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Rehabilitation of a Patient Diagnosed with Dermatomyositis in a Skilled Nursing Facility: A Case Report

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REHABILITATION OF A PATIENT DIAGNOSED WITH DERMATOMYOSITIS IN A
SKILLED NURSING FACILITY: A CASE REPORT

by

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A Scholarly Project

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This Scholarly Project, submitted by Chance Halvorson in partial fulfillment of the requirements for the Degree of Doctor of Physical Therapy from the University of North Dakota, has been read by the Faculty Advisor and Chairperson of Physical Therapy under whom the work has been done and is hereby approved.

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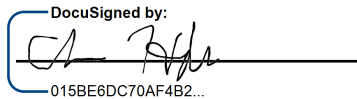
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Degree Doctor of Physical Therapy

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TABLE OF CONTENTS

LIST OF TABLES.....	v
ACKNOWLEDGEMENTS.....	vi
ABSTRACT.....	vii
CHAPTER	
I. BACKGROUND AND PURPOSE.....	1
II. CASE DESCRIPTION.....	2
Examination.....	3
Evaluation, Diagnosis, Prognosis.....	5
III. INTERVENTION AND PLAN OF CARE.....	8
IV. OUTCOMES.....	12
V. DISCUSSION.....	14
Reflective Practice.....	15
REFERENCES.....	17

LIST OF TABLES

1. Shoulder Range of Motion Measurements Taken Each Week.....	4
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ABSTRACT

Background and Purpose: Dermatomyositis is a disease of unknown origin that results in skin rashes and muscle wasting that can lead to significant respiratory issues and loss of function. This case report describes the response following functional training in a bedridden patient who recently reported to a skilled nursing facility.

Case Description: The patient was a 78-year-old male who was previously diagnosed with dermatomyositis that rapidly progressed after being hospitalized for over 4 months. The patient had a complicated past medical history and a difficult socioeconomic background.

Intervention: The plan of care was focused around promoting independence with transfers and building tolerance with standing and walking to be able to achieve the patient's goal of returning home safely.

Outcomes: During his time at the facility he showed great improvements in range of motion, strength, functional mobility, and exercise tolerance.

Discussion: The patient was responding positively to the treatments being provided before his sudden discharge from the skilled nursing facility. Ultimately not all of his goals were able to be met before discharge. Dermatomyositis continues to be a difficult condition to manage.

KEYWORDS

Dermatomyositis, skilled nursing facility, functional training

CHAPTER I

BACKGROUND AND PURPOSE

Dermatomyositis (DM) is a rare disorder that affects 1 in 100 000 people each year. Women, adults ages 40 to 60 years old, and kids 5 to 15 years old have a higher prevalence of being diagnosed with dermatomyositis. The causes of dermatomyositis are unknown however the disease process is similar to other common autoimmune disorders. It is a condition where one's own immune system attacks the body's muscle tissue and causes skin rashes.¹ Common symptoms correlated with dermatomyositis include muscle degeneration, weakness, difficulty speaking and swallowing, rashes, joint pain, calcium deposits under the skin, and bumps on joints in the hands and legs. In some cases, symptoms can dissipate and never come back but in 80% of cases, symptoms are lifelong.² In this case, the patient had been dealing with this diagnosis for over 10 years officially and was having symptoms for 5 years prior. Common interventions utilized for rehabilitation of dermatomyositis includes endurance-based protocols that utilize cycling at 70% of the patient's VO₂ max,³ as well as interval training on the treadmill in combination with strength training.⁴

CHAPTER II

CASE DESCRIPTION

The patient was a 78-year-old white male who was admitted to the skilled nursing facility (SNF) after a prolonged stay at a nearby hospital. At the time of being admitted, the patient was bedbound and dependent on a gastric tube for feeding. He was completely nonambulatory and had severely diminished range of motion (ROM) globally. The patient was admitted to the SNF due to significant loss of functional mobility and limited support at home. He was a retired mechanic who enjoyed fishing and sailing. His home was a single-level townhome with 3 steps and a rail at the front door. His bathroom had handrails, a high-rise toilet, and a walk-in shower with a shower chair. He lived alone but did have his step daughter nearby for periodic support at home. The patient was initially brought to the hospital for difficulty breathing from fluid in his lungs. Prior to going to the hospital the patient was living a sedentary lifestyle and not actively managing his diagnosis of dermatomyositis.

At the hospital, the patient was treated for fluid in the lungs. Due to lack of social support the patient was held at the hospital until a spot at a SNF opened up so he could receive higher level of care. During this time the wait list to get into a SNF made it so that the patient had to stay at the hospital for over 4 months. During those 4 months the patient did not receive therapy and was not assisted to get out of bed except for occasional restroom breaks. During this timeframe he saw a severe decline in strength

and mobility, functional swallowing, and lost the ability to maintain continence. The patient also experienced stage I and II pressure sores on his ischial tuberosities.

