Symptomatic rubella re-infection in early pregnancy and subsequent delivery of an infected but minimally involved infant

A case report

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Summary

A case of serologically proven symptomatic rubella re-infection in early pregnancy in a healthy multigravida who had been successfully vaccinated is reported to illustrate that the risk to the fetus is considerably less than with primary infection. The infant was infected, as evidenced by specific IgM in cord blood, but had no stigmata of congenital rubella at birth. Growth retardation was apparent at 6 months and hearing loss, not necessarily due to rubella, was detected at 8 months. Rubella re-infection, which may now be distinguished serologically by the urea degradation test from primary rubella, need not necessarily be an indication for termination of pregnancy.

Re-infection with rubella after successful immunisation is rare and usually asymptomatic. A number of such asymptomatic re-infections have been reported in which pregnant mothers exhibited low levels of rubella IgM but infants were found to be IgM seronegative. Although infection of infants has followed maternal rubella re-infection, many such reports are questionable or have been retracted. Sensitive mu-chain capture IgM enzyme-linked immunosorbent assay (ELISA) methods have created a diagnostic difficulty in distinguishing between primary rubella and re-infection, since positive IgM results are now frequently found in both. Recently a technique to distinguish primary from re-infection rubella has been described based on the relative resistance to IgG antibodies from past infections, compared with recent infections, to mild denaturing agents such as urea. It has thus become most important to document the outcome in infants from cases of known rubella re-infection in pregnancy. A case of symptomatic rubella infection in early pregnancy after documented successful immunisation, and subsequent delivery of an infected growth-retarded infant, is reported here.

Case report

A 35-year-old woman had had three previous uneventful pregnancies. In 1979, between the first and second pregnancies, she was immunised with an unknown rubella vaccine and, according to the patient, a subsequent blood test confirmed that she was immune. A further rubella test in January 1987 showed her to be IgG positive, IgM negative. Her last menstrual period before her fourth pregnancy was on 20 August 1987.

Between 4 September and 9 September her husband and two of her children developed an illness diagnosed clinically as rubella and confirmed serologically in the husband. On 19 September the mother became ill, suffering diffuse muscle aches, conjunctivitis and arthralgia in the knees and hips. No rash or lymphadenopathy were observed. Serology performed on 22 September showed an IgG-positive, IgM-negative result, but on 5 October and 9 November the mother's serum became IgM-positive, IgG-positive. Serology was carried out using a mu-chain capture method giving optical density values of 1,316 and 0,568 (positive cut-off values were 0,726 and 0,515, respectively). Both IgM-positive values were confirmed using sucrose density gradient ultracentrifugation.

A female infant was delivered vaginally 4 days before term on 31 May 1988. The neonate was active and vigorous although dysmature and had an apgar score of 9. Birth weight was 2090 g, length 46 cm and head circumference 30 cm. Clinical examinations revealed an otherwise normal infant with no evidence of cardiac, neurological or ocular abnormalities and radiographic examination of long bones showed no abnormalities whatsoever. Rubella serological tests performed on cord blood and at 2 days of age using the same tests as above gave IgM OD values of 0,902 and 1,421 (positive cut-off values 0,380 and 0,197, respectively) and again, IgM results were confirmed by sucrose density gradient ultracentrifugation. The infant's progress was uneventful other than an episode of otitis media. Bilateral myringotomies and grommet insertions were performed at 18 weeks of age.

At 6 months of age the infant was thriving, albeit with continued evidence of growth retardation. Weight remained below the third percentile at 4640 g, length stayed on the third percentile at 61 cm and head circumference was well below the third percentile at 37 cm, with patent anterior fontanelle. No specific rubella stigmata were found.

Audiological examination carried out at 8 months of age found the child to be responsive to free-field stimuli at slightly elevated levels and in spite of some mild conductive loss due to the grommets, there was no evidence of rubella-induced hearing loss. The child remains under clinical follow-up and intellectual as well as growth parameters will be monitored. Retrospective examination of the mother's sera of 5 October and 9 November 1987 showed that the rubella ELISA IgG levels were 101,6% and 101,7% of the values before and after treatment with 8 M urea, respectively, confirming that she had a re-infection rubella during pregnancy.
Comment

Further cases of proven rubella re-infections in pregnancy with details of the outcome for the infant need to be collected in order to reassure patients that rubella re-infection either after natural infection or immunisation need not be an indication for termination of pregnancy.

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REFERENCES


History of Medicine

The healing bird

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Summary

The legend of the caladrius, a bird with prognostic and healing powers, first appeared in early Indian writings as the haridrava — a yellow bird that cured jaundice. In classical Greek mythology it was a nondescript bird but in the medieval bestiaries it became pure white. The caladrius is used in the coats of arms of the South African Medical and Dental Council and also the Medical University of Southern Africa. These appear to be the first use of this medically significant bird in modern heraldry.


'There is another kind of flying animal called the charadrius mentioned in Deuteronomy which is entirely white with no black part at all. His excrement is a cure for those whose eyes are growing dim and he is found in the hall of kings. If someone is ill, whether he will live or die can be known from the charadrius. The bird turns his face away from the man whose illness will bring death and thus everyone knows that he is going to die [Fig. 1]. On the other hand, if the disease is not fatal, the charadrius stares the sick man in the face and the sick man stares back at the charadrius, who releases him from his illness [Fig. 2]. Then flying up to the atmosphere of the sun, the charadrius burns away the sick man's illness and scatters it abroad.'

— Physiologus

Fig. 1. The caladrius — foretelling unfavourable outcome (British Museum).

Fig. 2. The caladrius — foretelling recovery (British Museum).

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