

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) 16:01-16:05 Room G(3F)

## **P 2-53**

### **Subcortical disruption in DTI with persistent catatonia after Neuroleptic malignant syndrome**

Seung Yeon Rhee<sup>1\*</sup>, Hyoung Seop Kim<sup>1†</sup>

National Health Insurance Service Ilsan Hospital, Department of Physical Medicine and Rehabilitation<sup>1</sup>

#### **Introduction**

Neuroleptic Malignant Syndrome (NMS) is an idiosyncratic and possibly life-threatening reaction, characterized by hyperpyrexia, muscle rigidity, autonomic dysfunction, mental status change, tremors, leukocytosis, and creatine kinase (CK) elevation. Although its incidence is reported as just 0.01~0.02%, it composes a significant portion of morbidity and mortality in patients who use antipsychotics. In literature review, we found some cases of NMS presenting catatonic feature initially. However, there was no report covers DTI analysis in NMS showing catatonic feature. We report a 46-year old male patient of NMS with persistent catatonia associated with the use of aripiprazole and lithium that causes quadriplegia, tremor, limb and trunk ataxia. And we have analyzed DTI data in this case.

#### **Case**

A 46-year-old male who has hypertension, diabetes mellitus and recurrent acute pancreatitis history has received treatment for bipolar II disorder since 2008. In September 2018, he was on very stressful emotional status because of the failure of personal business and he even had filed for bankruptcy. On October 25th 2018, he took a massive overdose of Lithium and Aripiprazole and the day after that day he showed delirious feature and abnormal behavior. 2 days later, high fever up to 40°C developed with concomitant aggravation of confused mental status. The laboratory study showed CK elevation up to 40,000 IU/L and acute kidney injury (AKI) due to rhabdomyolysis was developed, so continuous renal replacement therapy (CRRT) was applied with ICU care. Fever focus evaluation including blood, sputum and urine culture, APCT, CSF tapping and brain MRI and CT was done, showing no significant finding. However, even after resolution of rhabdomyolysis and AKI, catatonic feature with limb and trunk ataxia and severe dysarthria remained. To rule out possible organic problems, PET-CT Brain scan was taken showing decreased uptake in both primary motor cortices, thalamus, midbrain, and cerebellum with no interval change. On June 13th 2019, he was transferred to National Health Insurance Service (NHIS) Ilsan Hospital, department of Physical Medicine and Rehabilitation. On the neurological examination, the manual muscle test was Medical Research Council(MRC) grade III to IV on both upper and lower extremities. After

admission to NHIS Ilsan hospital, brain MRI was taken again to get diffusion tensor image (DTI) sequence. And the tractography of corticospinal tract (CST) generated from DTI images showed severe subcortical disruption, and it seems to be correlated with the quadriplegic and catatonic sequelae of the patient.

### Conclusion

In this case, there was no specific abnormal finding in brain MRI sequences including T1WI, T2WI, T2 FLAIR, SWI, MPR and DWI, but tractography derived from DTI sequence showed severe subcortical disruption of CST. Therefore DTI sequence would be useful and have correlation with the neurologic symptoms of patient with NMS.

