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Regional Guidelines for the Diagnosis and Management of Acute Parvovirus B19 Infection in Pregnancy
M114 V01

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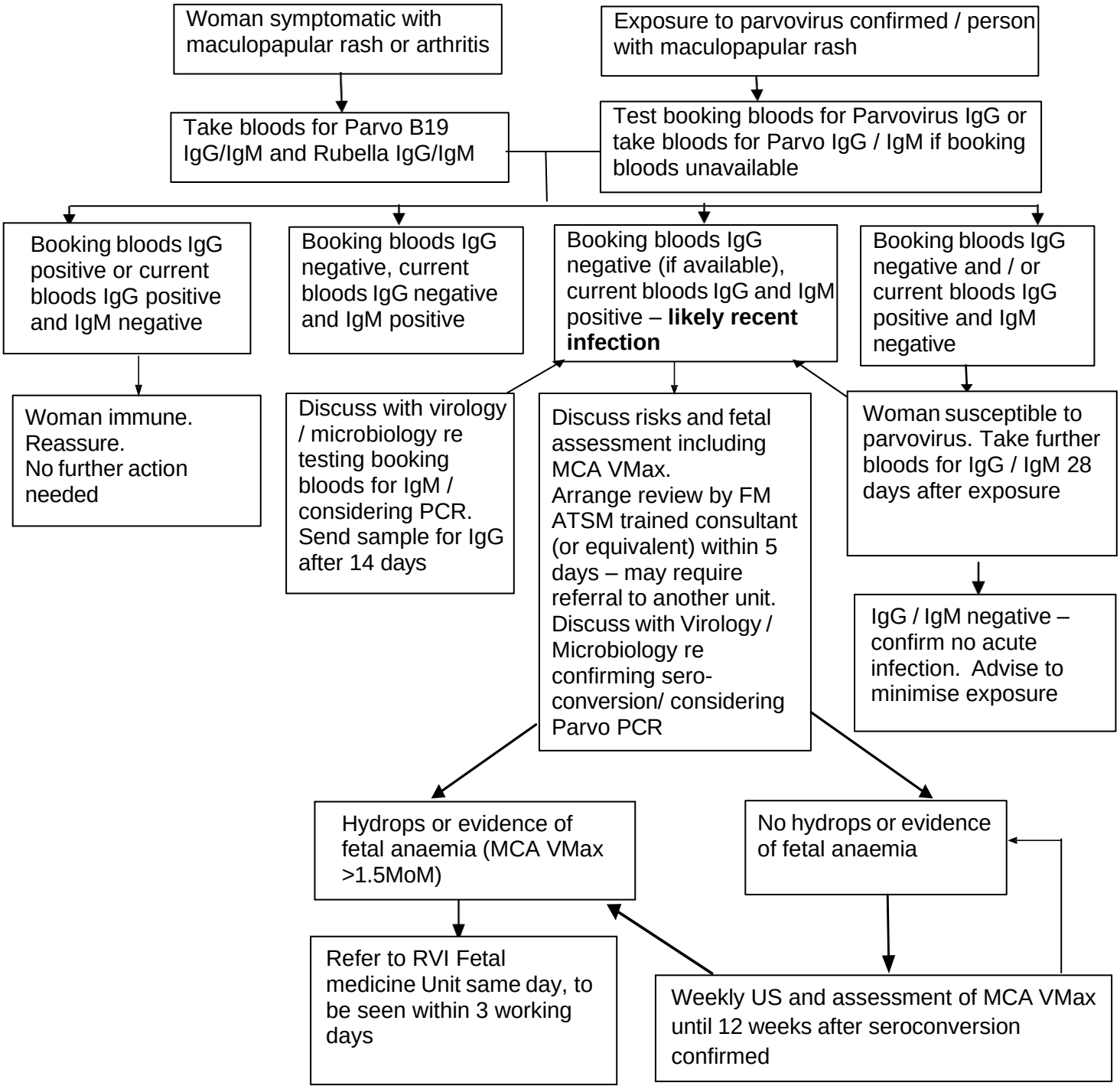
Flowchart for Diagnosis and Management of Parvovirus



North East and North Cumbria Fetal Medicine Network

Diagnosis and Management of Acute Parvovirus B19 Infection in Pregnancy

Parvovirus B19 is a DNA virus that causes ‘slapped cheek syndrome’ in children. It is commonly spread by respiratory secretions or hand to mouth contact, and epidemics occur about every 4-5 years.

Many people remain asymptomatic, but if symptoms (rash and arthralgia) do occur, they are usually present after the person is no longer infectious.

