SUNCT Following Lateral Brainstem Infarction: Two Case Reports

Priabprat Jansem [1], Nattapat Watanapa [1] ,Sekh Thanprasertsuk, MD [3,4], Wanakorn Rattanawong, MD [5], Prakit Anukoolwittaya, MD* [2,3]

[1] Department of Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, 10330

[2] Division of Neurology, Department of Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, 10330

[3] Chula Neuroscience Center, King Chulalongkorn Memorial Hospital, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, 10330

[4] Department of Physiology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, 10330

[5] Department of Medicine, Faculty of Medicine, King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand

❑ Objective

- SUNCT is a rare headache, classified by ICHD-3 under trigeminal autonomic cephalalgias
- These headaches feature symptoms like conjunctival injection and tearing
- Modern neuroimaging links some to cerebral pathologies
- Our study presents two MRI-documented cases after a lateral brainstem infarction

❑ Methods

We report two cases of patients who have suffered SUNCT following a lateral brainstem infarction.

Informed consent was obtained from patients.

Case 1: A 70-year-old Thai male with dyslipidemia presented with headache progressing over five years. He described the pain as an electrical shock-like sensation from his right frontal area radiating to his cheek lasting 30 seconds. Associated symptoms included ipsilateral lacrimation, conjunctival injection, facial erythema, and rhinorrhea. After the first evaluation, the diagnosis of trigeminal neuralgia was made at a local community hospital, and Gabapentin 300 mg was initiated. Interestingly, the patient reported that his symptoms recurred annually, and subsided for the rest of the year. He decided to reevaluate his headache at King Chulalongkorn memorial hospital (KCMH). The patient's physical examination was unremarkable, with no sinus tenderness or trigger zone, no facial sensory loss or hyperesthesia. His headache characteristics were compatible with the criteria for SUNCT.

MRI brain revealed a lesion at the right lateral aspect of pons and right cerebellar peduncle involving the course of the fascicular segment of the right trigeminal nerve **(Fig 1)**, suggesting a previous ischemic lesion.

Treatment with Gabapentin 900 mg daily, Carbamazepine 400 mg daily, Lamotrigine 25 mg daily, Aspirin 81 mg daily, and Simvastatin 20 mg daily was initiated, resulting in significant improvement in symptoms.

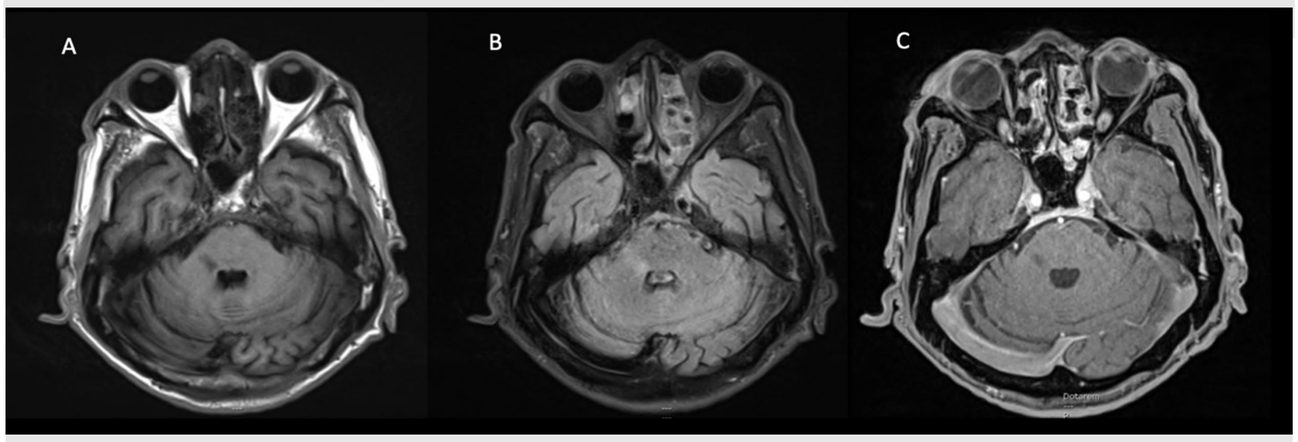

Figure 1 *shows magnetic resonance imaging of the brain in the first case report, demonstrating a hypointense lesion on T1W imaging and a hyperintense lesion on T2W FLAIR imaging at the right lateral aspect of the pons and right cerebellar peduncle involving the course of the fascicular segment of the right trigeminal nerve (A, B) without gadolinium enhancement at the lesion (C).*

