. According to his owner, he had not had any known injuries or traumas. When Ziggy came to the practice he was paralyzed in his back end. His owner reported there had been two previous incidences in the preceding year. The first occurrence was minor; he lost most control of his back legs. Upon visiting their traditional veterinarian, Ziggy was given a round of steroids, anti-inflammatory medication and painkillers. Within a few days Ziggy appeared to be back to normal, though he continued to have a wobbly gait and stayed on the medications.

A couple of months later Ziggy had a relapse that ended up being more severe. He was unable to use his back legs and he seemed to be in increased pain. Another visit to the traditional veterinarian had them do another round of steroids, muscle relaxers, anti-inflammatory medication and painkillers. Ziggy managed to recover, though his gait remained very "off". The owner described "off" as dragging his legs occasionally and he didn't seem to have strength to jump or stand on his back legs. His recovery took twice as long the second time.

Upon the third relapse six weeks later, the owners once again took him to the traditional veterinarian and he was placed on another round of steroids. This time Ziggy's condition seemed to worsen while on the steroids and he had no control of his back legs. He dragged them when he pulled with his forelimbs, he had some pain in his back and he was very lethargic. He had lost his deep tendon reflexes and had no pain sensation in his back paws. He was diagnosed by the veterinarian with a suspected disc herniation or rupture secondary to disc disease accompanied by some minor arthritis and an MRI was recommended to verify this, though it was never pursued by the owners. The treatment options presented included surgery, lifelong medication, a wheeling cart, and possibly euthanasia if he continued to worsen.

After having been given the above options, Ziggy's owner contacted our practice inquiring whether chiropractic treatment could help. At his first visit, a more in depth look at Ziggy's past history revealed that he was in fact a jumper and had had multiple spills throughout his life. He also had jumped from high pieces of furniture down to the ground on several occasions and had fallen on the ice each winter. Some of these instances were followed by a series of limping and cries of pain, though none lasted more than a few days. A limp and pain, though they may come and go, is an indicator of possible vertebral subluxation complexes within the body. Continuous jumping, pulling on leads, and daily walks are also considered micro-traumas that contribute to vertebral subluxation. It should be noted that the two breeds found in Ziggy are not prone to specific back disorders according to the limited research.

Examination

During his examination Ziggy was quite nervous but tolerant. It was confirmed that he had no deep tendon reflexes in his hind limb, had only a minimal pain response upon squeezing of the skin in between his paw pads on the left, and was unable to "right" either of his back paws when they were curled under (knuckled). He was not completely incontinent but was unable to squat or maintain a position while trying to defecate and urinate. It appeared as though he was aware his bowel and bladder needed to be relieved but could not carry out the action without assistance.

Static palpation revealed Ziggy already had significant muscle atrophy in his hind, likely because this condition had been progressing for several weeks. There was only a mild rise in temperature in his pelvis but a moderate one in his lumbar spine, secondary to inflammation present. Muscle spasm was noted in the musculature on either side of the upper lumbar spine. Visually, Ziggy had a significant roaching (hunching) of his back in his lower thoracolumbar area, something often seen when an animal is attempting to take pressure off of a trouble spot. Gait analysis confirmed an inability to initiate movement in both hind limbs. Upon being placed on an outdoor surface, it was noted that Ziggy looked as if he was trying to use his right back leg, but to no avail. Motion palpation of the back end revealed no restrictions in his range of motion in either leg. Several levels exhibited motion restriction throughout the lumbar spine accompanied by muscle spasticity. After the initial examination it was recommended Ziggy be seen twice a week for the first two weeks, and decrease the frequency depending on his progress.

Intervention and Outcomes

Ziggy was adjusted using manual chiropractic techniques, classified as high-velocity and low amplitude thrusts. On his first visit, he was adjusted at C7, T10, L1, as well as both sacroiliac joints. On his second visit, Ziggy's owner reported a much sounder sleep and that he seemed to be more

comfortable. He was able to lie down without as much difficulty and she commented on this improvement. At his second visit, C1, C7, L2 and both SI joints were adjusted.

On his third visit, it was noted that Ziggy was able to pull himself up and use his right leg, though he had no stability and dragged himself while attempting to walk. At this visit T10, L1, and L6 were adjusted. During his next four visits Ziggy continued to improve, beginning with regaining complete continence and by his fifth adjustment his pain response had returned to both of his back legs. It was recommended that Ziggy begin hydrotherapy weekly in order to strengthen the muscle mass he had lost.

On his eighth visit his owner reported that Ziggy was beginning to regain some stability and was walking around the house, though he fell often. He had control of his back end again and his muscle mass had begun to improve. His owner reported doing three hydrotherapy sessions with Ziggy and having also purchased socks with rubber grips on the bottom to help with stability on slippery surfaces. By his twelfth adjustment, Ziggy was able to stand up and walk without falling and without using the grip socks. On his sixteenth adjustment, his owner reported complete resolution of the initial problem. Ziggy could walk, run and even jump again. The roaching in his back had diminished, the muscle spasms had decreased and his sensitivity levels were within normal. Upon entering the office, he stood up on his back two legs to greet the doctor. His muscle mass had returned to normal and he had full function in his back end.

