Radiologic-Pathologic Correlation for Differential Diagnosis Using Diffusion MRI with a Short Diffusion Time

All Day Room: NA Digital Education Exhibit

Participants
Saori Koshino, MD, Tokyo, Japan (Presenter) Nothing to Disclose
Mihiro Takemori, RT, Tokyo, Japan (Abstract Co-Author) Nothing to Disclose
Christina Andica, Tokyo, Japan (Abstract Co-Author) Nothing to Disclose
Masaaki Hori, MD, Tokyo, Japan (Abstract Co-Author) Nothing to Disclose
Koji Kamagata, Tyuouku, Japan (Abstract Co-Author) Nothing to Disclose
Kanako K. Kumamaru, MD, PhD, Tokyo, Japan (Abstract Co-Author) Nothing to Disclose
Akihiko Wada, MD, Izumo, Japan (Abstract Co-Author) Nothing to Disclose
Takeyuki Watadani, MD, Tokyo, Japan (Abstract Co-Author) Nothing to Disclose
Harushi Mori, MD, Tokyo, Japan (Abstract Co-Author) Nothing to Disclose
Osamu Abe, MD, PhD, Itabashi-ku, Japan (Abstract Co-Author) Nothing to Disclose
Shigeki Aoki, MD, PhD, Tokyo, Japan (Abstract Co-Author) Nothing to Disclose

For information about this presentation, contact:
saori.koshino@gmail.com

TEACHING POINTS
1. To review the radiologic-pathologic correlation in the hyperintense lesions on diffusion-weighted imaging (DWI).
2. To discuss the difference of DWI findings between conventional MRI (Pulsed Gradient Spin Echo (PGSE) sequences) and diffusion MRI with a short diffusion time (Oscillating Gradient Spin Echo (OGSE) sequences).
3. To emphasize the utility of diffusion MRI with OGSE sequences in the diagnosis.

TABLE OF CONTENTS/OUTLINE
(Introduction) What is OGSE? (1) Review of DWI findings: PGSE vs. OGSE (2) Radiologic-pathologic correlation in the hyperintense lesions on DWI (3) Future directions and clinical application The OGSE sequence enables measurement of diffusion weighting with a short diffusion time. Compared with the PGSE sequence utilizing in conventional MRI, the appearance of OGSE DWI and Apparent Diffusion Coefficient (ADC) maps is changed due to restricted diffusion including spatial restriction and viscosity. Radiologic-pathologic observation suggests that structurally restricted diffusion should be distinguished from viscous restriction among various brain disorders by OGSE. This new discovery indicates that the OGSE sequence can be a useful method for the diagnosis and make the impossible diagnosis with conventional MRI possible.