A Case of Congenital Rubella Syndrome and Infection in South East London in 2015: implications for infection control and the public health response

Elizabeth Marchant1, Louise Bishop1, Debbie Flaxman2, Jenni Jagodziński2, Mahesh Nanjundappa2, Prasanna Muniyappa2, Rebecca Cordery1.

1 Public Health England, London, UK  2 University Hospital Lewisham, London, UK

INTRODUCTION

Before the introduction of the MMR vaccination in the UK in 1970, rubella was a common childhood infection. Since then the incidence has declined with just 269 and 365 cases (confirmed by oral fluid IgM antibody tests) in England in 2013 and 2014 retrospectively [1].

Whilst a usually mild disease, rubella infection in pregnancy can cause foetal death and congenital defects known as congenital rubella syndrome (CRS) [2]. Congenital abnormalities may include deafness, cataracts, visual impairment, learning disabilities, and cardiac defects. The risk of CRS and the extent of birth defects depends on the stage of pregnancy at the time the mother is infected. In the first trimester, the risk of CRS is high (up to 90%) and the child is likely to be born with multiple birth defects [2].

Cases of CRS have also fallen significantly; between 1971 and 1975 there were approximately 50 cases a year and 750 associated terminations [3]. Cases are now rare with only 8 cases reported between 2002 and 2011 in the UK [4].

We describe a case of congenital rubella infection and CRS, the risk assessment and control measures, as well as considerations relating to the cessation of rubella susceptibility screening in pregnancy.

RISK ASSESSMENT AND INFECTION CONTROL MEASURES

Infants with CRS may shed virus for long periods of time. Exposure of individuals in the clinical setting therefore required urgent follow-up. The risk assessment considered patients, staff and visitors in the delivery suite and NICU.

Staff:

During and following delivery all foetal bodily fluids, including respiratory droplets were considered infectious. As a result, staff involved in the birth or care of the baby in NICU may have been exposed to rubella, although the risk of transmission was considered low as the Trust has a policy of MMR vaccination for all staff.

Patients and visitors:

Other mothers and babies in the delivery suite did not have direct contact with the birth products or the baby’s bodily fluids. All the infants in the same nursery were nursed in incubators at the time and therefore none of the other babies, mothers, or visitors were considered as having been exposed to the baby’s body fluids or respiratory droplets.

Duration of infectious period in infants with CRS:

Most infants with CRS are excreting at birth, 50-60% have stopped within the first three months, but 10% excrete virus for more than a year [6]. It was therefore agreed that a weekly oral fluid sample be taken for rubella RNA, IgG and IgM to monitor duration of virus excretion. Three consecutive negative samples were required to demonstrate the infant was no longer infectious. This point was reached 14 months after the original diagnosis.

CONCLUSION AND RECOMMENDATIONS

This was the third case of CRS in the UK in 2014 and 2015. The mother of this case is thought to have acquired her infection overseas. The following recommendations have been identified from this case:

- Clinicians are reminded to explore any history of rash-like illness or contact with rash illness in pregnancy, particularly in women born overseas. Clinicians should refer to the PHE viral rash in pregnancy guidance for appropriate testing & management [7].
- Clinicians should consider rubella as a possible cause of intrauterine growth restriction and CRS in infants with consistent congenital abnormalities.
- A previous positive maternal IgG rubella screen should be interpreted with caution and in context. Further testing should be discussed with the local PHE Health Protection Team or the PHE National Infection Service. Early identification of rubella enables a timely risk assessment, infection control measures, and advice to staff and the family to prevent transmission.
- A healthcare worker MMR vaccination policy protects staff and patients from infection, but needs to be implemented universally. Staff working in high risk settings should be prioritised, and those employed by external organisations such as agency staff and students should also be included.

Following a review of evidence by the UK National Screening Committee, rubella susceptibility screening in pregnancy in England, was withdrawn on 1st April 2016. This recommendation was made in the light of very low rubella infection rates and high population uptake of measles, mumps and rubella (MMR) vaccine in the UK. This case does however remind us that rubella infection remains prevalent in many other countries, particularly across Africa and Asia and uptake of vaccinations in these countries is often poor. It serves as a reminder of the importance of MMR vaccine for all women of childbearing age, in particular those arriving in the UK as children or young adults.

THE CASE

In 2015, South East London Health Protection Team was notified of a case of congenital rubella infection and suspected CRS in a 17 day old infant. The mother was born in East Africa and travelled to the UK at around week 12 of pregnancy. Later investigations revealed that the mother had a two day history of a rash type illness shortly before arrival in the UK. She did not seek medical attention for her rash, or raise this at later appointments with healthcare professionals.

At 18 weeks antenatal care commenced and booking bloods included rubella serology. The result, rubella IgG positive, was considered consistent with immunity.

During the pregnancy the mother was referred for specialist care due to intrauterine growth restriction, thought to be due to placental insufficiency. Following a scan at 34 weeks the NHS trust decided to deliver the baby by Caesarean Section due to failure to thrive. After delivery the baby was admitted to the neonatal intensive care unit (NICU) due to prematurity. At birth the baby was noted to have bilateral cataracts and a cardiac murmur. An oral fluid swab and EDTA blood sample were sent to the national reference laboratory. Rubella RNA and IgM were detected in both samples confirming the diagnosis of congenital rubella infection. The clinical symptoms also confirmed this as a case of CRS.

Figure 1a Rubella rash (may be fleeting and non-specific) Source: NHS Choices [4]

Figure 1b Infant with cataracts from CRS Source: US Centre for Disease Control & Prevention [5]

REFERENCES