

# Frozen medulla oblongata: Skin temperature asymmetry in lower medullary infarction

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## Lateral medullary infarction

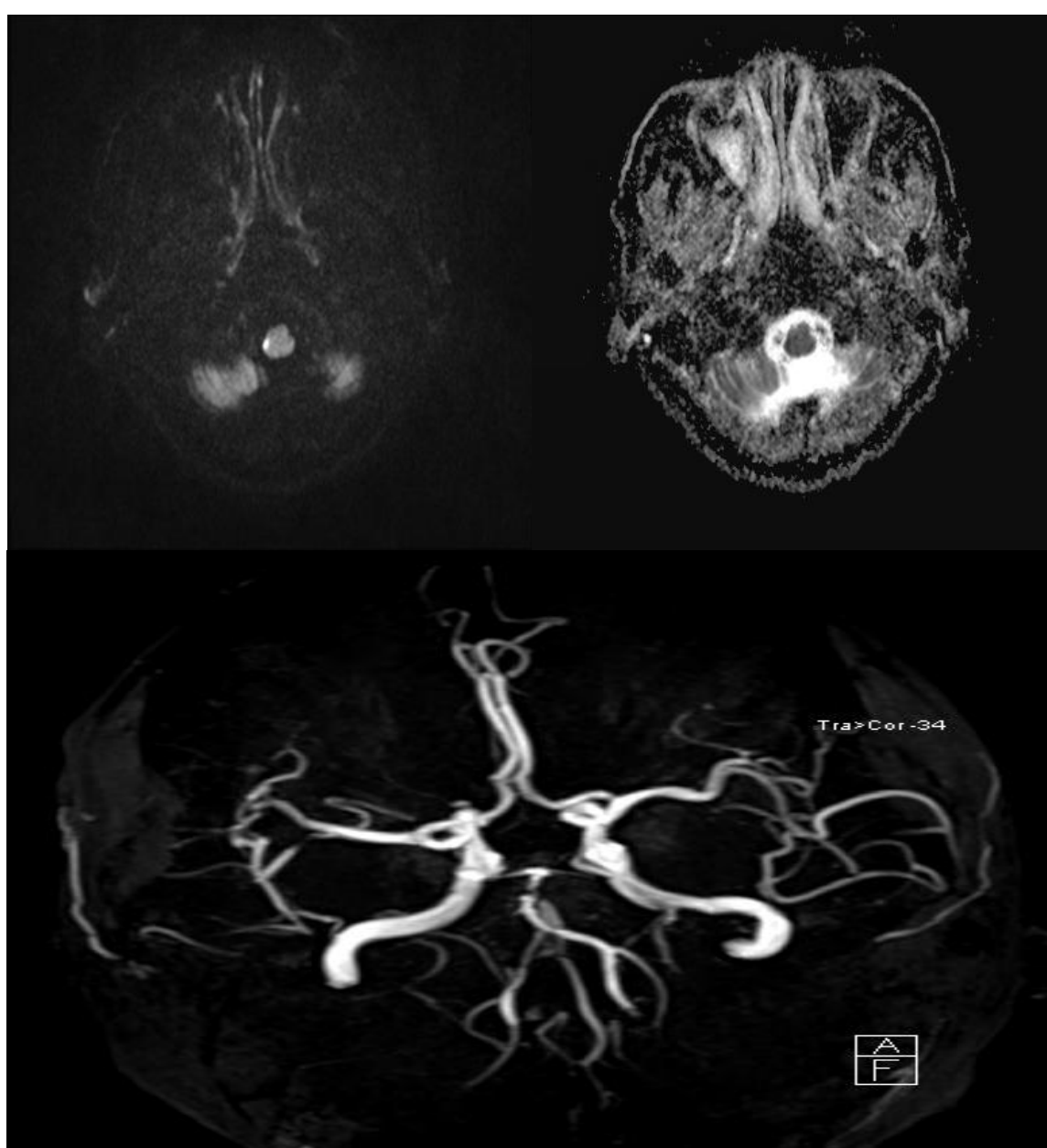
- Mostly secondary to intracranial vertebral artery or posterior inferior cerebellar artery occlusion or dissection of the vertebral arteries.

### The clinical manifestations

- Varies depending on the size and location of affected area, typically characterized by sensory deficit, ipsilateral Horner's syndrome, bulbar palsy and vertigo.

**We present the case with decreased skin temperature on the contralateral limbs without evidence of other autonomic dysfunction.**

- A 78-year-old woman with no history of previous stroke visited the emergency department presenting gait disturbance and mild dizziness. She had a history of hypertension and diabetes on medication including aspirin. On neurological examination, she was alert and oriented. During tandem gait, she tilted to the right side and otherwise was unremarkable. There was no evidence of sensory impairment or autonomic dysfunction. Brain magnetic resonance imaging (MRI) and MR angiography showed right lateral medullary infarction and focal stenosis of basilar artery (Figure 1).