Case 2: A 55-year-old Thai male with hypertension presented with a persistent right-sided headache progressing over seven years. The pain was described as a sharp stabbing around the right eye, lasting 30 seconds and occurring 1-2 times daily around the time of presentation. He sought medical attention at King Chulalongkorn Memorial Hospital.

During an attack of pain, the patient exhibited ipsilateral conjunctival injection, lacrimation, and hemifacial spasm. Outside an attack, the physical examination was unremarkable, including no facial tenderness or trigger zone. The neurological examination was normal, with no facial sensory loss or hyperesthesia. His headache was compatible with the criteria for SUNCT.

An MRI brain performed seven years prior showed a lesion at the right lateral aspect of the pons **(Fig 2)**, suspected to be due to subacute infarction**.** The patient was prescribed a daily dose of 1200 mg of gabapentin and 25 mg of lamotrigine, which resulted in a notable improvement in his symptoms.

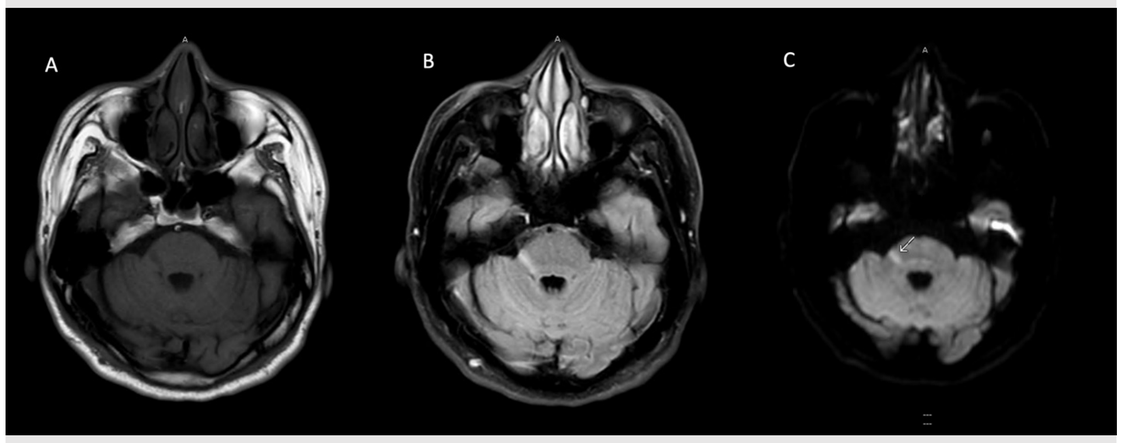

Figure 2 *shows magnetic resonance imaging of the brain in the second case report, demonstrating a triangular, hypointense lesion on T1W imaging and hyperintense on T2W FLAIR at the right lateral aspect of the pons (A, B) with restricted diffusion-weighted imaging (C).*

❑ Discusssion

- Both cases we examined had a stroke in the lateral pons, as confirmed by imaging.
- We suggest that these headache syndromes stem from lateral brainstem lesions.
- The pain location and symptoms align with the trigeminal nerve distribution, hinting at an origin in the trigeminocervical complex, located precisely where we observed the strokes.
- The involvement of the adjacent superior salivary nucleus could account for the lacrimation and conjunctival injection typical of SUNCT.
- Considering the varied onset time between headache and stroke in our cases, SUNCT may arise from direct damage or later abnormal neuroplasticity in the trigeminocervical complex and surrounding pathways.