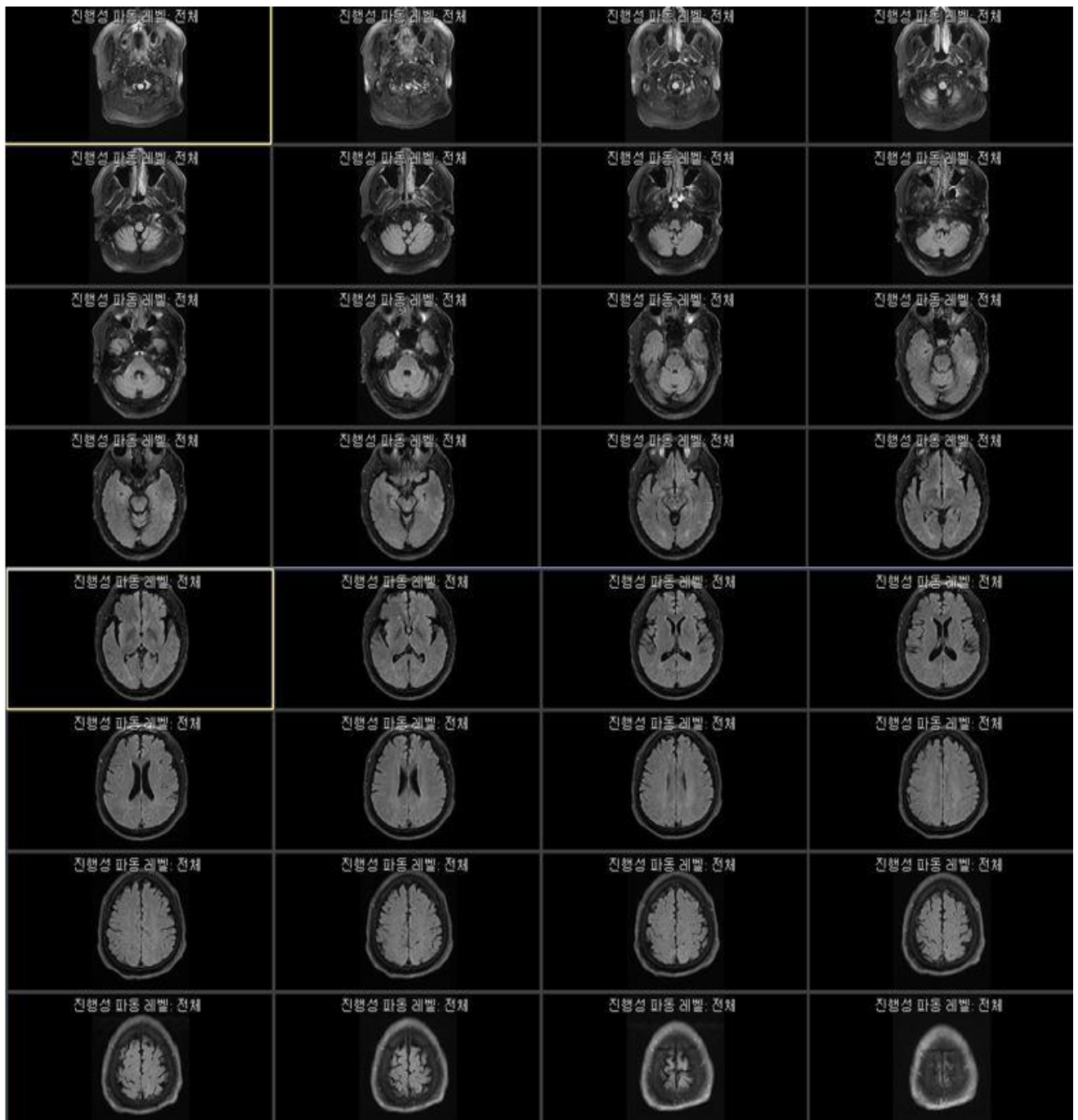


Figure 1. Brain MRI T2 FLAIR sequences shows no remarkable finding.