The patient was 71 inches and 163 lbs upon admission. The patient's past medical history (PMH) was as follows: blood clots, varicose veins, pressure ulcers stage I and II, hypertension, asthma, gastric tube, fracture on the left 1st metacarpal, spinal fusion L2-5, pneumonia, COVID-19, and hearing loss. He was on medications to control the hypertension, skin rash, blood clots, and manage pain. He also utilized various creams to manage the skin rash. The history of COVID-19, pneumonia, and blood clots were from his time at the hospital.

The patient was initially quarantined for 3 days as per protocol with new admits that had not been previously vaccinated for COVID-19. The orders from his doctor were to treat significant loss of function in order to be able to return to his home safely. The orders included physical therapy, occupational therapy, speech therapy, and wound care. The SNF where I was located did not have speech therapy available for the patient due to staffing. During initial contact with the patient, there seemed to be no concerns for cognitive deficits. The stepdaughter was present for the initial evaluation after the quarantine period was over and the patient tested negative for COVID-19 three times in a row. The patient's social and medical history was gathered, gastric line and Foley catheter tube was inspected, and vitals were monitored. The patient was supplied a manual wheelchair and a front wheeled walker in his room for mobility with staff.

Examination

The patient was lying in bed supine with head of the bed elevated as per precautions with a gastric tube. The patient was on supplemental oxygen, using a

catheter, and had a continuous feed gastric tube. The SNF did not typically admit patients that used gastric tubes for feeding due to lack of supplies and resources to manage but the hospital was willing to supply all of the equipment necessary. The patient was in a gown and wearing protective boots on his feet.

The patient had rashes on his anterior and posterior chest walls, as well as around his eyes. Upon further assessment, the patient presented with enlarged knuckles in his hands and pitting edema in his arms bilaterally. He was wearing an adult diaper but could not fasten it due to pain from a pressure sore. During skin inspection, his pressure sores appeared to be healing as expected.

The patient was asked to try and perform maximal ROM of arms and shoulders. Shoulder ROM measurements are shown in Table 1.

Table 1: Shoulder Range of Motion Measurements Taken Each Week						
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Abduction	15°	20°	33°	60°	75°	80°
Flexion	22°	28°	42°	71°	82°	94°
Internal Rotation	N/A	N/A	N/A	45°	50°	55°
External Rotation	N/A	N/A	N/A	37°	48°	60°
*All measurements were taken bilaterally						

On the numerical pain scale of 0 to 10 (0 = no pain and 10 = worst pain ever experienced) the patient reported 4 in his shoulders at rest and 7 with activity. He reported a pain of 5 in his knees at rest and 8 with movement. The pain was described

as a dull ache that sometimes felt sharp with movement. The patient was taking oxycodone for pain management.

Following collection of the patient's history we asked the patient to transfer to the edge of the bed. He required a maximal assist of 2 people to get to edge of bed. Standing tolerance was then measured where the patient was asked to perform a sit to stand from the edge of bed and remain standing for as long as possible. A front wheeled walker was used for support and a gait belt was on the patient at all times for safety. A maximal assist of 2 was required to get into standing and the patient was able to stand with contact guard assist for 15 seconds before needing to rest due to pain and the feeling of his legs wanting to buckle.

Due to the patient's high pain level and limited functional mobility, the initial examination process was kept to transfer ability and bed mobility, all of which were max assist of 2. Specific manual muscle testing was not performed on this patient due to his severely restricted range of motion in all of his extremities. Instead, strength was measured through functional movement patterns.

Evaluation, Diagnosis, and Prognosis

From the initial examination we found that the biggest issue was the diminished strength and range of motion needed to be able to transfer in and out of bed independently. Being able to manage lines and tubes and prevention of future skin breakdown were also key focuses. The ICD code for DM is M33.10.

Problem List:

-UE ROM restricted to 50° of shoulder elevation in frontal and sagittal planes due to weakness and pain. Functional elbow and hand motion was limited and affected his ability to complete his ADL's

-LE ROM restricted due to existing skin injuries, weakness, pain, and presence of catheter tube. Foot ROM was not tested and no noticeable malformations were observed.

-global strength impairments due to prolonged immobilization in a hospital bed. Loss of ability to move his extremities against gravity throughout his full passive ROM (rated poor in strength via reduced functional mobility)

-aspiration risk due to presence of a gastric tube and need for the head of the bed to remain elevated above 30°

-pain from the disease process, contractures, and skin breakdown

-catheter management

-balance in sitting and standing to be able to perform ADL's

-fatigue which could lead to unsafe mobility.

