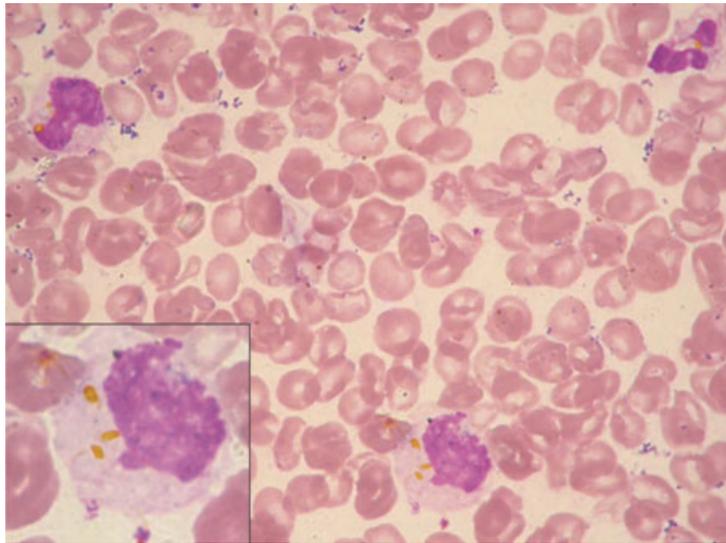


## Bilirubin crystals in peripheral blood neutrophils in neonatal hyperbilirubinaemia



A 5-d-old preterm female child presented with jaundice and poor feeding and activity. The child was born at 30 weeks of gestation to a primigravida and developed jaundice on the third day of life. The baby weighed 850 g and was febrile and hypotensive. There was no blood group incompatibility. Haemoglobin was 22 g/dl, total leucocyte count  $15 \times 10^9/l$  and platelet count  $40 \times 10^9/l$ . A peripheral blood smear showed normocytic normochromic red cells with toxic neutrophil changes and a shift to the left. Total serum bilirubin was 326.61  $\mu\text{mol/l}$  with a direct bilirubin of 17.1  $\mu\text{mol/l}$ . Blood culture grew *Klebsiella pneumoniae*, which was sensitive only to cefatoxime. The child was given a double volume exchange transfusion and intravenous fluids along with parenteral antibiotics and vitamin K but expired of septicaemia and shock on the fourth day from admission.

Films made from EDTA-anticoagulated blood sent to the haematology laboratory from the ward showed, in addition to the findings mentioned above, golden coloured, refractile, rhomboid to rectangular bilirubin crystals in the cytoplasm of

many neutrophils and band forms (Figure). A few such crystals were seen extracellularly. These crystals were, however not seen in direct smears made from a heel prick.

Bilirubin crystals are occasionally observed in neutrophils from peripheral blood smears from neonates and children with severe jaundice. The occurrence of such crystals in neonates with unconjugated hyperbilirubinaemia is more commonly associated with septicaemia than with haemolytic disease of the newborn and is often associated with a poor outcome. The crystals can be confirmed as unconjugated bilirubin by the indirect Diazo reaction. They are seen only in blood samples collected in EDTA.

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