A Neonatal Agranulocytosis

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CASE DESCRIPTION

A 42-year-old gravida 5 para 3 woman delivered a male newborn at 36 weeks of gestation. She had no significant medical problems and her previous pregnancies led to healthy newborns. The current pregnancy was uneventful and the baby appeared healthy (body weight, 3190 g; Apgar score, 8/10/10). On the second day of life jaundice appeared. Laboratory tests revealed hyperbilirubinemia (total bilirubin 21.5 mg/dL; reference interval, <8.5 mg/dL), an agranulocytosis [absolute neutrophil count (ANC), $<0.04 \times 10^9$/L; reference interval, $5–21 \times 10^9$/L], eosinophilia (0.83×10^9/L; reference interval, 0.5×10^9/L), and monocytosis (3.8×10^9/L; reference interval, $<1.1 \times 10^9$/L). Hemoglobin (16.3 g/dL; reference interval, 14.5–22.5 g/dL), total white blood cell count (11.8×10^9/L; reference interval, $9.4 –34.0 \times 10^9$/L), and platelet count (200×10^9/L; reference interval, $150–300 \times 10^9$/L) were within reference intervals. Microscopic examination of a May-Grünwald-Giemsa–stained blood smear confirmed agranulocytosis. There was no sign of infection. Additional testing included negative blood, gastric aspirate, and ear swab culture results and C-reactive protein concentration within the reference interval. Agranulocytosis was still present the following day (ANC, 0.064×10^9/L). The jaundice was felt to be due to ABO hemolytic disease of the newborn (mother O negative, newborn B negative, direct antiglobulin test positive) and was treated successfully by a 36-h regimen of phototherapy. Conversely, agranulocytosis persisted (ANC, $<0.04 \times 10^9$/L on day 6).

Questions to Consider
• What are the most common etiologies of neonatal neutropenia?
• What additional testing should be performed in evaluating this patient?
• What are the potential clinical consequences of neutropenia, particularly in the neonatal period?

Final Publication and Comments

The final published version with discussion and comments from the experts will appear in the May 2014 issue of *Clinical Chemistry*. To view the case and comments online, go to http://www.clinchem.org/content/vol60/issue5 and follow the link to the Clinical Case Study and Commentaries.

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Educational Centers

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