Herpes Zoster in 15mo Immunocompetent VZV Vaccinated Male

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PGY4
Aspen Dermatology
Rash on face

- 15 mo otherwise healthy male presented with a mildly irritated, red vesicular rash along the right zygoma
- Rash was present for 3 days
- No constitutional symptoms were present or preceding the rash
- Uncomplicated pregnancy or delivery
- Prior exposure to Varicella only through routine Varicella vaccination at 12 mo, no rash appeared at the time of the injection
- No previous rashes or history of Varicella
**Trigeminal Nerve**

- Ophthalmic branch – V1
  - Sensory – Forehead, eye
- Maxillary branch – V2
  - Sensory – Cheek, upper lip, mouth
- Mandibular branch – V3
  - Sensory – Jaw, lower lip
Differential Diagnosis

- Herpes Zoster (HZ)
- Herpes Simplex (HS)
- Breakthrough Varicella
Establishing a Diagnosis

Distinguishing between

- VZV/HZ (mostly clinical) – distribution
- HS

- Tzanck Smear – The sensitivity of the Tzanck smear exceeds 80%, and the specificity 90% when the investigators are experienced

- Biopsy – multinucleated giant cells with intranuclear inclusion bodies
  - may be helpful to distinguish between Varicella and HS

- Direct Fluorescent Ab test – this test visualizes the presence of VZV in the cells taken from a person's skin lesion using a special microscope and labeled antibody

- PCR – Use a sterile polyester swab to collect vesicular fluid and infected cells from the base of the lesion
  - Can perform genotyping to determine Wild-type vs. vaccine strains of varicella
Diagnosis and Treatment

- Pt was treated for HZ with oral Acyclovir
  - 200 mg QID x 7 days
    - 80 mg/kg/day PO divided q6h x5 days is the recommended dose for Varicella in immunocompetent pts >2yo
    - Case reports using same dose in infants with HZ

- Pt was evaluated by an ophthalmologist without evidence of ocular involvement

- Resolution at 1 week follow-up without sequelae

- PCR test was positive for VZV, consistent with a dx of HZ
Herpes Zoster in Children

- Reactivation of varicella zoster virus (VZV) from its dormant state in the sensory nerve ganglia
- Varicella exposure
  - In utero
  - First few months of life
  - Through vaccination
    - Approved for in US in 1995
    - 1st dose recommended at 12-15mo
    - 2nd dose recommended between 4-6yo
Herpes Zoster in Children

- Aug 1998 JAAD published an article regarding HZ in children
  - Varicella in early childhood is a risk factor for HZ
  - No pts in this study had received VZV Vaccine

- May 1998 JAAD published a case report of HZ in a 19mo after receiving VZV vaccine at 15mo
  - 6 cases of HZ were reported in 7000 pts immunized in the US and the overall incidence was 14/100,000
  - Incidence of HZ was reported as 20-63/100,000 after natural varicella
Herpes Zoster in Children

- Journal of Infectious Disease 2008 evaluated the impact of VZV vaccination on HZ in the US
  - 2 studies showed no increased incidence of HZ
  - 1 study showed increased incidence of HZ
  - Studies in UK showed increased rates of HZ in the absence of a vaccination program
Herpes Zoster in Children

- Journal of Infectious Disease Aug 2013
- 322 children <18 yo diagnosed with HZ
- Samples tested by PCR
- Incidence of HZ in VZV vaccinated children was 48/100,000
  - 48% were from the Vaccine strain, 52% wild-type
- 230/100,000 in unvaccinated children
  - Wild-type only

- Overall a 79% lower HZ incidence among vaccinated than unvaccinated children

- Incidence of HZ was higher in 1-2 yo pts
  - 92% were due to Vaccine-strain VZ
Herpes Zoster in Children

- Appearance of HZ was typical, dermatomomal

- Vaccinated subjects with Vaccine strain HZ
  - 53% had HZ on the extremity and site of the vaccination
  - 23% had HZ on the ipsilateral side at a different dermatome
  - 13% had HZ on the contralateral side at the same dermatome
  - 10% had HZ on the contralateral side at a different dermatome
  - 3% had a bilateral HZ

- Vaccinated subjects with Wild-type strain HZ
  - 2/11 had HZ in the vaccinated extremity
Herpes Zoster in Children

- Overall symptoms were less severe (usually mild) compared to adult features of HZ
- HZ related complications appear to be less severe in children than in adults
  - Most commonly reported complaint was pruritus, occasionally pain, rare PHN
  - Reported as a painless process in children (Aug JAAD 1998)
- Clinical features do not differ significantly between Vaccinated and Wild-type HZ
  - Vaccinated subjects with HZ tended to have less severe symptoms, not statistically significant (JID 2013)
Herpes Zoster in Children

• Take Home Points
  • HZ in children is generally milder than in adults
    • Less likely to have complications following HZ
  • Early exposure to Varicella is a risk factor for HZ
  • HZ presents in vaccinated children
  • Vaccination strain in 92% of 1-2yo patients with VZV
  • Vaccination is partially protective for HZ
  • Genotyping of HZ lesions can be beneficial to determine wild-type vs. vaccine strain Varicella
References


- Lewkonia IK, Jackson AA. Infantile herpes zoster after intrauterine exposure to varicella. BMJ. 1973; 3:149


Complete VAERS form (next slide) for vaccine adverse events and if feasible, collect specimen for testing

CDC laboratory can conduct VZV PCR testing and Genotyping

Additional Info: http://vaers.hhs.gov/index/

1-800-822-7967