


**IMAGES IN EMERGENCY MEDICINE**

## Pediatrics

**Infant with inability to abduct left eye**

Joshua K. Dodderer MD, MPH<sup>1</sup>  | Erin Meyer MD<sup>2</sup> | Meghan McAnally MD, MPH<sup>3</sup> |  
Michelle M. Falcone MD<sup>4</sup> | Melissa Sundberg MD<sup>2</sup> | Bharti R. Nihalani MD<sup>4</sup>

<sup>1</sup> Department of Medicine, Boston Children's Hospital, Boston, Massachusetts, USA

<sup>2</sup> Division of Emergency Medicine, Boston Children's Hospital, Boston, Massachusetts, USA

<sup>3</sup> Department of Neurology, Boston Children's Hospital, Boston, Massachusetts, USA

<sup>4</sup> Department of Ophthalmology, Boston Children's Hospital, Boston, Massachusetts, USA

**Correspondence**

Joshua K. Dodderer, MD, MPH, Department of Medicine, Boston Children's Hospital, 300 Longwood Avenue, Boston, Massachusetts 02115, USA.

Email: [Joshua.dodderer@childrens.harvard.edu](mailto:Joshua.dodderer@childrens.harvard.edu)

**1 | PATIENT PRESENTATION**

A 9-month-old immunized boy presented with 1 week of inability to abduct his left eye outward. He received a Pentacel (DTaP5-IPV/Hib) vaccination 1 day before symptom onset accompanied by 2 days of fevers that resolved without treatment. He had no other additional infectious or neurologic symptoms. Evaluation by pediatric ophthalmology confirmed an isolated left abducens nerve palsy with an esotropia (Figure 1). There was no papilledema on dilated fundoscopic examination. He was referred to the emergency department where complete blood count revealed mild neutropenia. Lumbar puncture and magnetic resonance imaging of the brain were unrevealing after neurologic evaluation. On follow-up 3 weeks later, the abducens nerve palsy had nearly resolved with minimal restriction to abduction (Figure 2).

**2 | DIAGNOSIS****2.1 | Benign postinflammatory abducens nerve palsy**

Rare occurrences of benign motor nerve palsies have been documented following postinflammatory vaccination or infectious etiologies.<sup>1</sup> One study reported 5 cases of benign motor nerve palsies associated with the DTaP-IPV/Hib vaccine.<sup>1</sup> Benign abducens nerve palsies have been observed following viral infections and the hepatitis B virus and measles-mumps-rubella vaccines.<sup>2,3</sup> To our knowledge, this

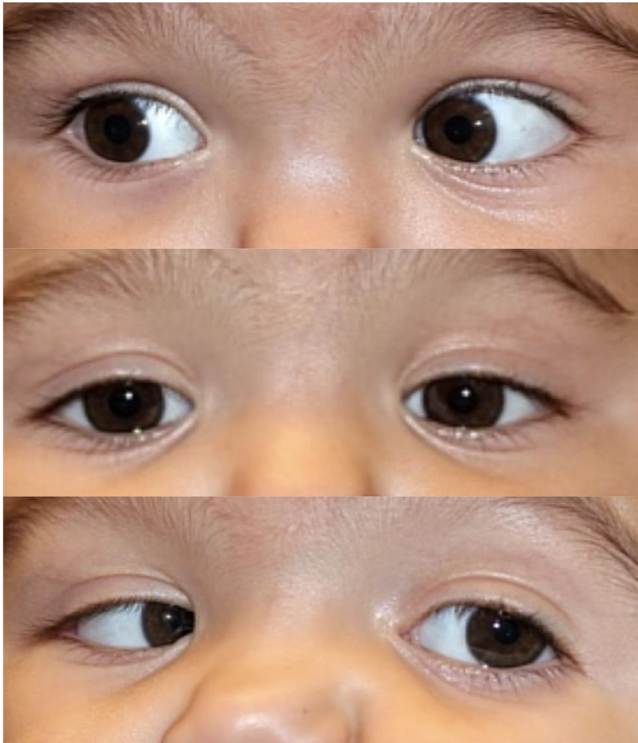


**FIGURE 1** Left abducens nerve palsy as demonstrated by normal adduction (top), mild esotropia with primary gaze (middle) that is worse with abduction (bottom) of the left eye

is the first reported case of isolated abducens nerve palsy following Pentacel vaccination.

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2021 The Authors. *JACEP Open* published by Wiley Periodicals LLC on behalf of American College of Emergency Physicians



**FIGURE 2** Limited abduction of left eye (bottom) is improved at 3-week follow-up. In primary gaze (middle), there is an esotropia with temporal displacement of the corneal light reflex in the left eye

Benign acquired postinflammatory motor palsies are diagnoses of exclusion.<sup>4</sup> Even in an otherwise well-appearing child, clinicians should

consider brain imaging and lumbar puncture to rule out underlying infectious, oncologic, hemorrhagic, or structural etiologies.<sup>5</sup> Neurology and ophthalmology consultations may be required. Assuming an unrevealing workup, management is supportive, as spontaneous recovery is expected within weeks to months; however, eye patching may be required to prevent amblyopia.

#### ORCID

Joshua K. Dodderer MD, MPH  <https://orcid.org/0000-0001-5727-3737>

#### REFERENCES

1. Woo EJ, Winiiecki SK, Ou AC. Motor palsies of cranial nerves (excluding VII) after vaccination. *Hum Vaccin Immunother*. 2013;10(2):301-305.
2. Bourtoulamaïou A, Yadav S, Nayak H. Benign recurrent sixth (Abducens) nerve palsy following measles-mumps-rubella vaccination. *Case Rep Pediatr*. 2015;2015:734516.
3. Grewal DS, Zeid JL. Isolated abducens nerve palsy following neonatal hepatitis B vaccination. *J AAPOS*. 2014;18(1):75-76.
4. Gonçalves R, Coelho P, Menezes C, Ribeiro I. Benign recurrent sixth nerve palsy in a child. *Case Rep Ophthalmol Med*. 2017;2017:1-3.
5. Merino P, Gómez de Liaño P, Villalobo JM, Franco G, Gómez de Liaño R. Etiology and treatment of pediatric sixth nerve palsy. *J AAPOS*. 2010;14(6):502-505.

**How to cite this article:** Dodderer JK, Meyer E, McAnally M, Falcone MM, Sundberg M, Nihalani BR. Infant with inability to abduct left eye. *JACEP Open*. 2021;2:e12381. <https://doi.org/10.1002/emp2.12381>