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PRACTICE

10-MINUTE CONSULTATION

A suspected viral rash in pregnancy

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A pregnant woman at 12 weeks' gestation seeks help for a red rash covering her back and chest. She is worried that the rash might be caused by a virus. She is originally from Bangladesh and is unsure about her vaccination history.

Viral exanthema can cause rash in a pregnant woman and should be considered even in countries that have comprehensive vaccination programmes. In the UK, for example, three cases of congenital rubella syndrome have been notified in recent years in women born outside the UK.[1] This article focuses on viral rashes. For a more general overview of rash in pregnancy, see the review by Vaughan-Jones et al.[2]

Vaccination coverage for viral infections varies globally. The World Health Organization estimates that adult varicella immunity is greater than 95% in the US but only 75% in India.[3] Similarly, global measles and rubella immunisation coverage is only 85% and 44%, respectively.[4]

These infections have consequences for mother and fetus. Measles and rubella can cause intrauterine death. Intrauterine infection with rubella can lead to congenital rubella syndrome in the liveborn baby, characterised by deafness, eye abnormalities, congenital heart disease, and learning disability.[5 6] Meanwhile, the current Zika virus epidemic has garnered international attention for its link to microcephaly and birth defects.[7]

What you should cover

History

Ask about

- Location of the rash; speed, and date of onset.

- Associated symptoms: fever, sore throat, and malaise suggest an infectious cause. Itching is usually suggestive of a non-viral cause (fig 1⇓).[8]

- Vaccination. Has the patient received two doses of measles, mumps, and rubella vaccine? Public Health England recommends asking pregnant women for this information at their initial antenatal appointment.[4] If available, review documented evidence of vaccination, as patients might not recall or be familiar with the vaccines.[9] In some countries, measles and rubella vaccines are administered separately and you might need to ask about each.

- History of chickenpox or if the woman has received the vaccine.

- Antibody testing for viral infections in previous pregnancy, or if she has been vaccinated since.

- Country of origin, as vaccination coverage can vary.

- Recent travel to countries where rubella and measles are endemic. Travel to South America or the Caribbean in the last two weeks should prompt consideration of Zika virus.[10]

- Contact with unwell people with a rash, or with someone who has travelled to an endemic country recently.

- Sexual history for suspected Zika virus infection and HIV.[7]

- Duration of present pregnancy. Rubella poses the highest risk in the first trimester. Varicella can cause congenital varicella syndrome if the mother is infected in the first 20 weeks of pregnancy, or neonatal chickenpox if infected in the third trimester.[8]

- Drug history. If the patient is on immunosuppressants or steroids, herpes zoster may be more likely. Some medications can cause rashes and a careful drug history is warranted.

Examination

Assess general wellbeing and vital parameters. A fever should prompt consideration of infectious causes.

Examine the rash:

Is the rash vesicular or maculopapular? (fig 1, fig 2, fig 3unspecified fig) A vesicular rash suggests varicella or herpes infection.[11] If maculopapular, consider other viral infections.

Distribution of the rash: a viral exanthem is frequently found on the trunk and limbs. Varicella often follows a dermatomal

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What you need to know

- Consider country of origin in a woman presenting with a rash in pregnancy and ask for immunisation history.
- Test for measles and rubella IgM and IgG antibodies, particularly if immunisation history is not clear.
- Refer women with an active infection to the fetal medicine unit for fetal monitoring.

pattern, and herpes simplex can present with genital lesions. Appearance of the rash might vary based on skin complexion.

Associated examination findings: neck stiffness could suggest meningitis; generalised lymphadenopathy could suggest HIV.

Figure 1⇓ presents one approach suggested for rash in pregnancy.[8] Table 1⇓ shows common viral causes of rash in pregnancy.

What you should do

Investigations

If a viral exanthem is suspected, offer testing for measles, rubella, parvovirus B19, varicella, and possibly Zika virus. Take blood for serology to test for IgM and IgG antibodies.[15] See box 1 for information to be included when requesting the test. Where available, polymerase chain reaction for virus isolation can be requested.

In general, a positive IgM and IgG demonstrate acute infection; but IgG only positivity reflects previous exposure or vaccination.[16]

Counsel the woman regarding the need to screen for these conditions. A helpful phrase might be, "I'm unsure of the cause of the rash at this point, but I will do x, y, and z to investigate what's causing it."

Management

Arrange a follow-up appointment to discuss the results and prepare the patient for possible referral to a fetal medicine unit if the results indicate active infection.[16 17]

Be prepared to answer questions about potential risks to the baby, as this will likely be her main concern. Explain that positive serology in the mother may not correlate with infection in the fetus. Avoid using words like "testing the fetus" or "termination of pregnancy," as at this stage it is too early to predict the effect on the fetus from initial investigations. The fetal medicine unit might monitor with frequent ultrasonography rather than perform invasive fetal testing.

Advise avoiding contact with other pregnant women or children to minimise transmission. If Zika is suspected, advise abstaining from sexual intercourse, and to use mosquito nets and repellants.[13] Most women will need MMR vaccination after the pregnancy if non-immune to measles or rubella.[18]

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Box 1: Information to be recorded on the blood test request

- Name, age, date of birth, address
- Duration of pregnancy in weeks
- Date of onset of rash, clinical features, type and distribution of rash
- Antibody testing, if known
- Vaccine history including dates and places, if known
- Any known contacts who are unwell with rash, and dates of contact

Source: adapted from Health Protection Agency Rash Guidance Working Group, *Guidance on viral rash in pregnancy*; 2011

Education into practice

Do you routinely ask for vaccination history in women of child bearing age when they register with your practice?

