PREGNANCY AND BREASTFEEDING

KEY POINTS

- It is common to develop external genital warts in pregnancy, probably due to altered immunity and increased blood supply.
- Genital warts can proliferate and become friable; monitoring is recommended.
- Transient HPV colonisation in the neonate is common, but persistent infection is unusual.
- It is extremely rare for babies to develop clinical anogenital HPV.
- Recurrent respiratory papillomatosis (RRP) is the most common benign laryngeal tumour in children and is thought to be caused by HPV acquired during passage through the birth canal of an infected mother (200 times more likely with clinical warts than subclinical). Types 6 and 11 are most commonly involved. The incidence is ~4-5 per 100,000 children.
- Caesarean section has not been shown to significantly reduce maternal-foetal transmission.
- Smaller genital warts may not require treatment during pregnancy because spontaneous resolution often occurs after delivery.
- If treatment is being considered, ablative methods, e.g. cryotherapy or diathermy, should be used.

HPV transmission during pregnancy and delivery

HPV DNA has been detected in amniotic fluid, raising the possibility of ascending infection, and HPV DNA has been detected in the peripheral blood mononuclear cells of mothers and in cord blood samples.[1] Although this may indicate transmission via a haematogenous route, transmission via microscopic tears in the placental membranes, as occurs with other organisms, is a more likely explanation.[2] HPV can be transferred from mothers to their offspring, probably from an infected birth canal.[3] It is difficult to quantify the risk to these babies, but it appears low.[4,5] There is no correlation between the presence of HPV DNA in the baby and the presence or absence of known clinical or virologic infection in the mother.

Reported neonatal transmission rates for HPV vary widely, although larger studies using more recent HPV DNA technology indicate that transmission rates are low.[3,6] In a study of 574 women, 47.1% and 24.4% of those aged ≤24 and >24 years, respectively, were identified as being HPV DNA positive (mainly in the third trimester), and 1.6% of newborns were HPV DNA positive at a mean of 65 hours after birth.[4] Non-concordance between parental and neonatal HPV types suggests the possibility of maternal infection acquired antenatally at untested intervals during pregnancy or, in the case of oral infection, from other contacts after birth.[7]

The duration of viral shedding and/or persistence of HPV DNA on the skin of infected babies remains unclear. Some authors have reported persistence of HPV DNA to 2 years of age,[8,9] but other longitudinal studies have found almost no evidence of persistent perinatally acquired infection.[5,10] Follow-up studies of infants from whom HPV DNA was isolated at birth show that the virus becomes undetectable in many, indicating that contamination rather than true infection has occurred.[11] It has also been shown that HPV 16 antibodies detected at birth will clear from the infant within 10 months, but not from the mother.[11]

Although Caesarean section reduces the risk of HPV isolation from the neonate, it has not been shown to significantly reduce neonatal transmission of HPV or the rate of laryngeal papillomatosis in offspring (see below).[12] Many studies have been limited by lack of long-term follow-up and because they only assessed HPV positivity rates after birth.[13] Caesarean delivery should not be performed solely to prevent transmission of HPV infection to the newborn. In rare instances, Caesarean section delivery may be indicated for those with very large genital warts if the pelvic outlet is obstructed or if vaginal delivery would result in excessive bleeding.

Persistent infection with HPV 16 and 18 (but not other HPV types) has been associated with pre-term birth.[14]

In summary, although HPV infection is frequently detected in pregnant women, detection of HPV in newborns is uncommon and is likely to be due to contamination.

Laryngeal papillomatosis in offspring

HPV types 6 and 11 can cause laryngeal papillomatosis in infants and children, although this is rare. Danish registry data showed a laryngeal papillomatosis incidence of seven per 1000 offspring from mothers with a history of external genital warts.[12] In the UK, the previously reported overall incidence of laryngeal papillomatosis was 3.5 per million person-years and the prevalence was four cases per 100,000 children.[15] Although there appears to be an association between maternal genital warts during vaginal delivery and laryngeal papillomatosis, the route of transmission (transplacental, perinatal, or postnatal) is not completely understood.

HPV DNA can be isolated from aerodigestive swabs in a third to a half of offspring born to mothers with genital warts, but the risk of developing recurrent respiratory papillomatosis (RRP) is approximately 1 in 400.[16] The upper limits of the incubation period from birth to clinical infection have not been established, but in laryngeal disease may be as long as 5 years.[17,18] Children can present with RRP at any age but most commonly as age 3–4 years; progressive hoarseness is the most common symptom, but recurrent pneumonia or breathing difficulties due to lower respiratory tract involvement have been reported.[12,19]

Treatment during pregnancy

Removal of genital warts during pregnancy is often requested by the patient and can be performed with ablative methods.[20]

Recommendations

- Appropriate treatments for external genital warts during pregnancy include cryotherapy, surgical removal and laser ablation.
- Podophyllin and podophyllotoxin should not be used in pregnancy (maternal and foetal deaths have been reported following the use of podophyllin for large vascular warts). **Grade C**
- Use of imiquimod during pregnancy is not recommended.
- Caesarean section does not significantly reduce vertical transmission and is only indicated when genital warts are likely to cause obstruction of the pelvic outlet or excessive bleeding. **Grade B**
- Treatment during breastfeeding:

- The use of podophyllotoxin (and podophyllin) are not recommended in individuals who are breastfeeding because of systemic absorption.
- The New Zealand Formulary states that imiquimod can be used during breastfeeding; no quantifiable drug levels are detected in breast milk (although the manufacturers give no specific instructions on the use of imiquimod during lactation).
- Ablative methods can be used during lactation.

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