

Correction of dropped head syndrome using Intramuscular stimulation and physiotherapy

Eu Jeong Ko^{1*}, Hyeon Su Kim², Yoon Ghil Park^{1†}

Gangnam Severance Hospital, Rehabilitation Institute of Neuromuscular Disease, Yonsei University College of Medicine, Seoul, Republic of Korea, Department of Rehabilitation Medicine¹, Severance Hospital, Yonsei University College of Medicine, Seoul, Republic of Korea, Department of Rehabilitation Medicine²

Objective

Dropped head syndrome (DHS) is characterized by severe weakness of the cervical paraspinal muscles. DHS is associated with many neurological and muscular disorders, such as Parkinson disease, cervical dystonia, myasthenia gravis, and myopathies, etc. This deformity has significant implications on the quality of life. Use of cervical collar and targeted physiotherapy are considered by some to be first-line treatments to avoid the potential morbidity of surgery, but still there are many controversies in management. In this study, we present a patient whose symptom of DHS was effectively improved using intramuscular stimulation and physiotherapy.

Patient and Methods

A 79-year-old woman initially visited the Department of Rehabilitation on April 6th, 2018 for weakness of neck extension muscles since last September. She could not actively extend her neck at all while standing. Physical examination of the anterior and posterior neck may reveal barely palpable muscles, which signifies atrophy and contracture of the soft tissues. Firstly, not only active but passive cervical extensions were limited and inducing pain, but after stretching anterior muscles several times, it allowed the neck to passively extend. Muscle bulk and power were normal in all four limbs including shoulder girdles. The patient refused muscle enzyme level, MRI, and electromyography studies because of her advanced age. But she presented parkinsonian features, such as a masked face, tremors, bradykinesia, and short steppaged gaits. Thus she was referred to the neurology department and before the definite diagnosis was made, she got intramuscular stimulation at both sternocleidomastoid muscles three times with intervals of 1 week and instructed to stretch her anterior muscles every day. She tried neck collar, but she gave up because of inconvenience. After three intramuscular stimulation was done, her pain and muscle tightness during passive neck extension were reduced and the active movement of neck extensors started to be observed at the upright position. From April 17th, she started physiotherapy for neck extensor strengthening and anterior neck flexor stretching on every Tuesday.

Results

After 4 weeks of intensive physiotherapy coupled with 3 times of intramuscular stimulation, the patient was able to raise her head and maintain a horizontal gaze for 3 to 4 minutes. It Resulted in considerable improvements to activities of daily living. Finally

she was diagnosed as Parkinsonism and she started to get madopar 50mg twice a day on middle of May, but the improvement was observed before medication started.

Conclusion

In recent studies, parkinsonian medications were known to be ineffective at DHS symptoms. Also, in fragile population, surgical interventions cannot avoid a risk of a serious complication. This case shows the efficacy of the physiotherapy and intramuscular stimulation to chronic DHS in elderly patients with parkinsonism.

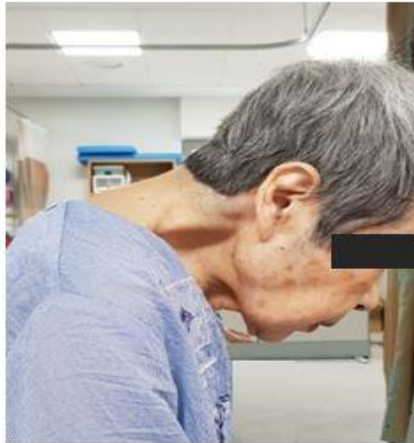


Fig. 1. Initial clinical photograph of of a woman with weakness of the posterior neck musculature



Fig. 2. Initial lateral radiograph of the cervical spine in neutral (slightly supported)



Fig. 3. Final clinical photograph of of the same patient