

False Positive Rubella Test In Pregnancy

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Abstract

A 28 years female pregnant; 15 week +3 days gestational age, G0, P1, A0; presented for routine antenatal care visit in primary health care center. She had done the investigation in private hospital showing rubella +ve IgM, CMV +ve IgG. Taking full history, the patient had simple flu like illness several weeks ago with no treatment is needed, no recent contact with a case of rubella nor recent vaccination. By examination, the patient is clinically normal. Ultrasound is done, no congenital anomaly, no signs of fetal infection, normal fetal wellbeing. I advise the patient to repeat the TORCH panel in 2 weeks later. The result by now; is showing rubella -ve IgM, CMV +ve IgG. Rubella false positive result can occur that require special attention to avoid termination of healthy pregnancy.

Keywords: Rubella test; Immunity; Infections; Prenatal care

Introduction

A clinical diagnosis of rubella may be problematic as many exanthematous diseases may mimic rubella infection. In addition, 50% of rubella infections may be subclinical [1]. A rubella test may be ordered for a pregnant, who has symptoms that a health practitioner suspects are due to a rubella infection. Sometimes pregnant women are tested for rubella IgM as part of their prenatal care even they have no known exposure to rubella [2]. The serologic tests available for laboratory confirmation of rubella infections and immunity vary among laboratories. Enzyme immunoassays are the most commonly accessible diagnostic test for rubella IgG and IgM antibodies and are sensitive and relatively easy to carry out. EIA is the favored testing method for IgM, using the capture technique, even though indirect assays are also acceptable [3]. Latex agglutination tests appear to be sensitive and specific for screening when performed by experienced laboratory personnel. Other tests in limited use to detect rubella-specific IgM include hemagglutination inhibition and immunofluorescent antibody assay [4,5]. "False positive rubella IgM test results have been reported in those with other viral infections as acute Epstein-Barr virus, infectious mononucleosis, cytomegalovirus infection, parvovirus B19 infection and the presence of rheumatoid factor" [6,7].

Case Presentation

About 28 female pregnant; 15 weeks +3 days gestational age, G0, P1, A0 were presented for routine antenatal care visit in primary health care center. The required primary investigations were done in a private hospital showing results (Table 1).

Test	Result
Toxoplasma	-ve
Syphilis	-ve
HIV	-ve

Human parvovirus	-ve
Epstein-Barr virus	-ve
Hepatitis B	-ve
Chickenpox	-ve
Mumps	-ve
Measles	-ve
Rubella	IgM +ve
	IgG -ve
Cytomegalovirus	IgM -ve
	IgG +ve
Herpes	-ve

Table 1: Lab test of TORCH screen.

I was concerned about rubella infection, in Iraq. Termination of pregnancy is required if the fetal infection is established before 20 weeks. Taking the complete history, the patient had simple flu like illness several weeks ago with no treatment was needed, no recent contact with a case of rubella nor recent vaccination. By examination, the patient is clinically normal. Ultrasound was done, no congenital anomaly, no signs of fetal infection, normal fetal wellbeing. I advised the patient to repeat the TORCH panel 2 weeks later. The patient came again with results (Table 2).

Test	Result
Toxoplasma	-ve
Syphilis	-ve
HIV	-ve
Human parvovirus	-ve

Epstein-Barr virus	-ve
Hepatitis B	-ve
Chickenpox	-ve
Mumps	-ve
Measles	-ve
Rubella	-ve
Cytomegalovirus	IgM -ve
	IgG +ve
Herpes	-ve

Table 2: Lab test of TORCH screen.

Differential Diagnosis

Rubella IgM is Cross-reacting antibodies have been described for many infections. Cytomegalovirus infection is associated with false positive results, and also can occur with other viral infections (e.g., acute Epstein-Barr virus [EBV], infectious mononucleosis, parvovirus B19 infection) and rheumatoid factor (RF) [3,6].

Treatment

I ensured the patient explaining the false-positive result.

Outcome and Follow-up

The patient was worried about the results. She was confused whether she continues her pregnancy and trusts the tests results or terminate the pregnancy and be safe.

I counseled the patient about false positive results explaining the mechanism of cross-reaction causing faulty positive rubella tests assuring her that she will have all support she needs whatever was her decision.

The patient kept regular visits to primary health care. By creating a strong partnership with the patient, easy collaboration, and with continuous follow-up, clinically and by ultrasound, the patient completed her pregnancy smoothly.

Discussion

Rubella incidence is low, so a false positive test for IgM rubella antibodies can happen due to cross-reaction with other viruses or the test components that could cross-react with other proteins in the body [3]. This has been explained in few literature due to vaccination programs that reduce rubella incidence but in developing countries is still an issue requiring more attention due to rubella risk to cause congenital rubella syndrome if infection occurs in pregnancy and in

other hand, a false positive test may lead to termination of healthy pregnancy [1]. So a rubella case should be suspected when anyone presented with acute onset of generalized maculopapular rash, which can occur in 50-80% of cases, usually starts on the face and neck then continuing down the body, fever, as temperature greater than 37.2°C or 99.0 F, painful joints, arthritis, lymphadenopathy, and conjunctivitis. Sometimes it could be asymptomatic. In addition to a history of a recent contact to a rubella case and vaccination history of pregnant [1].

A study on rubella serology had been done by Jennifer M Best, Siobhan O'Shea, Graham Tipples, et al. Showing false positive rubella IgM results due to cross-reaction with parvovirus infection B19 [7]. We conclude rubella false positive result can occur that require special attention, particularly in pregnancy to avoid termination of healthy one. As in this case, the patient had past infection with CMV and recovered that may be presented as flue like illness several weeks ago which could lead to cross reaction with CMV IgG giving false positive rubella IgM. CMV infection may be manifested as flu-like illness with persistent fever and fatigue and sometimes it is asymptomatic [8].

We may repeat the IgG/IgM test again in 5-10 days to look for a significant increase in the titer, indicating a recent rubella infection. If IgM+/IgG- this means acute infection or false IgM positive, so 2nd serum should be obtained in 5-10 days later if no rise in IgG titers it is likely false-positive result while if a rise in IgG titers occur, acute infection is suspected so we should discuss pregnancy outcome [3].

Learning Points

- Rubella infection in pregnancy require special attention to avoid termination of healthy one.
- Rubella false positive result can occur.
- In positive rubella serology may repeat the IgG/IgM test again in 5-10 days to look for a significant increase in the titer, indicating a recent rubella infection.

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