

# Teaching Video NeuroImages: Horizontal gaze palsy with progressive scoliosis

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A 10-year-old girl presented with abnormal eye movement since birth. She was born from consanguineous parents. Ocular ductions showed complete horizontal gaze palsy, partial limitation of upgaze, and synergistic convergence (figure, A; video). Her pupils were round and isocoric. She showed severe thoracolumbar scoliosis. Uncrossed corticospinal and dorsal column–medial lemniscal pathways were demonstrated during intraoperative neuromonitoring of scoliosis surgery. Brain MRI revealed a bifid shape of the pons and medulla oblongata (figure, B–D), which is a typical finding of horizontal gaze palsy with progressive scoliosis.<sup>1,2</sup> Bilateral oculomotor, trochlear, and abducens nerves were normally identified (figure, E).

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## Disclosure

The authors report no disclosures relevant to the manuscript. Go to [Neurology.org/N](https://Neurology.org/N) for full disclosures.

## Appendix Authors

Name	Location	Role	Contribution
Hee Kyung Yang, MD	Seoul National University	Author	Designed and conceptualized study, major role in the acquisition of data, analyzed the data, drafted the manuscript for intellectual content
Jeong-Yoon Choi, MD,	Seoul National University	Author	Major role in the acquisition of data, Interpreted the data, drafted the manuscript for intellectual content
Kyung Seok Park, MD	Seoul National University	Author	Interpreted the data, revised the manuscript for intellectual content
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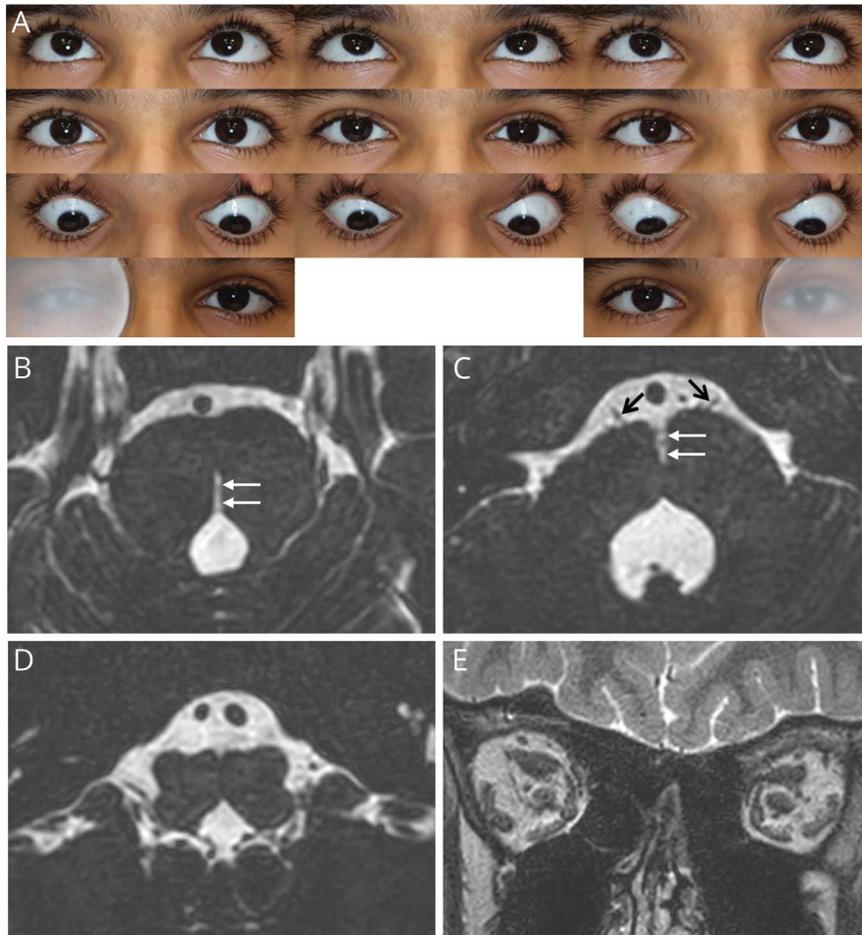
## References

1. Bosley TM, Salih MA, Jen JC, et al. Neurologic features of horizontal gaze palsy and progressive scoliosis with mutations in ROBO3. *Neurology* 2005;64:1196–1203.
2. Jen JC, Chan WM, Bosley TM, et al. Mutations in a human ROBO gene disrupt hindbrain axon pathway crossing and morphogenesis. *Science* 2004;304:1509–1513.

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**Figure** Nine gaze photographs and MRI of the orbit and brainstem



(A) Nine gaze photographs of the patient show horizontal gaze palsy. Both eyes show complete limitation of horizontal eye movements during right gaze (left column, second row) and left gaze (right column, second row). A partial limitation of upgaze is also noted (middle column, first row). (B, C) T2-weighted images show a bifid shape of the pons with a midline fissure (white arrows) at mid and lower levels. Both abducens nerves are normal (black arrows). (D) Butterfly shape of the upper level of medulla oblongata. (E) Normal extraocular muscles.

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