Aneurin Bevan University Health Board

Varicella Zoster in Pregnancy Guidelines

(Chicken Pox)

N.B. Staff should be discouraged from printing policy documents. This is to avoid the risk of out-of-date printed versions of the document. Please refer to the Intranet for the current version.

Status: Issue 5
Approved by: Maternity Clinical Effectiveness Forum
Owner: Maternity Services
Issue date: 01 November 2022
Review by date: 01 November 2025
ABHB/F&T/0412

Contents:

1 Executive Summary

This document is a procedure designed to support safe and effective practice.

1.1 Scope of guideline

This guideline applies to all clinicians working within maternity services.

2 Aims

To provide support for clinical decision making.

3 Responsibilities

The maternity management team.

4 Training

Staff are expected to access appropriate training where provided. Training needs will be identified through appraisal and clinical supervision.

5 Monitoring and Effectiveness

Local service Improvement Plan will guide monitoring and effectiveness.

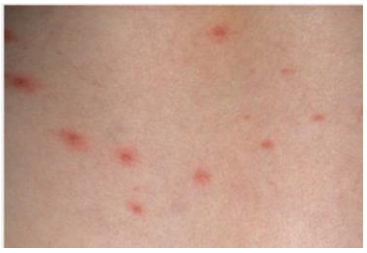
6 Introduction

Varicella Zoster Virus (VZV) is one of the 8 herpes viruses known to infect humans. Primary VZV infection is known as chickenpox which is a common, usually mild self-limiting childhood infection. Chickenpox tends to be more severe in adults and there is a higher risk of developing complications such as pneumonia or encephalitis.

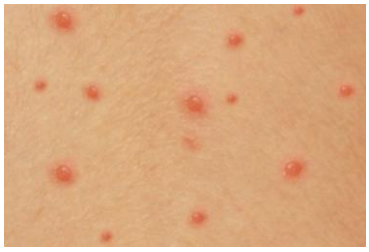
7 Signs and Symptoms

The primary infection (chicken pox) is characterised by fever, malaise and a pruritic rash that develops into crops of maculopapules, which become vesicular and crust over before healing. The **incubation period** (time between exposure to virus and symptoms developing) is between **1 and 3 weeks** and the disease is infectious 2 days before the rash appears and continues to be infectious until the vesicles crust over (usually 5 days after they first appeared).

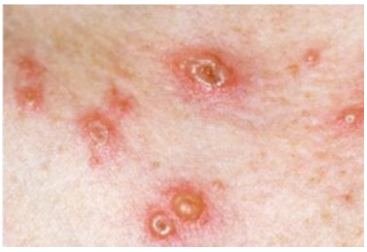
1. Crops of pruritic rash:



2. Become vesicular:



3. Then crust over:



After clinical symptoms have resolved, the virus lays dormant in nerve root ganglia and can reactivate years later as shingles. This presents as a vesicular erythematous skin rash in a dermatomal distribution and is also sometimes known as herpes zoster. The exact reason for reactivation is unknown but is thought to be associated with decreased immunity or stress. A reactivation in the geniculate ganglion of the facial nerve is known as Ramsay Hunt Syndrome.

Infection with Varicella Zoster Virus (VZV) in pregnancy may cause serious maternal morbidity or mortality. It may also cause fetal varicella syndrome (FVS) and varicella infection of the newborn, which includes congenital varicella syndrome (CVS) and neonatal varicella.

8 Transmission

VZV is highly contagious and transmitted by respiratory droplets and by direct personal contact with vesicle fluid or indirectly via fomites (e.g. skin cells, hair, clothing and bedding). Significant contact is defined as face to face contact > 5min, ≥ 15 minutes in the same room, household contact or a stay in the same ward. The risk of infection following contact with herpes zoster that is not in an exposed area (e.g. thoracolumbar shingles) is remote but can occur.

9 Immunity

Immune = had chicken pox: VZV IgG positive

Not immune = never had chicken pox: VZV IgG negative

A person who has never had chicken pox is not immune and their blood would be negative for varicella-zoster virus immunoglobulin G (VZV IgG). These patients can catch chicken pox from contact with chicken pox or shingles. It is not possible to contract shingles from someone with chickenpox.

Over 90% of individuals >15 years old in England and Wales are seropositive for VZV immunoglobulin G (IgG) antibody. Therefore, although contact with chickenpox is common in pregnancy, primary VZV infection in pregnancy is uncommon; it is estimated to complicate 3 in every 1000 pregnancies. Women from tropical and subtropical areas are more likely to be seronegative for VZV IgG and are therefore more susceptible to the development of chickenpox in pregnancy.

Universal immunity testing is not done in the UK. To check a pregnant patient's immunity status i.e., post VZV contact, call the serology laboratory on 44505 to ask them to test the patient's booking blood for VZV IgG. If there is no booking blood in storage, send one SST II yellow bottle (same as for electrolytes) to check for VZV IgG.

