48th ANNUAL DIAGNOSTIC SLIDE SESSION 2007
CASE 2007-5

Submitted by: Leroy R. Sharer, M.D., Valerie A. Fitzhugh, M.D., and Debra S. Heller, M.D., UMD-New Jersey Medical School, Newark, NJ 07103

Clinical History: A baby girl was born at 36 weeks gestation to a 25-year-old G2P0 woman who had had a missed abortion one year previously. (The parents were first cousins.) Ultrasound revealed intrauterine growth retardation, oligohydramnios, bilateral enlargement of cerebral ventricles, and hemorrhage in brain. The baby was delivered by Caesarian section, with a birth weight of 1,885 gm. At birth, she was not active, with shallow respirations, cyanosis, pallor, a pectus chest deformity, and ecchymoses on the upper thorax. An initial platelet count was 90,000/mm^3, repeat 50,000. Ultrasound of the head on the second day of life was interpreted as showing bilateral germinal matrix hemorrhage Grade 3 and ventricular dilatation. The baby was given a platelet transfusion, with platelets rising to 75,000; by the next day they had declined to 54,000. TORCH titers and all cultures were negative. A genetic consult raised the possibility of Smith-Lemli-Opitz syndrome, but serum cholesterol was normal. Tests for other genetic disorders were negative, with a normal karyotype 46, XX. A CT scan on the third day also demonstrated bilateral germinal matrix hemorrhages, ventriculomegaly and periventricular leukomalacia, with cystic changes adjacent to the anterior horns of the lateral ventricles. The baby developed bleeding from an orogastric feeding tube, with worsening of the platelet count. A diagnosis of isoimmune thrombocytopenia was felt to be unlikely. Lumbar puncture revealed many red blood cells. Further platelet transfusions were given, raising the platelets to 201,000, but by the next day, day four, they had dropped to 45,000. The child developed upper extremity tremors, and the serum lactate level was mildly elevated (2.3 mEq/L, upper limit, 2.0), with CSF lactate reported as 5.5. She was found to be neutropenic, with a total white count of 4.7. Platelets on the next day fell to 20,000, requiring yet another platelet transfusion, and neutropenia persisted. At eight days of age, a repeat CT scan was said to show worsening germinal matrix hemorrhage, as well as hemorrhagic product in the cerebellum. Another CT scan a few days later revealed bleeding in the pons and evidence of elevated intracranial pressure. The parents, who had previously wanted everything possible to be done for the child, at this point agreed to supportive measures only. Terminally, at age six weeks, the child became hypothermic with shallow respirations, progressing to death.

Necropsy Findings: No evidence of systemic hemorrhage. There was extramedullary hematopoiesis in liver and spleen, and diffuse bronchopneumonia. Bone marrow had an increase in myeloid precursors, with decreased megakaryocytes and erythroid precursors. The brain, which weighed 425 gm after fixation, grossly had bilateral cerebral white matter hemorrhages and cystic cavitations, with a gelatinous appearance of the white matter. There were diffuse hemorrhages in the midbrain, in the basis pontis, and bilaterally in the cerebellar white matter.

Material submitted: One H&E-stained slide from either left or right thalamus and basal ganglia.

Points for discussion:

1. Diagnosis
2. Relationship of brain findings to the thrombocytopenia