

뇌신경재활

게시일시 및 장소 : 10 월 18 일(금) 13:15-18:00 Room G(3F)

질의응답 일시 및 장소 : 10 월 18 일(금) 15:45-16:30 Room G(3F)

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Injury of the dentatorubrothalamic tract in patients with post-traumatic tremor following mildTBI

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Introduction

Little is known about injury of the dentatorubrothalamic tract (DRTT) in patients with traumatic brain injury (TBI). We investigated injury of the DRTT in patients who showed post-traumatic tremor following mild TBI, using diffusion tensor tractography (DTT).

Methods

We recruited 27-consecutive chronic patients with post-traumatic tremor in at least one of four extremities following mild TBI and 20-normal control subjects. The DRTT was reconstructed and the fractional anisotropy (FA) value, apparent diffusion coefficient (ADC) value, and fiber number (FN) of the DRTT were measured in both hemispheres. We classified the DRTT injury based on DTT parameter and configuration: type A – the DRTT showed narrowing, type B – the DRTT showed partial tearing, and type C – the DRTT showed discontinuation.

Results

Significant differences in terms of FA and FN of the DRTT were observed between the patient and control groups ($p < 0.05$). According to the configurational classification of the DRTT injury on DTT: among 54 hemispheres of 27 patients: type A - 22 hemispheres (40.7%) of 17 patients, type B - 15 hemispheres (27.7%) of 10 patients, and type C - 8 hemispheres (14.8%) of 6 patients.

Conclusion

We demonstrated injury of the DRTT in patients who showed post-traumatic tremor following mild TBI, using DTT. Our results suggest that the evaluation of the DRTT using DTT would be useful to find the cause of post-traumatic tremor in patients with mil TBI.

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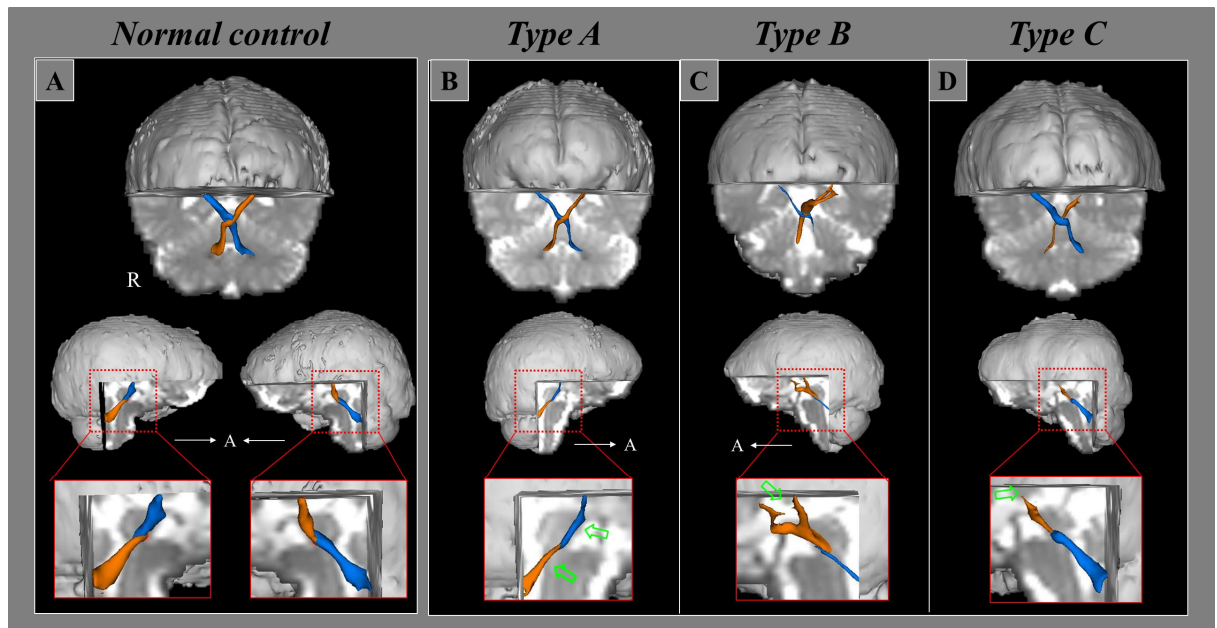


Figure. 1 Diffusion tensor tractography for the dentatorubrothalamic tract (DRTT) of a representative control subject and patients: (A) a control subject (52-year old female). (B) type A – the DRTTs showed narrowing, although integrity was preserved from the dentate nucleus to the thalamus (green arrow) (59-year old female).. (C) type B – the DRTTs showed partial tearing (green arrow) (45-year old female)., (D) type C – the DRTTs showed discontinuation (green arrow) (51-year old female).

Table 1. Comparison of diffusion tensor tractography parameters of the patient and control groups.

	Patient group	Control group	p-value
FA	0.41 (± 0.04)	0.45 (± 0.06)	0.01*
ADC	0.89 (± 0.19)	0.87 (± 0.13)	0.61
Fiber number	365.51 (± 305.84)	629.68 (± 340.35)	0.00*

FA: fractional anisotropy; ADC: apparent diffusion coefficient. Values represent mean (\pm standard deviation)
 * p < 0.05 t-test.