

Abstract

Is physical rehabilitation that important in our four-legged patients? Does it really make a difference after surgery? “Physical Rehabilitation Battles IVDD” case presentation will spotlight a patient recovering from intervertebral disc disease that was surgically corrected. Common goals for these type patients will be explained. Also, different modalities and exercises used in physical rehabilitation to reach these goals will be discussed. Before and after videos will tie the information together and give an inside view of why physical rehabilitation is becoming more of the norm.

Key words

IVDD (intervertebral disc disease)

NMES (neuromuscular electrical stimulation)

Neurologic grading scheme (0-5; 5=normal)

“Physical Rehabilitation Battles IVDD”

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Chevie

6 year old Female Dachshund

Family pet

Chevie’s Story

May 3, 2019

Patient presented to AUSATH ECC non ambulatory, paraplegic, no deep pain in pelvic limbs

CT reveled a right-sided intervertebral disc extrusion at the T13-L1 disc space with moderate spinal cord compression

Right sided Pediculectomy at T12-L1 was performed on May 3, 2019

What is IVDD?

Intervertebral Disc Disease

The center of the disc mineralizes and herniates into the vertebral canal

Results in inflammation, hemorrhage, and compression of spinal cord

Causes neurological deficits such as pain, ataxia, loss of motor and pain sensation in affected limbs

Surgery usually recommended

Initial Rehab Evaluation

May 6, 2019

Physical rehabilitation consult at AUSATH

Non ambulatory, paraplegic, deep pain positive, has withdrawal

Not urinating

Unable to support herself when placed in a standing position

Rolls to hips or rump, no control over sit position

Increased muscle tone in right pelvic limb

Recommended strict cage rest with controlled physical rehabilitation

Patient is QAR, BCS 6/9, friendly but very nervous

Neurologic grading scheme: 0 Absence of purposeful movement; paraplegic

Pain assessment: 1-2, Patient's neck, shoulders, and abdomen are painful on palpation

Goals: Stop muscle atrophy and regain muscle mass and ROM. Have patient become ambulatory again.

Plan: Daily physical rehabilitation until discharge. Outpatient sessions afterwards as needed.

Treatment Plan Weeks 1-3

Assisted stand for 10 minutes

Standing bicycle x 10

Weight shifts x 10

Bounce stand

Assisted walks

NMES

Laser T10-L5

Toe pinch H x 10

Massage 10 minutes

At Home Exercises

Leash walks with harness 5-10 minutes twice a day

Assisted standing 10 minutes twice a day

Weight shifting 10 times twice a day

PROM in pelvic limbs 10 times twice a day

Sit to stands 10 twice a day

Massage neck and rear legs for 10 minutes twice a day

Improvements – End of Week 2

Non ambulatory, paraparetic

Able to urinate on her own

Neurologic grading scheme: 2

Starting to push up from a sit, advancing but knuckling both pelvic limbs

Right pelvic limb is more ataxic than the left

Still needs full support in pelvic limbs when standing and walking

Added in acupuncture and sit to stands

Improvements – End of Week 3

Ambulatory, paraparetic

Neurologic grading scheme: 3

Advancing and placing left pelvic limb every step

Advancing and placing right pelvic limb about 50% of the time

Still has increased muscle tone in the left pelvic limb

Stopped NMES

Added in UWTM, ramps, and sand pits

Treatment Plan Weeks 4-11

Assisted stand 10 minutes

Weight shift x10

Bounce stand x10

Standing bicycle x10

Toe pinch H x10

Assisted Walk

Laser T11-S1

Assisted sit stands x10

Sand pits x4

Ramps x 4

Hurdles 4 hurdles flat inside x10

Hurdles 2 hurdles flat sand x10

Massage

Improvements – End of Week 6

Stopped bunny hopping with pelvic limbs

Two engine gait continues to improve

Able to stand up with little to no assistance

Placing right pelvic limb more accurately

Needing little to no support walking

Balance is improving

Muscle atrophy is improving in pelvic limbs

Improvements – End of Week 8

No assistance needed when walking or doing sit stands

Balance is still improving (she only fell one time when shaking)

Two engine gait improving

Improvements – End of Week 11

Keeps her balance when shaking and turning around

Muscle atrophy in pelvic limbs has improved greatly

Neurologic Exam at Recheck July 3, 2019

Patient is ambulatory, paraparetic

Proprioceptive ataxia with the right pelvic limb more affected than the left

Postural reactions were absent in the pelvic limbs bilaterally

Patellar reflex was decreased in the left pelvic limb and hyper to clonic in the right

Neurologic grading scheme: 4

Recap

First 3 weeks: 5 days a week

Week 4: 4 days a week

Week 5 and 6: 3 days a week

Week 7 and 8: 2 days a week

Week 9: 1 day a week

Week 10: At home exercises only

Week 11: 1 day a week

Total physical rehabilitation sessions = 31

Paraplegic with no deep pain pre-op

Paraplegic with deep pain 3 days post op

Non ambulatory, paraparetic and able to urinate (week 2)

Ambulatory, paraparetic (week 3)

Video at Discharge

Questions?