25-50% of the pregnant population have not had prior parvovirus infection. High risk groups for infection during pregnancy are women with primary or preschool aged children, and those that work in child day care, nurseries, or schools.

Maternal parvovirus infection is transmitted to the fetus in up to 33% of cases. Most infected fetuses have spontaneous resolution with no adverse effects.
If infection occurs before 20 weeks gestation, the pregnancy loss rate is 13%, and after this is 0.5%. Approximately 4% of babies will develop non-immune hydrops, mostly thought to be as a result of suppression of fetal haematopoesis and subsequent anaemia. The number of babies who are diagnosed with fetal anaemia and successfully treated before hydrops develops is likely to be somewhat higher but is not fully known. Long term neurodevelopmental delay is possible as a result of severe anaemia but is not associated with parvovirus in the absence of anaemia.

Fetal anaemia can be managed with supportive fetal in utero transfusion until infection resolves and fetal haematopoesis resumes, and in the majority of cases this will result in a live birth with normal neurodevelopmental outcome. Individualised counselling regarding prognostic indicators will happen in the Fetal Medicine Unit.

In general, the earlier fetal anaemia is detected, the better the outcome. The regional guideline is aimed at accurate detection of women who have contracted parvovirus, early referral to a specialist who can assess the fetus for evidence of anaemia in the risk period, and early referral to the tertiary FMU for consideration of fetal in utero transfusion if fetal anaemia is suspected.

Recommendations

1. Routine screening for parvovirus immunity in pregnancy is not recommended

2. Pregnant women who are symptomatic with maculopapular rash or arthritis, should have bloods taken for Parvovirus B19 IgG and IgM status. All women with rash in pregnancy should also be investigated for rubella (IgM and IgG) regardless of vaccine history.

3. Pregnant woman who are potentially exposed to parvovirus (slapped cheek disease, individual with a maculopapular rash) should if possible have their booking sample tested for parvovirus IgG (This can be arranged by contacting the local laboratory). If testing of the booking sample is not possible a current sample should be sent for IgG and IgM testing.

    a. If IgG positive and IgM negative (or IgG positive on a pre-contact sample): the woman is immune and can be reassured – no further action is needed

    b. If IgG and IgM are negative (or IgG negative on a pre-contact sample): the patient is susceptible to parvovirus infection and a further sample should be taken 28 days after exposure (or earlier if illness develops) as infection is often asymptomatic. If there is no evidence of infection after 28 days, the woman does not have acute infection but remains susceptible. She should be advised to minimize exposure as much as possible (which may include workplace adjustments).

4. If IgM and IgG are positive, then this indicates possible acute Parvovirus B19 infection. The following should happen:

    a. Discuss with Virology/Microbiology regarding testing of booking sample to confirm seroconversion and consider parvovirus B19 PCR.

    b. Inform the woman of the risks of fetal transmission and anaemia

    c. Arrange review by a consultant with Fetal Medicine ATSM or equivalent within 5 working days (either within local unit or by referral to another regional unit). Do not delay this while awaiting any further investigation results

    d. Weekly ultrasound with assessment of presence of fetal hydrops and measurement of MCA VMax (from 16 weeks gestation) should be arranged until 12 weeks after confirmed seroconversion, to detect the development of fetal anaemia. This may happen locally if there are appropriately trained staff (ie FM ATSM trained medical staff or equivalent, or specialist sonographers who have completed the appropriate training package), or be carried out in another Trust if necessary. MCA VMax should be plotted on a reference range chart (Appendix 1). If the VMax is >1.5 MOMs – ie above the action line, the patient should be referred to the regional Fetal Medicine Centre at the RVI the same day. They will be seen within 3 working days for assessment and consideration of intrauterine transfusion if necessary.

5. If IgM is positive but IgG negative. This may reflect very recent infection, or be non-specific (false positive). Discuss with virologist/microbiologist regarding parvovirus B19 PCR/ testing of booking sample and send a further sample in two weeks time to assess for IgG seroconversion.

    a. If it is not possible to exclude infection follow all other steps as if IgG and IgM positive – ie referral and weekly US assessment, until infection status is established.

6. If a woman has confirmed parvovirus infection and baby is born within 12 weeks of seroconversion the neonatal/paediatric team should be informed, and cord bloods taken for full blood count +/- parvo PCR.

7. If there are any concerns or questions contact the regional Fetal Medicine Centre at the RVI.

Audit & Monitoring

1. Compliance with recommended fetal monitoring protocol in susceptible cases (standard >90%)
2. Review of any parvovirus pregnancy loss at the perinatal mortality meeting

References

PHE rash in pregnancy
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/322688/Viral_rash_in_pregnancy_guidance.pdf

Patient details: