

Complications of Tendon Lengthening Surgery in Anti-NMDAR Encephalitis

Related Spasticity

Mina Gayed D.O., Gabrielle Abissi M.D., Mina Shenouda M.D., Heikki Uustal M.D., Sara Cuccurullo M.D.

Department of Physical Medicine and Rehabilitation, JFK Johnson Rehabilitation Institute, Robert Wood Johnson Medical School - Rutgers University, Edison, NJ

CASE DESCRIPTION

Patient is a 29-year-old female who suffered from anti-NMDA-receptor encephalitis a year ago. She has since been able to make good functional recovery but had been plagued by spasticity in the legs. She received botulinum toxin injections to both calves but had not seen benefit on the left side. Patient had developed a left plantarflexion contracture. She sought a specialist to perform tendon lengthening surgery of her left gastrocnemius. Although the surgery was successful in restoring good range-of-motion to the ankle, it left her with **plantarflexion weakness**. She presented to clinic with **unopposed dorsiflexion** of the left foot in swing and stance phase creating some instability. The patient was essentially **walking on her left heel**. It was thought that she potentially had a tibial neuropathy, but electrodiagnostic studies showed normal tibial responses. The patient was given an off-the-shelf flexible PLS design AFO which improved her foot positioning during ambulation.



SWEDISH AFO

The patient was given an off-the-shelf flexible posterior leaf spring design AFO to trial in the office. She was specifically provided with a Swedish AFO similar to the one as pictured to the left. This type of AFO is very lightweight and offers open calf and heel profiles which happens to keep the weight of the orthotic low. **The intent of the orthotic was to better position her foot for improved efficiency in her gait cycle.** In the office, she was able to get her forefoot flat to the ground and alleviated pressure off of her heel. In conjunction with a supportive shoe, the AFO was able to hold her ankle in a neutral gait which ensured a smoother gait and improved her cadence and energy expenditure.

DISCUSSION

The patient suffered from bilateral lower extremity spasticity as a sequela of anti-NMDA-receptor encephalitis. Her left plantarflexion contracture required surgical intervention which has unfortunately left her with the opposite problem. It is unclear why she has a loss of plantarflexion muscle power. It could have been from the tendon lengthening surgery. Perhaps it was over-lengthened. **In this case, the patient requires an AFO due to foot positioning as opposed to foot drop.** Since we were not working to counteract plantarflexion tone, a much lighter orthotic was able to be used successfully.

CONCLUSION

Care should be taken to prevent the progression of lower extremity spasticity to contracture. Tendon lengthening surgery carries significant risk and should be avoided **if possible** by maximizing stretching and positioning with physical therapy in the early stages of recovery.

REFERENCES

- 1) Tagoe, Mark T., et al. "Is There Still a Place for Achilles Tendon Lengthening?" Diabetes/Metabolism Research and Reviews, vol. 32, 2016, pp. 227–231., doi:10.1002/dmrr.2745.
- 2) Banks AS, Downey MS, Martin DE, Miller S. McClamry's comprehensive textbook of foot and ankle surgery (3rd edn), vol 1. Lippincott Williams & Wilkins: Philadelphia, USA. 753, 2001 Chapter 24 Ankle equinus; 751.
- 3) Chen, Lan, and Justin Greisberg. "Achilles Lengthening Procedures." Foot and Ankle Clinics, vol. 14, no. 4, 2009, pp. 627–637., doi:10.1016/j.fcl.2009.08.002.