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ABO haemolytic disease of the fetus and newborn in a blood group AB neonate due to maternal immunoglobulin G anti-A and anti-B antibodies

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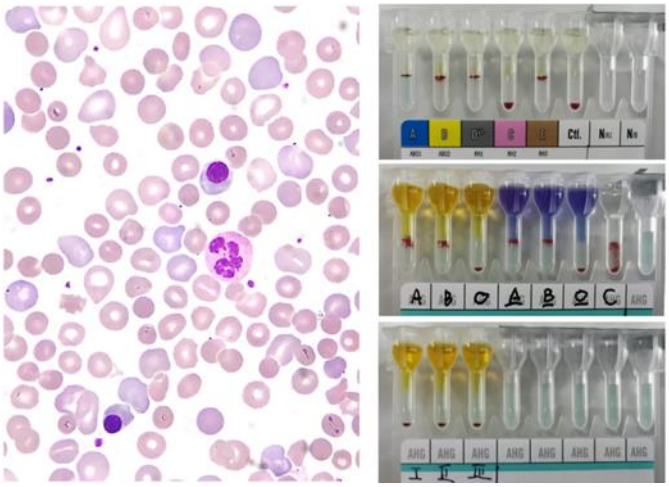
Introduction

A full-term Chinese male neonate was transferred to our hospital following detection of jaundice and anaemia 6 hours after birth. His haemoglobin concentration was 104 g/l with an RBC of 2.72 ×1012/l and a robust compensatory haematological response: reticulocytes 7.72%, absolute reticulocyte count 218.5×109/l and reticulocyte production index 3.30 (normal range 0.2-1.5). A peripheral blood film showed spherocytes, polychromatic cells, occasional nucleated RBCs and red cell fragments (left, ×100 objective; Wright–Giemsa stain). His total bilirubin and indirect bilirubin concentrations were 202.2 μmol/l and 186.96 μmol/l, respectively. The initial laboratory findings suggested haemolytic disease of the fetus and newborn (HDFN), so antiglobulin tests were performed. He was typed as blood group AB, Rh D-positive (top right). The direct antiglobulin test was positive with the neonatal red cells (middle right, C), and immunoglobulin G (IgG) anti-A and anti-B antibodies were detected in the neonatal plasma (middle right, A, B, O) and in the neonatal red cell eluate (middle right, A, B, O). No irregular blood group antibodies were detected (bottom right), confirming the diagnosis of ABO HDFN. After seven sessions of phototherapy, two doses of intravenous immunoglobulin and two transfusions of blood group O red cells, he remained clinically stable and was discharged on day 10. Nucleotide sequences revealed that he had A102 and B101 alleles. His biological mother was blood group B, but he was born to a group O, Rh D-positive surrogate mother, rendering ABO hemolytic disease in a blood group AB neonate possible.

In contrast with O/B and O/A incompatibility, severe HDFN due to maternal IgG anti-A and anti-B antibodies in a blood group AB neonate is exceptional.



Recent Publications

1. Yanzhen Wan, Peng Gao, Shuang Zhou, et al. SIRT1-mediated epigenetic downregulation of plasminogen activator inhibitor-1 prevents vascular endothelial replicative senescence. Aging Cell. 2014, pp1-10.

2. Xiangmao Bu, Jiahong Chen, Yanzhen Wan, et al. Diagnostic Value of D-Dimer Combined with WBC Count, Neutrophil Percentage and CRP in Differentiating Between Simple and Other Severe Appendicitis in Children. Clinical laboratory, 2016;62:1675-1681.

3. Huiquan Gao, Yanzhen Wan, Xiaoyi Fan, et al. The Role of Cholinesterase in Differential Diagnosis between Gastric Cancer and Benign Gastric Diseases. Clinical laboratory, 2021;67:298-304.

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