10 Preventing Varicella

10.1 Preventing Varicella Pre-Pregnancy

Non-immune pregnant patients are advised to avoid contact with chicken pox and shingles during the pregnancy and to seek medical attention should they do so.

Those who are not immune can be offered immunisation pre-pregnancy or postpartum but **not during pregnancy**. Women who are vaccinated postpartum can be reassured that it is safe to breastfeed. It is a live attenuated vaccine administered in two separate doses 4 – 8 weeks apart. If a woman of reproductive age is vaccinated, she should be advised to avoid pregnancy for 4 weeks after the second dose and to avoid contact with susceptible pregnant women should a post-vaccination rash occur.

10.2 Preventing Varicella During Pregnancy

If a pregnant woman gives a history of contact with chicken pox or shingles, take a careful history and ascertain her immunity (see 'Immunity' above). If she is immune, no further action needed and the patient can be reassured and discharged.

History taking...

- the type of VZV infection
- timing of the exposure
- the closeness and duration of contact

Significant contact is defined as:

- ≥ 15 minutes in the same room

- Face to face contact > 5min
- Household contact
- Stay in the same ward

***Pregnant women with an uncertain or no previous history of chickenpox, or who come from tropical or subtropical countries, who have been exposed to infection should have a blood test to determine VZV immunity or non-immunity*.**

If the pregnant woman is not immune to VZV and she has had a significant exposure, she should be offered varicella-zoster immunoglobulin (VZIG) as soon as possible. VZIG is effective when given up to 10 days after contact (in the case of continuous exposures, this is defined as 10 days from the appearance of the rash in the index case). Non-immune pregnant women who have been exposed to chickenpox should be managed as potentially infectious from 8–28 days after exposure if they receive VZIG and from 8–21 days after exposure if they do not receive VZIG. Women who have had exposure to chickenpox or shingles (regardless of whether or not they have received VZIG) should be asked to notify their healthcare provider if a rash develops. In this case, she should be isolated from other pregnant women. A second dose of VZIG may be required if a further exposure is reported and 3 weeks have elapsed since the last dose.

VZIG dose = 1g IM
Store in a fridge at 2–8°C and protect from light

VZIG is recommended for post-exposure prophylaxis and is not appropriate treatment for patients with clinical chickenpox. The rationale for administration of VZIG is that it may prevent or attenuate chickenpox in non-immune individuals and it may reduce the risk of development of FVS.

Note that VZIG is manufactured from the plasma of human blood donors. Adverse effects include pain and erythema at the injection site. The risk of anaphylaxis is cited as less than 0.1%. No case of blood-borne infection has been reported with the use of VZIG.

Chicken Pox in Pregnancy

10.3 Risks to the Mother

Varicella infection in adults is associated with increased morbidity including pneumonia, hepatitis and encephalitis. Rarely, it may result in death.
Red flags for potentially life-threatening chicken pox:

- Respiratory symptoms
- Photophobia
- Seizures
- Drowsiness
- Haemorrhagic rash
- Bleeding
- Dense rash with or without mucosal lesions

If she smokes cigarettes, has chronic lung disease, is immunosuppressed (including those who have taken systemic corticosteroids in the preceding 3 months) or is in the second half of pregnancy, a hospital assessment should be considered even in the absence of complications.

10.4 Management

VZIG has no therapeutic benefit once chickenpox has developed and should therefore not be used in pregnant women who have developed a chickenpox rash.

Oral Aciclovir 800mg 5 times a day 7/7 should be prescribed for pregnant women with chickenpox if they present within 24 hours of the onset of the rash. Aciclovir is not licensed for use in pregnancy and the risks and benefits of its use should be discussed with the woman. Data are accumulating to suggest that there is no increase in the risk of major fetal malformation with Aciclovir exposure in pregnancy. Intravenous Aciclovir should be given to all pregnant women with severe chickenpox.

Women should avoid contact with potentially susceptible individuals, e.g. other pregnant women and neonates, until the lesions have crusted over. This is usually about 5 days after the onset of the rash. Symptomatic treatment and hygiene is advised to prevent secondary bacterial infection of the lesions.

Appropriate treatment should be decided in consultation with a multidisciplinary team that includes an obstetrician or fetal medicine specialist, a virologist and a neonatologist. Women hospitalised with

varicella should be nursed in isolation from other pregnant women, neonates and non-immune staff.

The timing and mode of delivery of the pregnant woman with chickenpox must be individualised. When epidural or spinal anaesthesia is undertaken in women with chickenpox, a site free of cutaneous lesions should be chosen for needle placement.

10.5 Risks to the Fetus

There is no increased risk of spontaneous miscarriage in the first trimester. If the pregnant woman develops varicella or shows serological conversion in the first 28 weeks of pregnancy, she has a small risk of fetal varicella syndrome (FVS) and she should be informed of the implications.