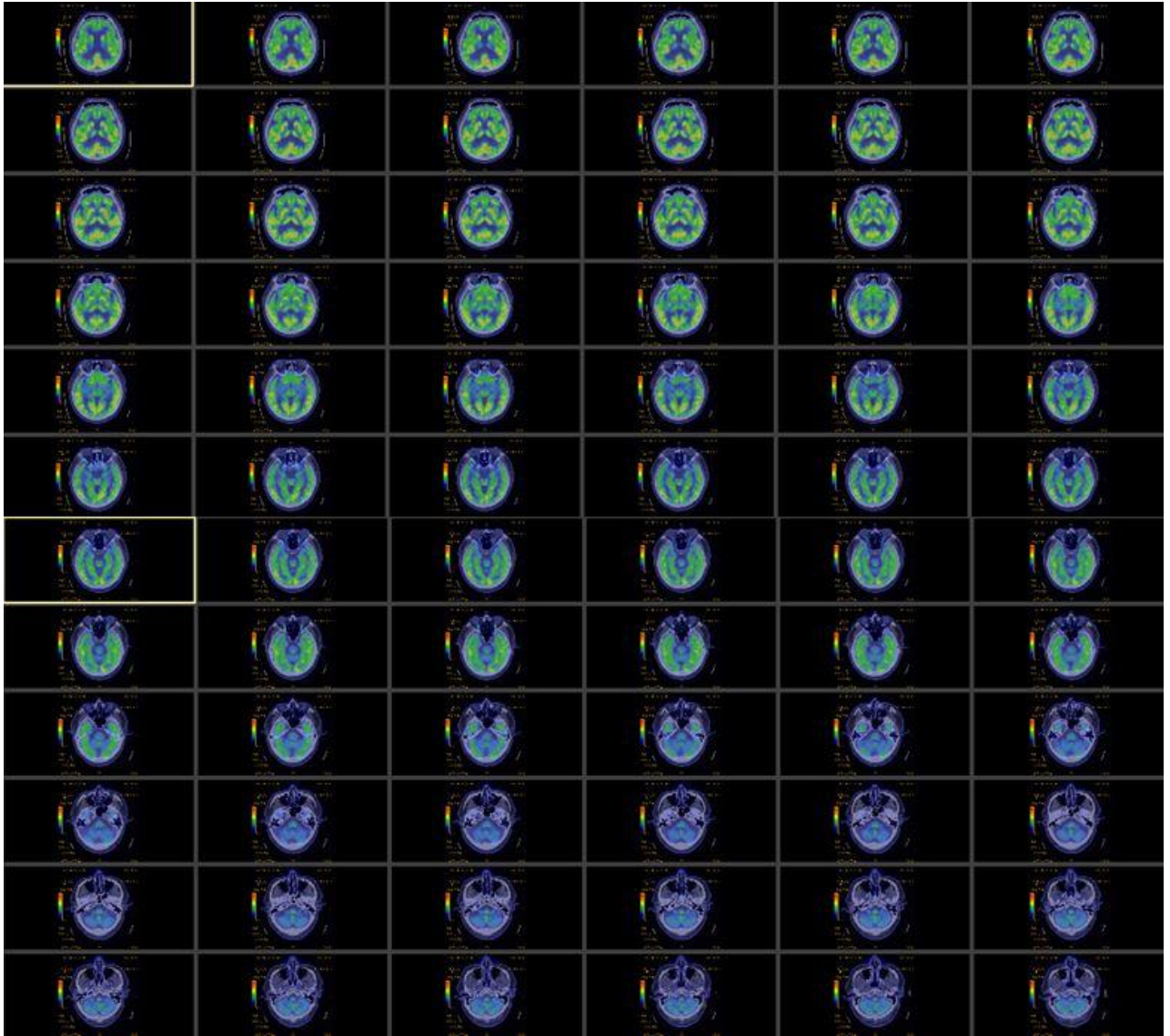


Figure 2. PET-CT Brain scan shows decreased uptake in both primary motor cortices, thalamus, midbrain, and cerebellum.

