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INTENSIVE TREATMENT OF LYMPHEDEMA IN A PATIENT WITH A SEQUELA OF POLIO

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ABSTRACT

Introduction: Pain associated with lymphedema is common, but it is rarely a limiting factor. The aim of the present study is to report the effect of five days of intensive treatment of a patient with sequelae of poliomyelitis associated to an infection that progressed to lymphedema and six months of intense pain.

Case summary: A 65-year-old patient with sequelae of poliomyelitis from the first year of life evolved with infectious processes and lymphedema after several surgeries for fractures. The patient suffered constant limiting pain for six months. The lymphedema was confirmed by bioimpedance after she sought treatment. The patient was submitted to intensive treatment eight hours/day for five consecutive days using Mechanical Lymphatic Therapy (RA Godoy©).

Outcome Measures: After the first day of treatment the pain was reduced to moderate intensity, after the second day, ankle movement improved facilitating ambulation and after the third day, she felt no more pain. The patient is continuing with maintenance therapy using the RA Godoy© device for one hour/day at home.

Conclusion: Limiting pain is uncommon in lymphedema but in this case, it was associated with repetitive infectious events. The pain disappeared with Mechanical Lymphatic Therapy.

Keywords: Lymphedema, Physical Disability, Poliomyelitis, Pain, Mechanical Lymphatic Therapy (RAGodoy ©), Treatment.

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INTRODUCTION

Lymphedema is the accumulation of water and macromolecules in the interstitial space that leads to a progressive increase in the size of a region of a limb or part of the body with decreased functional and immune capacity, weight gain and morphological changes [1].

It is classified in relation to the etiopathology as primary or secondary. In primary lymphedema, an alteration of the lymphatic system at birth may or may not progress to swelling. In secondary lymphedema, there is no lymphatic malformation at birth, but the lymphatic system is damaged during life leading to impaired lymph drainage. Common causes of injuries include lymph node dissection and lymph vessel damage during surgery, irradiation, and lymphangitis [1-3]. Recently an intensive outpatient approach to lymphedema treatment has been described that can reduce the swelling by about 50% within one week [3].

Poliomyelitis is an acute inflammatory disease resulting from the destruction of motor neurons located in the anterior horn of the spinal cord known by the technical term of acute anterior poliomyelitis [4]. The virus can damage up to 95% of these motor neurons, with at least 50% being destroyed. With the death of these neurons, the muscles are left without innervation, causing paralysis and atrophy. Although damaged, the remaining neurons compensate for damage by sending ramifications to activate the orphaned muscle fibers. With this, the neuromuscular function is recovered partially or totally depending on the number of neurons involved [4].

Post-polio syndrome (PPS) is a neurological disorder, characterized by muscle weakness and abnormal muscle fatigue, a late effect of acute poliomyelitis [3]. Symptoms often include moderate to high-intensity pain in addition to the muscle weakness and muscle fatigue [5.6]. Other interactions may occur in these patients such as infectious and inflammatory events that may even progress to lymphedema. The objective of the present study is to report the clinical evolution of intensive lymphedema treatment over five days in a patient with sequelae of polio who suffered infections and evolved with lymphedema and presented limiting pain for six months.

Patient information

Herein we report the case of a 65-year-old female with sequelae of polio who evolved to leg lymphedema after a history of infectious processes. Poliomyelitis occurred at one year of age and the patient remained two years without walking. At eight years old, she fell, dislocated her left hip and required hip surgery. One year later, she was submitted to corrective surgery of her left foot and she used a plaster cast for a while, but the weight of the cast dislocated her hip again and hip surgery (an arthrodesis) was again required; the difference in leg circumference increased to seven centimeters. During this period the patient suffered several falls that led to several fractures, the most serious being a fracture of the tibia and fibula of the left leg that made her bedridden for five months. Subsequently, she injured her right knee and started to use a walking stick.

About 10 years ago, a spot appeared near the scar on the leg that increased and after two years she had her first episode of erysipelas, with reddened the skin and swelling of the leg. At this time, she began to feel intense and constant pain in the leg. She sought a physician who diagnosed lymphedema and prescribed *Daflon*, manual lymph drainage, and an elastic stocking however she could not don the stocking. She was submitted to two years of lymph drainage without improvement and she began to take corticoids (Celestone), which reduced the edema and leg pain. She continued to take corticoids for two years but stopped due to side effects (generalized edema and hair growth on the face).

Physical examination and diagnosis

The patient remained symptomatic but without therapy for a long time before she arrived at the Clinica Godoy to treat the lymphedema. The physical examination revealed sequelae of poliomyelitis and lymphedema with fibrosis and hyperpigmentation of her leg; the pain was exacerbated just by lightly touching the skin. She reported the pain as 10 on an analog pain scale of 0 to 10. She did not put weight on her left leg and had limited movement of the ankle; she uses a 10 cm insole.

Intervention

The patient was evaluated by bioelectrical impedance analysis (InBody S10 body composition analyzer BioSpace, Seoul, Korea) at the beginning and the end of the intensive treatment of five consecutive days for 8 hours/day. Therapy included Mechanical Lymphatic Therapy using the electromechanical device (RAGodoy®) that performs passive ankle flexion and extension exercises. This was associated with Cervical Lymphatic Therapy consisting of gentle stimulation in the supraclavicular cervical region at the base of the neck for 15 minutes/day.

Outcome measurements

Her pain reduced in intensity to six on the analog pain scale during the first day of treatment and she managed to sleep well. After the second day, the movement of the ankle improved and she found it easier to walk. After the third day of treatment, she reported feeling a reduction of whole body edema and did not feel any more pain in her leg. After the fourth day, she found it easy to go up and down the entrance ramp of the clinic and was able to put weight on both legs. There was a total reduction of 40% of the volume of leg edema and the pigmentation and fibrosis of the leg improved.

She resumed her normal activities and returned to the clinic after one week and after a fortnight. She is maintaining the result by performing two hours/day of Mechanical Lymphatic Therapy (RA Godoy ©); the leg remains painless and she finds it easier to walk. She was advised that fibrosis and hyperpigmentation require a longer treatment time to recover and that she needs to take care to prevent erysipelas.

DISCUSSION

This study shows that the intensive treatment promoted a significant reduction in the volume of the lymphedematous leg compared to normal limb and improved the pain and all leg movements. Thus, lymph drainage not only reduced the edema but also affected the pain and physical limitations of the patient. In the literature, there are no studies reporting this approach to treat this type of patient. Therefore, this is a contribution in the approach to these patients.

Significant reductions in edema are something well established using this technique, however, reductions in pain of this intensity have been observed and reproduced by the authors, but never published before. One possible explanation is that the mobilization of fluids from the regions of swelling also reduces the inflammation that causes pain.

Reducing edema and improving pain allowed the patient to walk and return to her work and home activities. In this way, her quality of life improved and the hope of a productive life was restored.

The technique used drained the deep and superficial systems and helped gain joint mobility. Cervical Lymphatic Therapy, which is believed to stimulate the sympathetic nervous system, is a new concept in the stimulation of the lymphatic system. Another possibility would be Manual Lymphatic Drainage, but it was not used because of the sensitivity of the skin. Compression therapy developed and adapted for secondary lymphedema may have also been a useful option for this patient. Another aspect considered was the significant reduction in anti-inflammatory and analgesic medications, which the patient had been taking continuously, thereby preventing the side defects of long--term use of these medications.

This approach to the treatment of lymphedema reduced the size of the limb in a more physiological way, thereby improving the pain and helping the patient start walking again.

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