

Unprotected People #8 Varicella (Chickenpox)

Story #8: Five varicella deaths that could have been prevented

The following five stories of varicella-related deaths appeared in the fall/winter 1998-99 issue of Needle Tips.

Editors' note: *We hear many stories from parents about physicians who are not encouraging varicella vaccination. We hope that the following reports of deaths secondary to varicella infection will motivate clinicians to recommend this vaccine for all their susceptible patients. There are approximately 100 deaths (half of these in children) and 10,000 hospitalizations each year in the U.S. from varicella. These deaths and hospitalizations are preventable. Please recommend varicella vaccine to your susceptible patients of ALL ages.*

Cases 1, 2, and 3 below were reprinted from the Morbidity and Mortality Weekly Report (MMWR), May 15, 1998, vol. 47, no. 18. Cases 4 and 5 were reprinted from Michigan Immunization Update, winter 98, vol. 5, no. 1.

Case 1: Death of a 21-month-old

On February 28, 1997, a previously healthy, unvaccinated 21-month-old boy developed a typical varicella rash. He had no reported exposure to varicella. On March 1, he was taken to a local emergency department (ED) with a high fever and was started on oral acetaminophen and diphenhydramine. On March 3, his primary-care physician prescribed oral acyclovir. On March 4, his mother noted a new petechial-like rash. The next morning, his primary-care physician noted lethargy, a purpuric rash, and poor perfusion. He was transferred to a local ED. Fluid resuscitation and intravenous ceftriaxone were initiated, but the child continued to deteriorate rapidly, requiring intubation, mechanical ventilation, and inotropic support with dopamine. Blood cultures were negative for bacterial pathogens. Laboratory tests indicated disseminated intravascular coagulation and severe dehydration. Approximately 1½ hours after arrival at the ED, he was transported to a tertiary-care center. Within 10

minutes of arrival, he suffered cardiac arrest and died. The death was attributed to varicella with hemorrhagic complications.

Case 2: Death of a 5-year-old

On December 21, 1997, a 5-year-old unvaccinated boy with a history of asthma was taken to a local ED with a fever of 104.5 F (40.3 C) and a typical varicella rash in multiple stages of healing. The child was treated with antipyretic and antipruritic medications and discharged.

That evening, the boy developed mild dyspnea and was treated at home for a presumed asthma attack with metered-dose inhalers and one dose of oral prednisone. He returned to the ED on December 22 with shortness of breath and a 4-hour history of abdominal and leg pain. On presentation to the ED, one of the patient's siblings had active varicella and another had recently recovered from varicella. Physical examination revealed numerous chickenpox lesions, one of which appeared infected. He was tachypneic, and his extremities were mottled consistent with peripheral septic emboli. Chest and abdominal radiographs revealed a right pleural effusion, pneumonia, and mild ileus. Thoracostomy produced pleural fluid containing gram-positive cocci, confirmed 8 hours later to be group A *Streptococcus* (GAS). A peripheral blood sample revealed gram-positive cocci. He was admitted to the hospital and treated with intravenous ceftriaxone, nafcillin, and acyclovir.

After admission, his breathing became labored and his extremities increasingly mottled. He rapidly developed hypotension, obtundation, and bradycardia. Despite efforts at cardiopulmonary resuscitation, the child died five hours after arriving at the ED. A post-mortem examination attributed the death to GAS septicemia, pneumonia, and pleural effusion, complicating varicella infection.

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Case 3: Death of a 23-month-old

On December 14, 1996, a previously healthy, unvaccinated 23-month-old boy developed fever and a typical varicella rash. Approximately 1–2 weeks earlier, his unvaccinated 4-year-old sibling had contracted varicella. He was taken to his physician on December 17 because of persistent fever and cellulitis of the left foot, and he was hospitalized on December 19 for failure to improve on an unspecified outpatient antibiotic regimen. Because his condition deteriorated despite intravenous methicillin and ceftriaxone, he was transferred to a regional hospital on December 21. Sepsis, possible viral meningoencephalitis, and mild pleural effusion were diagnosed. A cerebrospinal fluid examination revealed lymphocytic pleocytosis, and blood and urine cultures grew penicillin-resistant *Staphylococcus aureus*. Antibiotics were changed to nafcillin and gentamycin, and intravenous acyclovir was added on December 23. On December 24, the child developed an aortic insufficiency murmur, and an echocardiogram revealed a 9x9 mm vegetation on the aortic valve, consistent with bacterial endocarditis. Serial echocardiograms displayed growth of the vegetation and development of a pericardial effusion. He was transferred to a cardiac surgery center on December 26. While awaiting surgery, he developed refractive heart failure secondary to staphylococcal endocarditis. He became incoherent, probably secondary to a major embolic neurologic event, and died on January 8, 1997.

Case 4: Death of a 35-month-old

In March 1997, a 35-month-old unvaccinated, previously-well male child presented to the local hospital

emergency room with gastrointestinal bleeding and onset of shock. He was transferred to a larger hospital and admitted to its pediatric intensive care unit (PICU). On admission to the PICU the child had a seizure, followed by rapidly progressive multi-system failure. The child died 2½ hours after admission. Autopsy determined that the cause of death was chickenpox and associated complications (causes of death noted in the hospital medical record were cardiac arrest secondary to profound hypotension, possible myocarditis, massive gastrointestinal hemorrhage, and varicella infection). This child had onset of varicella eight days prior to admission (an unvaccinated older sibling had onset of varicella three weeks prior) and was seen by a physician at that time.

Case 5: Death of a 42-year-old

In early 1997, a 42-year-old male presented to a hospital emergency room complaining of epigastric pain. A physical exam noted rash consistent with chickenpox. The patient stated all three of his children had been diagnosed with chickenpox in the previous three weeks. His previous medical history included severe chronic emphysema and chronic bronchitis, which was being managed with steroids under a physician's care. During the course of his hospitalization he developed varicella-related pneumonia and septic shock. The patient died three days after admission. According to a sibling, the patient was thought to have had chickenpox in childhood, but this could not be documented.