

Ictal and Interictal ^{99m}Tc -HMPAO Brain SPECT of a MELAS Case Presented With Epilepsy-like Visual Hallucination

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Abstract: A 55-year-old woman was diagnosed with the syndrome of mitochondrial myopathy, encephalopathy, lactic acidosis, and stroke-like episodes (MELAS). She was referred for ^{99m}Tc -HMPAO brain SPECT because of visual hallucinations, which were suspected to be related to epileptic seizures. Ictal SPECT images showed remarkable hyperperfusion in the left occipital cortex, which returned to near-normal status on the interictal SPECT images after treatment with anticonvulsants. It is very rare to see such an ictal SPECT image of epileptic or epilepsy-like disorders, especially in the setting of MELAS syndrome with visual hallucination.

Key Words: MELAS syndrome, visual hallucination, SPECT, ^{99m}Tc -HMPAO

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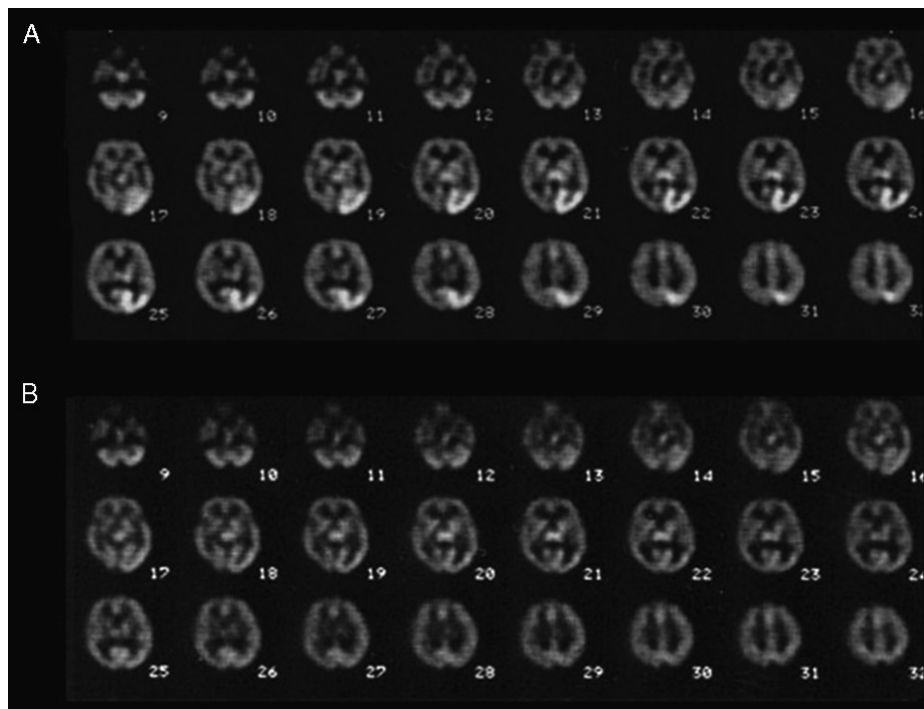


FIGURE 1. A 55-year-old woman was diagnosed with the syndrome of mitochondrial myopathy, encephalopathy, lactic acidosis, and stroke-like episodes (MELAS), which might be clinically presented with fatigue, short stature, headaches, vomiting, visual symptoms, seizures, paralysis, intellectual disturbance, and even dementia.¹ This patient was referred for ^{99m}Tc -HMPAO brain SPECT studies for further evaluation because she experienced frequent epilepsy-like visual hallucination.^{2,3} To obtain ictal images of SPECT, she was sent to the Department of Nuclear Medicine for observation first and was then injected with radiotracer intravenously as soon as she reported to develop visual hallucinations. **A**, Transaxial images of ictal SPECT showing remarkably increased regional cerebral perfusion in the left occipital cortex and a very typical ictal SPECT image of epileptic disorders. It had been demonstrated that the serial SPECT studies helped differentiate epileptic from nonepileptic (psychogenic) seizures.⁴ She was given anticonvulsive therapy and was then referred for SPECT again after experiencing no attack of visual hallucination for more than 24 hours. **B**, In interictal status, the cerebral perfusion in the left occipital cortex significantly reduced to a near-normal level in comparison with the ictal images.⁵ The neurologic manifestations of MELAS were complex, and the SPECT images might show focal hyperperfusion before or during a stroke-like episode because of epileptic activity or metabolic acidosis; and diffuse hypoperfusion might be observed in terminal stages.^{6,7} Visual hallucination could be one of the manifestations of occipital lobe epilepsy in MELAS syndrome.⁸ To the best of our knowledge, the current report was the first one to show ictal SPECT images of a patient with MELAS syndrome presenting with epilepsy-like visual hallucination.