How patients were involved in the creation of this article

We asked a pregnant woman with a rash to review the article. She said, "If there's anything that can be done to prevent things from worsening (eg, situations I should avoid, etc). that information would be quite helpful. I would likely be quite concerned about the health of the baby, and I would want the GP to be willing to answer any questions I have." We thereby inserted specific ways the GP could address concerns.

Table

Table 1| Common viral causes of a rash in pregnancy

Infection	Epidemiology	Assessment	Investigation in primary care	Management	Possible outcomes
Rubella	23 cases of infection in pregnancy in the UK since 2005; three recent cases of congenital rubella syndrome.[1] Endemic to South East Asia: Bangladesh reported 66 cases of congenital rubella syndrome in 2014[12]	Maculopapular rash in pregnancy; exposure to a person with a rash in the last two weeks. Vaccination history	Blood for PCR* and serology (IgM and IgG)	Referral to fetal medicine unit	Intrauterine death. Congenital rubella syndrome resulting in sensorineural deafness, learning difficulties, congenital heart disease, and other deformities in the child
Measles	Outbreaks throughout the world. Endemic to South East Asia and Africa. Former Soviet republics affected[4 12]	Maculopapular rash, Koplik's spots on buccal mucosa, fever; exposure to a person with a rash in the last two weeks. Vaccination history	Blood for PCR and serology (IgM and IgG)	Referral to fetal medicine unit	Preterm delivery and stillbirth. Learning difficulties in live births
Zika[13]	75 countries report Zika virus transmission. Major areas affected: South America, Central America, Caribbean	Maculopapular rash, fever within two weeks of travel to endemic area, sexual history	Blood for PCR and serology (IgM and IgG)	Referral to fetal medicine unit	Guillain-Barré syndrome in the mother. Microcephaly is the most commonly reported abnormality in the baby
Varicella[14]	In the UK, varicella complicates three in 1000 pregnancies; more common in women born outside the UK	History of exposure to chickenpox; no medical history of chickenpox. Vesicular rash in a painful dermatomal distribution	Blood for PCR and serology (IgM and IgG)	Referral to fetal medicine unit. The mother may need varicella intravenous immunoglobulin if she presents within 10 days of an exposure and no rash clinically; PO aciclovir can be used in those with a rash	Congenital varicella: limb defects, ocular and auditory defects, learning difficulties. Neonatal varicella: severe chickenpox

*PCR: Polymerase chain reaction

Figures

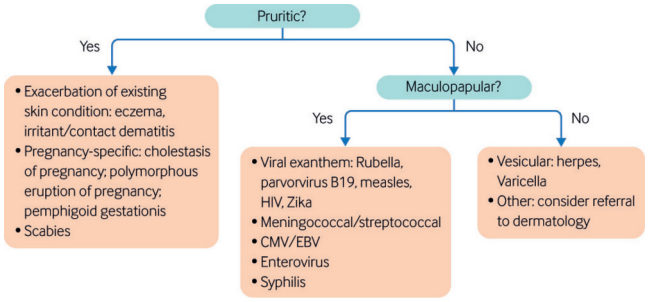

Fig 1 Diagnostic flow chart for rash in pregnancy.[8] CMV: cytomegalovirus. EBV: Epstein Barr virus. Source: adapted from Health Protection Agency Rash Guidance Working Group, *Guidance on viral rash in pregnancy*; 2011

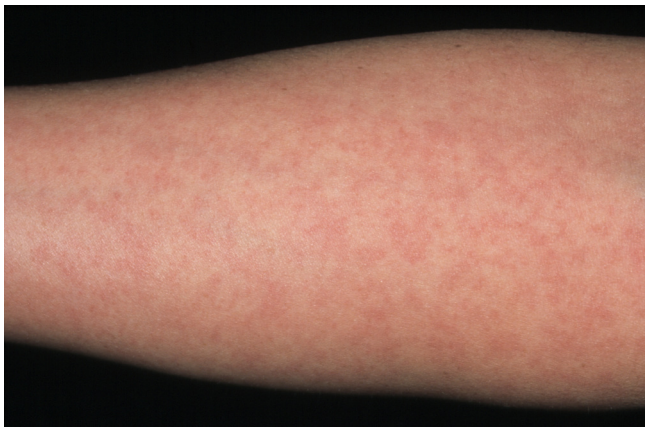

Fig 2 Rash caused by rubella virus

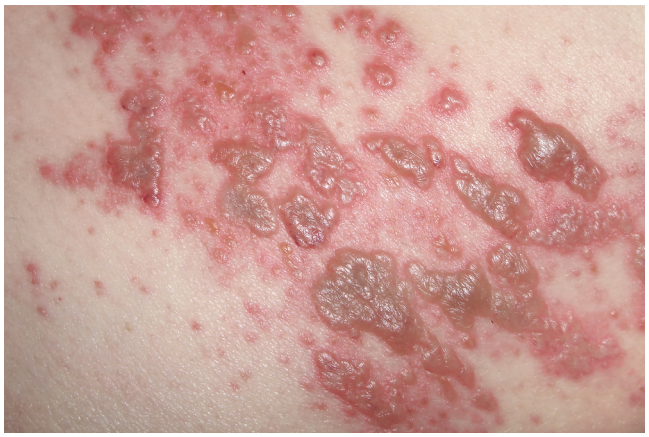

Fig 3 Varicella rash (Shingles) showing vesicles