**Figure 1.** Brain MRI and MRA showing right lateral medullary infarction and focal stenosis of basilar artery

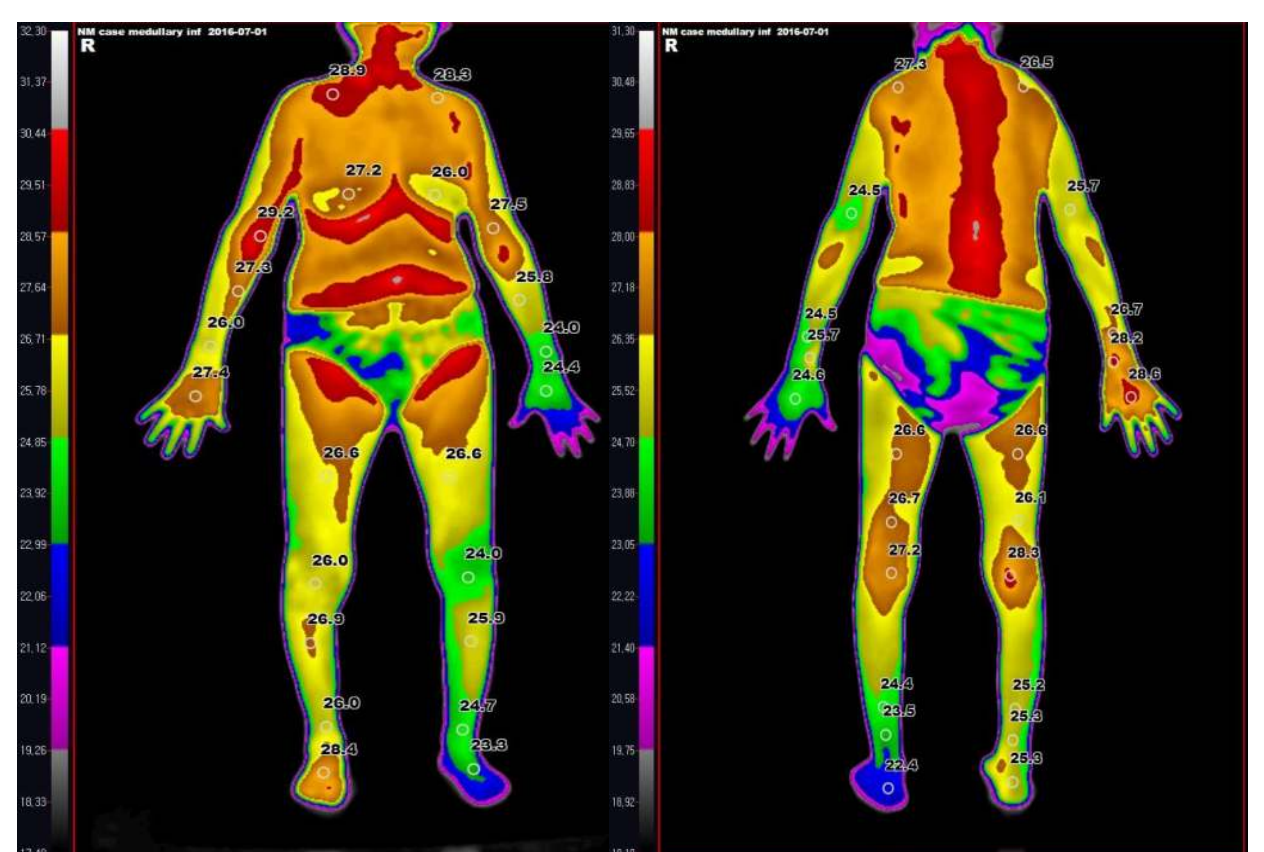
- After 4 days of stroke onset, she complained cold sensation on left side of the whole body. On physical examination, decreased skin temperature was also observed on the left upper and lower limbs.

Infra-red thermography at standing position was performed for skin temperature measurement, thermographic images demonstrated marked side difference in skin temperature between both extremities, showing decreased skin temperature of left limbs (Figure 2).

Though ataxic gait and dizziness improved several days after rehabilitation program, cold sense of her left limbs persisted throughout the patient's hospitalization.

-The initial neurological symptoms of lateral medullary infarction were vertigo/dizziness, followed by gait ataxia, and nausea/vomiting. Sensory symptoms were observed in 79% of the patients and usually expressed as cold, numb, or burning sensation.

In our patient, it would be practical to assume that the spinothalamic tract was principally injured by lateral medullary infarction. However, recent studies suggest that the spinal-parabrachial nucleus (LPB) - preoptic area (POA) pathway may exist as a thermoregulatory afferent pathway for conscious thermal sensations. Thermoregulatory afferent tract might be present in parallel with the spinothalamic tract mediating temperature perception.



**Figure 2.** Intra-red thermography (Right : front, Left : back)