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Yellow skin without jaundice

MEDISINEN I BILDER

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The picture shows an infant with clearly yellow skin along with a relative with normally pale skin.

A three-month-old child was referred to the paediatric department by a health centre clinician owing to yellow-coloured skin. The paediatrician who attended to the patient found an apparently healthy child with yellow skin and pale sclerae (photo). Serum bilirubin was 12 µmol/l (reference < 20 µmol/l). The child had been fully breastfed with normal weight gain. Stools and urine were normal in colour. It was concluded that the child was healthy and no diagnosis was made.

At six months of age, the child was re-referred by the same health centre clinician because of persistent yellow skin colour. Clinical examination, serum bilirubin levels, other liver function tests, haematological parameters, metabolic tests, blood glucose levels, kidney function tests and vitamin levels were all normal. The child was still being breastfed, and it emerged in a dietary history that the mother was consuming 2 kg of clementines per day. Carotenaemia was diagnosed on the basis of the clinical findings and history. By the final check-up at one year, the mother had gradually stopped breastfeeding, and the child now had a normal skin colour.

Carotenoids are found in fruits and vegetables, including green vegetables, and are the most important vitamin A precursor in humans (1). Carotenaemia/carotenodermia is typically seen in infants and young children who consume large quantities of vegetables such as carrots and sweet potatoes, especially in the form of purees, and has also been described in cases of metabolic disease, diabetes and liver disease (1) as well as upon use of carotene supplements (2). The yellow colour in cases of carotenaemia is seen in the skin, especially on the palmar surface of the hands, the soles of the feet and in the nasolabial folds, but not in the sclerae or mucous membranes. Several case reports have been published on children with carotenaemia, including infants (3), but we have found only a single case of the condition being described as the result of exclusive breastfeeding (4). A case series from World War II described several women with carotenaemia (4), each of whom had been consuming 1.6–3.2 kg of carrots per week. One of the women found that the skin but not the sclerae of her breastfed infant also became yellow in colour. Both were diagnosed with carotenaemia.

In true jaundice, the sclerae have a yellow colour and liver disease should always be suspected. Here too, a dietary history is important, including the use of any dietary supplements as these can give rise to severe liver damage, including fulminant hepatic failure (5).

In cases of carotenaemia, dietary changes will restore normal skin colour within 2–6 weeks, but there is no medical reason to alter the diet as long as other nutritional requirements are being met (3). However, one should be aware of the possibility of concomitant vitamin A toxicity, which may be seen in cases of extreme dietary habits (6). Carotenaemia and vitamin A toxicity can also occur in children on extreme and unnecessary exclusion diets, for example as a result of parental fear of food allergies (7).

In cases of infants with yellow colouration, both the sclerae and the skin should be examined. The top priority is to rule out conjugated hyperbilirubinaemia, which may be a symptom of biliary atresia. Children with this condition will first develop yellow sclerae, and will have jaundice that continues beyond the first two weeks of life. Although discoloured stools are a classic sign of biliary atresia, they are not always present. Children over two weeks of age with yellow skin should therefore be assessed immediately, regardless of the colour of the stool.

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