Purple spots and chickenpox

Richard Usatine
University of California,
Los Angeles
200 UCLA Medical
Plaza, Ste 220
Los Angeles, CA
90095-1628

Correspondence to:
Dr Usatine
rusatine@ucla.edu

Competing interests:
None declared

West J Med
2000;173:304-305

QUESTION: The mother of a 9-year-old girl calls the nurse to ask if she should bring her daughter to the clinic because her daughter now has purple spots on her body after a chickenpox infection. The mother noted the onset of the purple spots the day before and denies any history of trauma. The chickenpox had begun 10 days ago and was mostly healing. She was told to bring in the patient immediately for evaluation.

The young girl appeared fatigued. She was holding a wad of tissues in her mouth to stop the bleeding from a baby tooth that had fallen out 2 days ago. Most of the purple spots were seen on the legs (figure). Blood pressure, pulse, and temperature were normal. The examination showed no other bleeding sites than the tooth socket, which was oozing slowly. The old varicella lesions were in various stages of reepithelialization.

What are the purple spots, and what is the pathogenesis? How would you diagnose this condition, and what is the appropriate treatment?

Purple spots appeared in the aftermath of chickenpox

ANSWER: The purple spots are purpura and petechiae. The most likely cause is a low platelet count in the condition of varicella-associated thrombocytopenia. The continued bleeding from the tooth socket supports the hypothesis of a bleeding disorder. A platelet count with a complete blood count, prothrombin time, and partial thromboplastin time were obtained immediately. The platelet count was $12 \times 10^9/L$ ($12,000/\mu L$). This severe thrombocytopenia explains the purpura, petechiae, and oral bleeding. The presumptive diagnosis was virus-associated idiopathic thrombocytopenic purpura or, more specifically, a varicella-associated thrombocytopenia. Although this is a rare condition, it has been reported numerous times in the world's medical literature.

PATHOPHYSIOLOGIC MECHANISM

Rand and Wright state : "Two-thirds of children with acute idiopathic thrombocytopenic purpura (ITP) have a history of an infectious illness a few days to a few weeks before the onset of thrombocytopenia."¹ In some of these children, a specific virus can be identified, such as varicella zoster virus, rubella, Epstein-Barr virus, influenza virus, and human immunodeficiency virus. Research suggests that there is a molecular mimicry between the viral antigens and platelet surface glycoproteins so that host antibodies cross-react with the platelets' membrane antigens and increase the clearance of platelets.² This autoimmune phenomenon occurs during the viremic phase of the acute viral infection and leads to thrombocytopenia.

TREATMENT

The major treatments reported for virus-associated ITP include intravenous immune globulin and high-dose parenteral steroids. Although these treatments have been used successfully, no randomized controlled trials have been

done to compare these treatments with each other or with placebo.

PATIENT'S COURSE

The patient was admitted to the hospital where she received intravenous immune globulin and intravenous methylprednisolone. The following day, her platelet count was up to $50 \times 10^9/L$. The next day, her platelet count was more than $100 \times 10^9/L$. The bleeding from her tooth socket stopped completely, and no new purpuric lesions developed. The following day, her platelet count was completely normal, and she was discharged home with follow-up to monitor her platelet counts. The patient did well, and the acute ITP resolved completely.

PREVENTION

This complication of varicella can be prevented with the varicella vaccine. Before the availability of varicella vaccine, varicella disease was responsible for 11,000 hospitalizations and 100 deaths each year in the United States.³ Even though many of the deaths and hospital admissions were due to varicella pneumonia, varicella-associated thrombocytopenic purpura is a potentially preventable complication. This case underscores the need to adequately immunize our population with the varicella vaccine.

References

- 1 Rand ML, Wright JF. Virus-associated idiopathic thrombocytopenic purpura. *Transfus Sci* 1998;19:253-259.
- 2 Mayer JL, Beardsley DS. Varicella-associated thrombocytopenia: autoantibodies against platelet surface glycoprotein V. *Pediatr Res* 1996;40:615-619.
- 3 Centers for Disease Control and Prevention. Prevention of varicella: Updated recommendations of the Advisory Committee on Immunization Practices (ACIP). *Morb Mortal Wkly Rep MMWR* 1999;48(RR-06):1-5.

How to submit your medical images for publication in Med.Pix

Do you have images (slides, photos, etc.) of compelling visual cases in clinical medicine?

If other primary care providers would find them interesting, we would like to publish them, along with a brief description of the clinical presentation and a question for the readers. The answer should provide an explanation of the clinical case along with information on differential diagnosis and treatment. The treatment section should suggest an evidence-based approach and be supported by current references. Multiple images may be submitted, and interesting connections between these images may be highlighted.

High-quality slides, illustrations, and photographic prints may be mailed to:

Richard Usatine, MD; Section Editor, Med.Pix; 200 UCLA Medical Plaza, Suite 220, Los Angeles, CA 90095-1628; Fax 310-206-0181.

Written descriptions and electronic images may be submitted to: rusatine@mednet.ucla.edu.

Note: If the patient's identity is recognizable, a signed permission form should accompany the submission materials.