At each visit a lumbar vertebrae, usually L1, L2, or L6 was subluxated as well as T10 and a sacroiliac joint. Four months and sixteen visits after starting care, Ziggy was considered normal again. He now gets adjusted on a monthly basis to maintain his progress.

Review of the Literature

Currently, there is little to no research regarding lower back subluxation and a link to paraplegia in canines. A paper recently written by Thude shows a potential link between structural abnormality in the lumbar spine and urinary incontinence.[7] Beyond this study, there are no scientific papers linking certain areas of subluxation to specific conditions, only the occasional anecdotal evidence. Equine chiropractic has a little more research associated with it, however, the anatomy between large and small animal is different enough that the research was considered to be less generalizable.

Discussion

Paraplegia is defined as complete absence of any voluntary motor activity.[6,8] This case report demonstrates the successful conservative care of a paraplegic canine. Though there was no definitive diagnosis via MRI, it was determined that a case of intervertebral disc disease possibly leading to a disc rupture is what eventually led to the paraplegia. What exactly is intervertebral disc disease? According to the veterinary Merck Manual, IVDD is "degeneration and protrusion of the intervertebral disk resulting in compression of the spinal cord, spinal nerve, and/or nerve roots".[9] The intervertebral discs act as both cushions and shock absorbers in the spine. Several conditions and forces can cause these discs to swell or rupture.[10] Thoracolumbar disc ruptures, like the one suspected here, occur 65% of the time.[10] Change in disc shape and size can lead to a variety of disorders, and in the case presented above, it lead to complete paraplegia of the hind limbs. There were warning signs of the disc disease along the way, but because the root cause of the disc disease was left unaddressed, the symptoms were merely masked and Ziggy's condition was able to worsen.

A vertebral subluxation can be the root cause of disc disease. When there is a structural shift in the spine, the axis about which motion and stressors occurs can change, and abnormal pressures on the disc can lead to biomechanical reactions. The body will compensate for these shifts in a variety of ways, and in the case of IVDD the joint itself will experience loss of movement and excess bony growth (arthritis) where there should be none in according with Wolff's Law.[11] This arthritis will develop simply to accommodate the abnormal weight bearing happening because of the structural shift. As more arthritis accumulates and as motion restrictions increase, the joint itself is unable to propel fluids and maintain normal flow of blood, cerebrospinal fluid, and water. When this fluid flow becomes limited, the pressure within the vessels of the joint will increase, causing even more fluid to flow into the joint due to hydrostatic pressure. As more fluid accumulates, there will be swelling of the joint. This swelling often begins as a disc bulge, followed by a disc herniation or rupture if the pressure is not relieved. After a disc ruptures, the contents spill out into the joint cavity and the disc itself shrinks to a portion of what it once was.[12] With decreased disc space, the nerves, nerve roots and spinal cord will likely experience pressure or direct impingement, leading to any variety of symptoms. The type of nerve damage that ensues is directly related to the type of force being applied to the spinal cord, the degree of force and how long the force has been present.[10] In the case of Ziggy, the time a force had been present could be estimated to be at least six months to a couple of years. It is uncertain mainly because symptoms can show up at a delayed time compared to when the force first presents itself.

Currently the standard of care for IVDD is through medical management or surgery. Ziggy would not necessarily have been a candidate for surgery because he had lost deep pain perception in his hind limbs. Conservative management is also available and those animals that continue physical therapy have a better chance at maintaining proper structure and stability, so as to help protect against relapses. According to Dr. Karen Becker, approximately 50% of animals will relapse to varying degrees if they are left untreated.[13] Laser therapy, acupuncture, chiropractic and hydrotherapy are all beneficial treatments for canines with disc disease.[8]

Multiple areas of subluxation were found upon chiropractic examination, and these areas correlated with the suspected levels of disc disease. There are no definite numbers available discussing the number of canines affected by disc disease yearly, just a note that smaller breed dogs with long backs such as dachshunds, bassett hounds and corgis are more prone to having back problems.[10] Ziggy did not have any of these breeds in him and yet he still was affected. Could it be that his activity level and constant jumping contributed to wear and tear on his spine?

When animals are involved, it's important to understand that despite being a "pet", they instinctively do not show weakness. Though they may continually injure themselves, animals will do everything in their power to avoid looking like the weakest link. Those that show weakness in the wild are the first ones to be left behind or eaten. Though they often become part of the family, this part of the brain does not get overridden. Thus, when a dog injures himself, he will go above and beyond to hide that injury. In the case of Ziggy he spent years compensating for injuries he caused himself, and at a certain point his body was unable to add on any additional compensations. This is when degeneration begins and when it seems that everything falls apart. Though he was young, it goes to show that age does not necessarily matter. In the case of animals, prevention and protection are truly key. Maintaining a stable underlying structure (the spine), will allow the animal the freedom to exist without having to constantly compensate.

Conclusion

A suspected connection between structural shifting in the lumbar spine and paraplegia is presented in this case report. More research on the topic of paraplegia needs to be conducted to determine whether or not lower back subluxations are directly related to dysfunction.

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