The expectation for the patient was to achieve enough functional mobility within 30 days to be able to transfer out of bed to a bedside commode and back independently. Specific short term goals for therapy were to walk 30 ft independently utilizing a front-wheeled walker (FWW), transfer out of bed independently with use of bed rail, and be able to use bathroom independently. Our long term expectations for this patient were the same as his short term goals due to his comorbidities, poor economic status, social support, age, and PMH.

The patient was a good candidate for physical therapy to improve functional strength and to be educated for prevention of clots and pressure ulcers. The types of interventions planned included manual stretching, walking, and transfer training.

CHAPTER III

INTERVENTION AND PLAN OF CARE

The interventions utilized for the subject were focused on improving functional mobility to improve independence with bed mobility, transfers, and walking. The traditional approach to dermatomyositis is to utilize low intensity resistance training⁵ and aerobic activities⁶ to improve muscle strength and activity tolerance that is lost during the disease process. Exercises have been deemed most effective when completed every day for people with DM and low intensity exercises have worked best in the past.

Therapy sessions were 1 to 2 times per day and were often cotreated with occupational therapy and wound care nurses. Sessions were scheduled for 1 hour but would often run from 30 to 90 minutes based on the patient's tolerance. We often coordinated our treatment sessions with nursing to appropriately time the session with his pain medications and wound care schedule. We found that the most effective time for giving treatment was 30 to 45 minutes after getting his pain meds and splitting his sessions up to morning and afternoon to lower his pain during the session and to minimize overexertion. The patient was asked for consent to treat before starting every session. Before engaging in bed mobility and transfers, we first inspected all lines and tubes to make sure that the catheter and G tube were in place and working correctly. Bed positioning was inspected to identify any increased

areas of pressures. Skin inspections were completed throughout the session to monitor skin health and wound healing. A pressure relief pad was added to his bed to reduce stress on the sacrum, coccyx, and ischial tuberosities. The patient already had a pre-existing pressure wound on his scrum at the start of therapy. Bed exercises were then performed to warm up his lower and upper extremities before walking and transferring. These bed exercises included ankle pumps, active assisted range of motion (AAROM) of upper and lower extremities, straight leg raises, shoulder circles, dumbbell shoulder flexion/abduction, and dumbbell bicep curls. Each exercise was completed 10 times and each stretch was completed 3 times with 30 second holds. When cotreating with occupational therapy, they would lead the upper extremity workouts while physical therapy would lead the lower extremity workout. Ankle pumps were performed by the patient by plantarflexing and dorsiflexing the ankle to promote blood flow in the lower leg to reduce the risk for a deep vein thrombosis. AAROM was completed by the patient with assistance from the therapists to stretch his lower extremities to end range in order to prevent contractures. Straight leg raises were performed by the patient by activating the quad and hip flexors to lift the leg off of the bed a couple of inches while keeping the knee as straight as possible. Shoulder circles involved raising both arms as high as he could in a circular motion. Shoulder raises involved moving his arms against gravity in the frontal and horizontal plane to improve functional strength. Dumbbell curls required activation of biceps brachii and brachialis to flex his elbows against resistance. Bed mobility was performed using bilateral rails on the bed and assistance as needed by therapists to roll onto his side and shift up and down on his

bed for optimal positioning. The rails were also utilized for transfers from supine to sitting on the edge of the bed and from sitting to standing.

Transfers were initiated by prompting the patient to utilize the upper body with the bed rails to help pull from supine to sitting. Therapists assisted with the maneuver by pulling on the draw sheet under the patient to help with pivoting him. Cues were given to lift the legs and shift them over to the edge of the bed as best he could. Once at the edge of the bed a front wheeled walker was placed in front of the patient for support with transferring to standing. A gait belt was placed around the patient above the gastric tube and the catheter bag was clipped to the walker. Standing was initiated with shifting weight forward onto the feet while the upper extremities pushed off the bed and then grabbed onto the walker for support.

Once the patient was out of bed, we worked on standing tolerance by standing for 2 minutes with contact guard support and arms supported on a front wheeled walker. Walking was initiated in later sessions once tolerance was better. Treatment sessions were ended with the patient seated in his wheelchair to promote more time out of bed and less time spent in a dependent position.

The stepdaughter was present for most of the treatment sessions and was heavily involved in the planning of discharge goals and organizing the necessary equipment to make the home environment successful. The stepdaughter was a great advocate for the patient getting the best care and promoting communication across disciplines.

