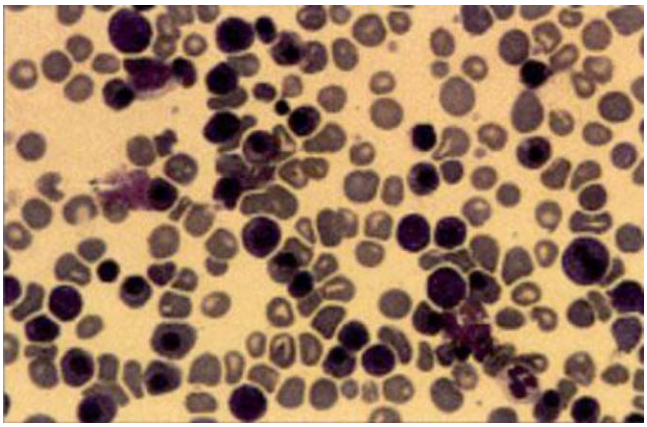
Case 18.6 Haemolytic disease of the newborn

A 33-year-old multigravid woman (gravida 3; para 1) presented in week 11 of her fourth pregnancy. Her first pregnancy had been uneventful and this child was now 13 years old. Her second and third pregnancies had ended with dead hydropic fetuses at 36 and 23 weeks respectively. A rising level of antibody to the D antigen of the Rhesus blood group had been noted in each pregnancy, but no treatment had been available. Nowadays the mother would have been given antibody to Rhesus D antigen after the first delivery to prevent the antibody developing, as in all Rhesus D mothers.

The patient's Rhesus blood group was D negative but her husband was heterozygous for the D antigen; the fetus had a 50% chance of being affected. The mother's level of anti-D antibody was high (30 iu/ml); ultrasound-guided needling of the umbilical vessels was performed at 19 weeks' gestation and blood samples obtained. The fetus was found to be Rhesus D positive with a low haemoglobin (70 g/l), indicating *haemolytic disease of the newborn*. An intravascular intrauterine transfusion was performed the next week; the amount of blood transfused was titrated against the fetal packed cell volume (PCV) and continued until the PCV was 40%. This was repeated, following fetal blood sampling, at 2-weekly intervals through the rest of the pregnancy. A live female infant was delivered by Caesarean section at 34 weeks. Her haemoglobin and serum bilirubin levels were normal at birth but she gradually became jaundiced over the next 72 h. An exchange transfusion was given to reduce the level of previously transferred maternal antibody. She responded well and was discharged home 1 week later. A further top-up transfusion was required at 6 weeks.



Case Figure 18.1 Haemolytic disease of the newborn – blood film in a newborn not treated in utero, showing immature (nucleated) red cells & grey tint to mature rbc indicating reticulocytes (polychromasia)

Essentials of Clinical Immunology, Sixth Edition. Helen Chapel, Mansel Haeney, Siraj Misbah, and Neil Snowden.