



## EPIPLOIC APPENDIGITIS

### Introduction

The central tegmental tract (CTT) is mainly the extrapyramidal tract connecting between the red nucleus and the inferior olivary nucleus, partially including the ascending tract connecting the reticular nuclei of the brainstem to the thalamus. The CTT is one of the earliest regions of myelination. Its myelination begins at 9 months after conception, although the myelination of CTT is still incomplete at 23 months after birth. Due to early myelination, CTT normally can not be delineated in MRI.

In children, some diseases are known to cause CTT abnormalities. In cerebral palsy patients, CTT lesions are found in 3.2% of the patients. Therefore, cerebral palsy is the most frequent clinical condition associated with CTT lesions. One of other known causes of CTT abnormalities are congenital metabolic disorders (methionine adenosyltransferase I/III deficiency, nonketotic hyperglycinemia, maple syrup urine disease, tetrahydrobiopterin deficiency, mitochondrial encephalopathy, leukoencephalopathy with vanishing white matter). Generally, these conditions are associated with other brain abnormalities. However, CTT lesions in the absence of other abnormal findings have been reported in congenital metabolic disorders including tetrahydrobiopterin deficiency and neonatal intrahepatic cholestasis caused by citrin deficiency.

Neuropathological studies demonstrated that CTT lesions evident in MRI examinations, were due to gliosis, vacuolization, neuronal loss, demyelination, and necrosis in the CTT.

### Case Report

A 7-month-old boy was admitted to our hospital with weakness of both arms and legs. The physical examination of the patient confirmed the weakness of both upper and lower extremities. He was a term-birth baby. His pediatrician wanted MRI examination to rule out intracranial pathologies. MRI showed symmetrical T2-hyperintense lesions on both T2-weighted and diffusion-weighted images. No other parenchymal lesion was detected. The patient was referred to a children hospital for further evaluation for congenital metabolic disorders.

### References

- 1) Yoshida S, et al (2009). Symmetrical central tegmental tract (CTT) hyperintense lesions on magnetic resonance imaging in children. *Eur Radiol* 19: 462–469.
- 2) Takanashi J, et al (2006). Central tegmental tract involvement in an infant with 6-pyruvoyltetrahydropterin synthetase deficiency. *Am J Neuroradiol* 27: 584–585.
- 3) Sakai Y, et al (2006). Persistent diffusion abnormalities in the brain stem of three children with mitochondrial diseases. *Am J Neuroradiol* 27: 1924–1926.

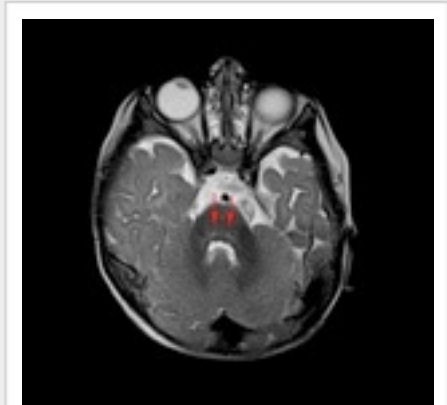


Figure-1: Axial T2-weighted MRI shows bilateral symmetrical hyperintensity in the central tegmental tract.

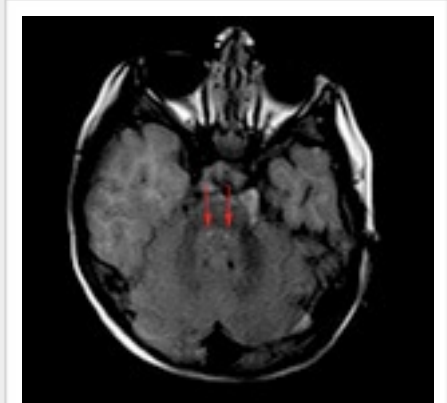


Figure-2: Axial FLAIR MRI sequence shows bilateral symmetrical hyperintensity in the central tegmental tract.

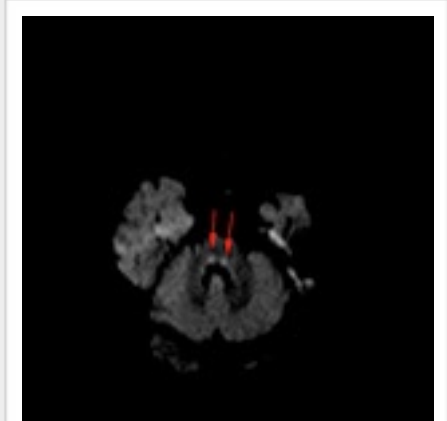


Figure-3: Axial diffusion weighted MRI shows bilateral symmetrical hyperintensity in the central tegmental tract.

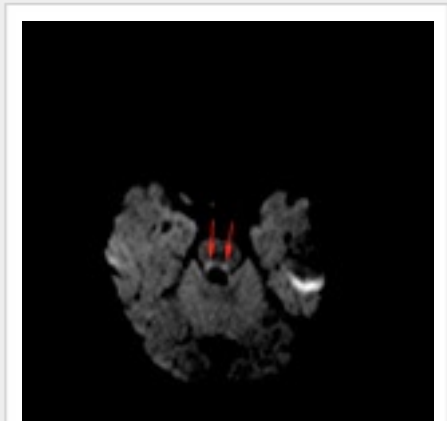


Figure-4: Axial diffusion weighted MRI (one lower slice of figure-3) shows bilateral symmetrical hyperintensity in the central tegmental tract.