The goals for discharge were for the patient to be able to transfer out of his bed and to a bedside commode independently and to be able to manage his catheter

independently. Another goal for being able to return to home was to have his gastric tube removed and be able to eat on his own.

CHAPTER IV

OUTCOMES

The outcomes for the patient were quite positive given the difficult condition that he initially demonstrated and his complex past medical history. The objective measures used to track progress during rehabilitation were shoulder and lower extremity ROM, standing tolerance, walking distance, level of assistance with transfers and bed mobility, and the Timed Up and Go (TUG). The subjective outcome measure used was the numeric pain scale.

Shoulder and lower extremity range of motion was measured twice a week with the use of a goniometer to obtain the measurements. Range of motion was measured both passively and actively. Initial active range of motion measurements were as follows: Shoulder flexion was initially measured at 22° bilaterally and shoulder abduction was initially at 15° bilaterally. Knee flexion was limited to 45° and hip flexion was measured at 80° bilaterally. His straight leg raise was measured at 43° on the right and 47° bilaterally. Passive range of motion was equal to active range of motion in all regards except hip flexion which was 95° of hip flexion overall. Standing tolerance at initial evaluation was 14 seconds. Sitting tolerance in his wheelchair was 5 minutes at initial evaluation. Level of assist initially was maximum assist of 2 with all transfers. The subjective measure of pain was measured on a 0 to 10 numerical scale where his initial pain level was measured at a 7/10 at worst and a 4/10 at best. At initial evaluation the

patient was unable to complete the Timed Up and Go assessment due to total dependency with transfers.

The patient had met his goal of being able to transfer out of bed and to the bedside commode independently. He was not able to have his gastric tube removed by the time of discharge and did not display ability to independently manage his Foley catheter. He was ultimately discharged back to the hospital from the skilled nursing facility suddenly due to an illness and did not return while I was at the facility.

The patient showed no negative side effects to any of the interventions we implemented in his plan of care. His complaints of pain and fatigue decreased as sessions progressed. The patient showed great compliance with his exercises and demonstrated high motivation to complete supplemental exercises during his free time. Two sessions were missed due the patient having feeding complications with his G tube and had to be admitted to the emergency room for a short stay. The stepdaughter was not happy with some of the care that was being received in the beginning but was overall happy with therapy services and the plan of care created.

CHAPTER V

DISCUSSION

During the patient's time at the skilled nursing facility he demonstrated great improvements in overall range of motion, functional mobility, activity tolerance, and walking ability. He showed marked improvements with strength and reported significant reductions in pain during his time. His pressure wounds healed at a normal rate⁷ and we were able to prevent further skin breakdown from increased pressure. He was not able to control bowel movements at the start but was able to control them by discharge but still had functional incontinence when there was not assistance immediately available to oversee the transfer to the bedside commode. Though he was not able to achieve all of the aforementioned goals that we set for the patient due to the sudden discharge we were overall still happy with the progress that the patient made.

Some of the largest improvements seen was the patients ability to stand and sit up in a wheelchair. He started only being able to stand for around 110 seconds but was able to improve to tolerating 2+ minutes of standing with support from a front-wheeled walker. He was able to tolerate sitting for multiple hours in his wheelchair before needing to be transferred back into bed. His shoulder flexion range of motion improved from 40° to 110° bilaterally and improved in his upper extremity strength which showed with his ability to transfer to edge of bed using the rails. He was able to walk for 20 ft using contact guard assist by the end of treatment but continued to have significant

deficits in balance. Following the conclusion of this treatment plan that focused on functional movement tasks, increases in strength, mobility, tolerance and endurance were observed.

The TUG test was utilized due to its high interrater reliability and validity in assessing a patient's potential for future falls.⁸ The TUG test has been shown to be a great measurement tool with older adults in not only predicting risk of fall but also tracking improvement.⁹ The patient showed a significant improvement in his TUG score from beginning to end of the plan of care where the patient was not able to complete the test and by the end was able to score 38 seconds which put him in the high risk for future falls category.

The improvements noted throughout the therapy sessions could be explained by the interventions we implemented. Improvements may also be a natural effect of the normal healing process that happens over time.

Reflective Practice

This case study was limited by the time spent with the patient as the patient discharged suddenly and was no longer able to be followed. Another limitation to consider was the patients participation in therapy. Reflecting back on the experience, significant improvements were shown by the end of the PT duration and progress was being made toward his goals. There were areas which could have been improved. Staff education on pressure relief and management of lines and tubes could have been emphasized more. The biggest change I would make if I were to start this process over would be to work with nursing to get on a strict pain medication routine to plan my visits around to maximize early potential for functional movement tasks. I would also be more proactive

in getting the pressure relief mattress pad ordered to give added relief to some of the more sensitive areas.

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