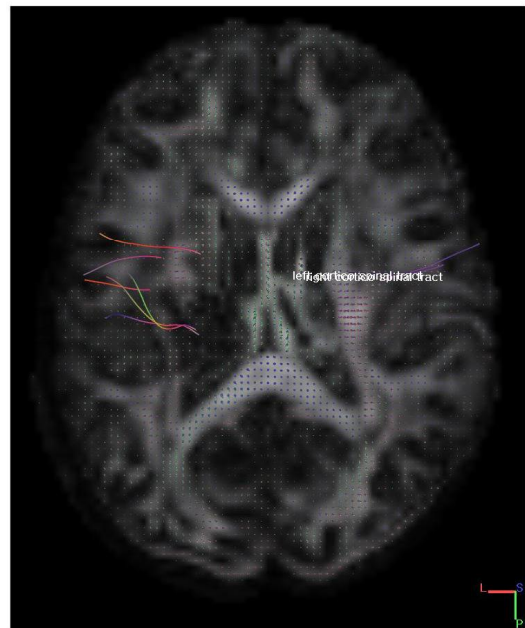
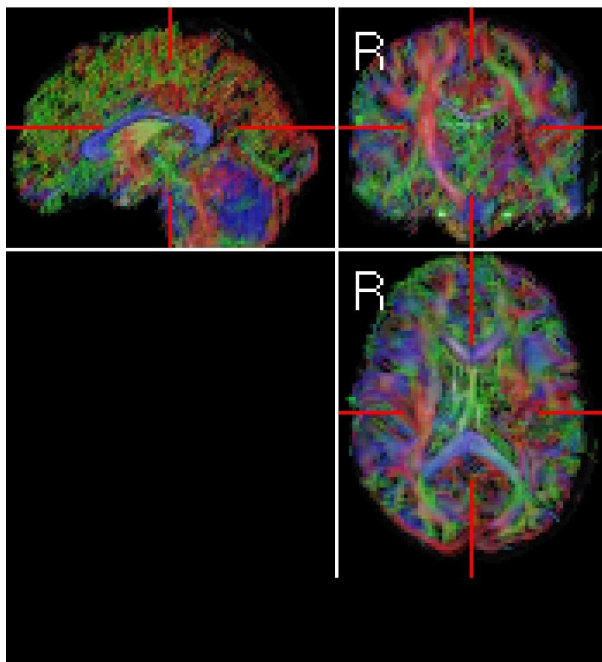
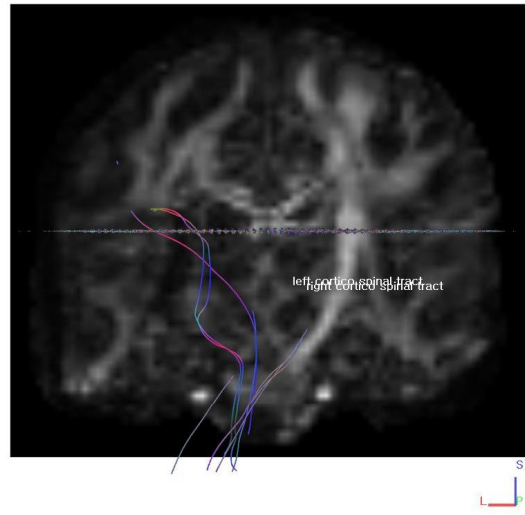
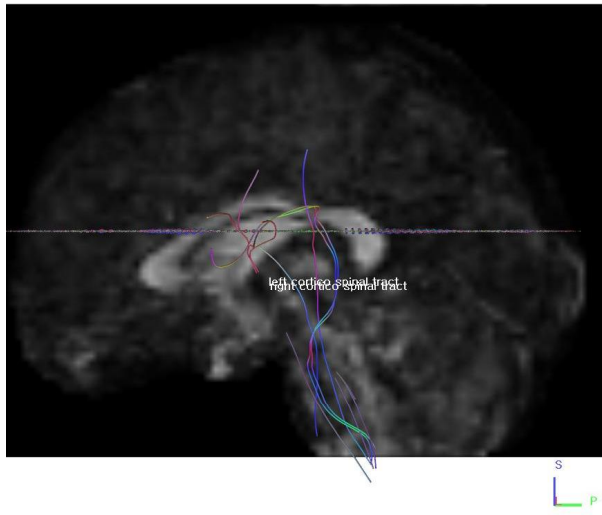


Figure 3. Tractography of Corticospinal tract shows subcortical disruption.