A 72-year-old woman presented to the emergency room with acute onset adynamia and tachycardia. On physical examination, icterus and splenomegalia were noted. The first blood specimens could not be analyzed because of the rapid clotting of all samples in the blood tubes at room temperature. After placing drawn blood samples in a warm water bath, clotting occurred in the upper part of the tube not fully immersed in water, but the warmed part remained fluid (panel A). Blood samples were brought to the laboratory in a warmed container, and analysis revealed a hemoglobin value of 4.2 g/dL (normal, 12.0-16.0 g/dL). Red cell count was 1.49 million/µL (normal, 4.2-6.2 million/µL). The Coombs test was positive for red cells coated with C3dg only (and therefore positive with only anti-C), and monoclonal immunoglobulin M-κ was present. Clots of erythrocytes were also visible on blood smears done at room temperature (May-Grünwald staining; panel B). Cold agglutinin disease was suspected and confirmed by increased cold agglutinin titer. After prewarmed blood transfusion via an infusion warmer, the patient’s condition improved.

In our experience, macroscopically visible blood clotting occurs in very high cold agglutinin titers (ie, >1:2000). Therefore, careful inspection of the blood tubes for agglutination can be helpful for the rapid diagnostic approach to anemia. This can be especially important in an emergency setting.
Blood clotting at room temperature in cold agglutinin disease

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