소아재활

게시일시 및 장소 : 10 월 19 일(토) 08:30-12:30 Room G(3F)

질의응답 일시 및 장소 : 10 월 19 일(토) 11:00-11:30 Room G(3F)

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Botulinum Toxin Injection for Limitation of Ankle Motion with Periventricular Leukomalacia: A case

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Introduction

Periventricular leukomalacia (PVL) is a cerebral white matter injury and a major cause of cerebral palsy. The most common clinical manifestation of PVL is spastic diplegia with shortened Achilles tendon. We experienced a case of isolated Achilles tendon shortening without any other neurologic deficit associated PVL with serial follow up and treated with botulinum toxin and report it.

Case

An 8-year-old boy had visited Pediatric Rehabilitation Clinic due to sustained tip-toe walking. In history taking, he was born at a gestational age of 37th week with 3520g birth weight. He had no perinatal asphyxia nor head injury up to now. He started to walk at 12 months of age. His mother recognized his tip-toe walking pattern 5 years ago. Although he seems to be a not stable walker, he had no complaint and need no aid at school life, including walking, running, and other physical activity such as soccer. On physical examination, he showed normal responses of deep tendon reflex on both knees, but increased reflexes on both ankles with positive Babinski sign. However, he showed no ankle clonus. His ankle dorsiflexion range of motion was decreased.(Table 1) Brain MR showed mild periventricular leukomalacia. (Figure 1) He and his mother were taught about heel cord stretching. 9 months later, he still showed limitation of ankle dorsiflexion with tip-toe gait. And took botulinum toxin injection on both calves. Total 300 unit of botulinum toxin type A was injected on both gastrocnemius and soleus muscles. After 2 months follow up with regular stretching exercise, he showed improvement of ankle dorsiflexion for 5 degrees. (Table 1) 2 years later, he showed aggravated limitation of ankle motion and took the second injection of botulinum toxin. Thus he showed minimal improvement of range of ankle dorsiflexion

Conclusion

Isolated Achilles tendon shortening associated PVL mimics orthopedic problem. Physical examination with attention can help to find out the central nervous system problem. Serial follow-up and adequate treatment such as botulinum toxin injection or surgical release are required.

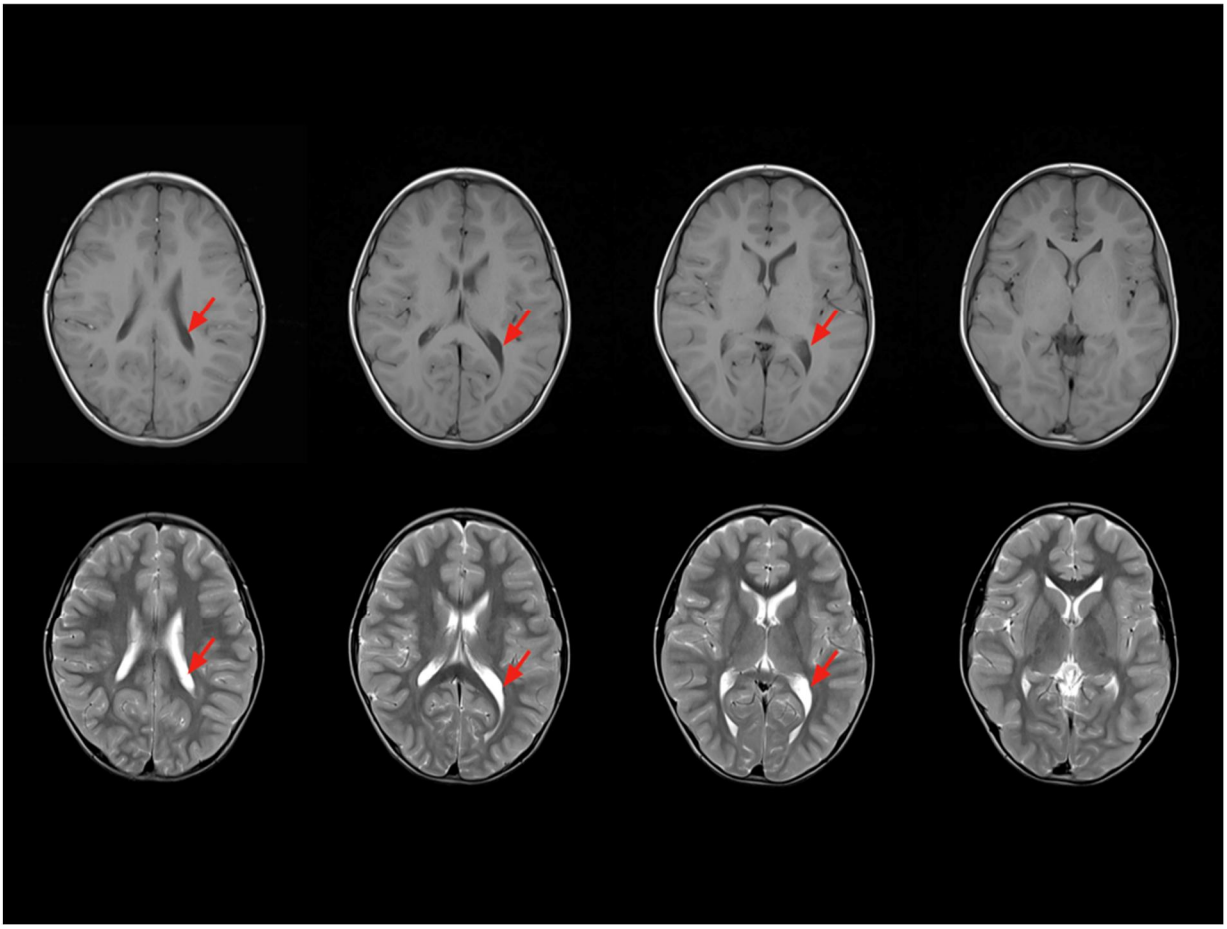

Fig. 1 Brain MR images. Red arrows indicates suggested area of PVL.

Table 1. Serial Follow Up of Ankle Dorsiflexion Range of Motion

Patient's Age	8Y 3M (initial)		9Y 11M		10Y 2M*		10Y 6M		11Y		11Y 6M		12Y 1M**	
	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left
Dorsiflexion														
with knee extension	0	0	0	0	5	5	0	5	0	0	0	0	5	5
with knee flexion	5	5	10	10	15	15	10	15	10	10	10	10	10	10

* 2 months after 1st botulinum toxin injection on both calves

** 1.5 months after 2nd botulinum toxin injection on both calves