FVS is characterised by one or more of the following:

- Skin scarring in a dermatomal distribution
- Eye defects (microphthalmia, chorioretinitis or cataracts)
- Limb hypoplasia
- Microcephaly
- Cortical atrophy
- Mental retardation
- Dysfunction of bowel and bladder sphincters)

It does not occur at the time of initial fetal infection but results from a subsequent herpes zoster reactivation in utero and only occurs in a minority of infected fetuses. FVS has been reported to complicate maternal chickenpox occurring as early as 3 weeks and as late as 28 weeks of gestation. There is are no documented cases of typical FVS following third trimester maternal infection. Pooled data (see RCOG Guideline) suggests approximately 1% chance of FVS if maternal chicken pox occurs.

10.6 Prenatal Diagnosis of Fetal Varicella Infection

Women who develop chickenpox in pregnancy should be referred to a fetal medicine specialist, at 16–20/40 or 5 weeks after infection for detailed ultrasound. A time lag of at least 5 weeks after the primary maternal infection is advised because ultrasound performed at 4 weeks has failed to detect abnormalities. Ultrasound findings suggestive of FVS include limb deformity, microcephaly, hydrocephalus, soft tissue calcification and growth restriction can be detected. Fetal MRI may provide additional information.

VZV can be detected in amniotic fluid. The presence of VZV DNA has a high sensitivity but a low specificity for the development of FVS. No case of FVS occurred when amniocentesis was negative for VZV DNA. The negative predictive value of this combination of amniotic fluid testing and ultrasound is good but the positive predictive value is poor therefore women who develop varicella infection during pregnancy should be counselled about the risks versus benefits of amniocentesis to detect varicella DNA. Amniocentesis should not be performed before the skin lesions have completely healed.

10.7 Risks to the Neonate

If maternal infection occurs in the last 4 weeks of a pregnancy, there is a significant risk of varicella infection of the newborn. A planned delivery should normally be avoided for at least 7 days after the onset of the maternal rash to allow for the passive transfer of antibodies from mother to child, provided that continuing the pregnancy does not pose any additional risks to the mother or baby. A neonatologist should be informed of the birth of all babies born to women who have developed chickenpox at any gestation during pregnancy. Women with chickenpox should breastfeed if they wish to.

Varicella infection of the newborn (previously called congenital varicella) refers to VZV infection in early neonatal life resulting from maternal infection near the time of delivery or immediately postpartum, or from contact with a person other than the mother with chickenpox or shingles during this time. The route of infection could be transplacental, ascending vaginal or result from direct contact with lesions during or after delivery.

If maternal infection occurs 1–4 weeks before delivery, up to 50% of babies are infected and approximately 23% develop clinical varicella, despite high titres of passively acquired maternal antibody. Severe chickenpox is most likely to occur if the infant is born within 7 days of onset of the mother's rash or if the mother develops the rash up to 7 days after delivery. For babies born to mothers who have had chickenpox within the period 7 days before to 7 days after delivery, it is therefore vital that the neonate receives prophylaxis as soon as possible with VZIG with or without Aciclovir; there is no need to test in these circumstances. If there are active chickenpox lesions close to the nipple, they should express breast milk from the affected breast until the lesions have crusted over. The expressed breast milk may be fed to the baby who is receiving treatment with VZIG and/or Aciclovir.

References

- [1] RCOG Green-top Guideline No. 13 published January 2015 (due to be updated February 2019).
- [2] NHS https://www.nhs.uk/conditions/chickenpox Accessed 10/10/18

At booking, if no previous history of chickenpox: Advice to avoid contact with chickenpox and shingles and to report immediately of any contact. If received varicella vaccine, avoid pregnancy for 4 weeks

If history of chickenpox in past

Significant exposure:
- ≥ 15 minutes in the same room
- Face to face contact > 5min
- Household contact
- Stay in the same ward

No

Reassure

Reassure

Ascertain immune status for chicken pox (check booking sample if available)
Can be requested by GP/ community midwife

VZV IgG negative

VZV IgG positive

Commence on VZIG if <10days since contact
Pt potentially infectious for 8-28days
Discuss postpartum varicella vaccination
A further dose of VZIG is required if further exposure has occurred after 3 weeks since last dose

If pt develops chicken pox

Indications for referral to hospital
If pt develops respiratory, neurological symptoms or haemorrhagic rash
If pt smokes cigarettes and has chronic lung disease
Pt immunosuppressed (taken systemic corticosteroids in the preceding 3 months)

Maternal
Should immediately inform the GP/ hospital.
Should avoid contact with susceptible individuals until the lesions crust
Oral Aciclovir (800mg 5 times a day for 7 days) should be started within 24 hrs of onset of rash and if more than 20 weeks of gestation
Aciclovir should be considered before 20 weeks of gestation
Maternal risks of pneumonia (10%), hepatitis and encephalitis and, occasionally, mortality
Avoid delivery at least for 7 days after onset of rash to allow for passive transfer of antibodies (earlier delivery maybe considered in respiratory failure secondary to pneumonia)
If severe infection for IV Aciclovir
Inform paeds at delivery

1st tri: No increased risk of miscarriage
<28weeks: small risk of FVS
Refer to fetal med between 16-20 weeks or 5 weeks after infection