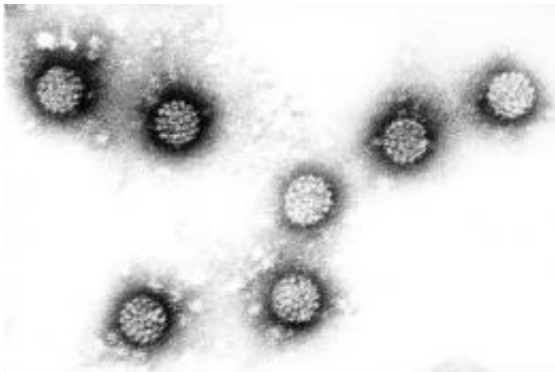


HPV infection of placentas linked to pregnancy complications

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Electron micrograph of human papilloma viruses. Credit: Hanswalter Zentgraf, German Cancer Research Center

In a landmark study, University of Otago researchers have found that human papilloma virus (HPV) can infect the placenta and is linked to several pregnancy complications, including the potentially fatal disorder pre-eclampsia.

The research, newly published in the US journal *Modern Pathology*, was based on a study of 339 of 720 placentas collected through the 2009-2014 Otago Placenta Study (OPuS).

The Department of Pathology and Department of Women's and Children's Health researchers used multiple techniques to show that HPV had infected three-quarters (253) of the placentas studied.

The study found that overall, having an infected placenta meant delivery occurred about one week earlier than expected, and in a quarter of positive cases, this meant a [premature delivery](#). Ten per cent of infected placentas also developed another infection of the membranes called acute chorioamnionitis.

Study lead author Dr Noelyn Hung says that not every infected placenta will have problems; it depends on the pattern of infection, and this is likely influenced by the mother's immune system.

The researchers described three different patterns of infection in the placenta, and one of these patterns, (15% of cases) was also associated with lowered foetal birth weight (foetal growth restriction), in addition to prematurity and acute chorioamnionitis.

The team also found that of these HPV-positive placentas, 78% were infected with 'high risk' types of the virus, known to cause cervical and other cancers. Furthermore, all 20 women in the study who had pre-eclampsia—a dangerous disorder that involves maternal high blood pressure and organ damage—were found to be infected with high-risk HPV types.

Dr Hung says that while the study was not geared to prove that placental HPV infection caused [pregnancy complications](#), the links found between the two strongly suggested that, at the very least, HPV-infected placentas can contribute to such conditions.

"While further investigation is required into this link, our study provides additional evidence to support HPV vaccination. If pre-eclampsia, which is estimated to affect around 5% of deliveries, is indeed caused or compounded by HPV then vaccination becomes an important pregnancy protection measure."

Dr Hung says the research team was very lucky that families so generously donated their placentas, and that midwives, medical students and medical staff were willing to help collect samples.

"Without such material, discoveries are made far too slowly. I wish we could encourage everyone to consider donating their surgically removed tissues, such as cancers, for research too.

"We were also fortunate to have The Healthcare Otago Charitable Trust support the start-up of the OPuS study, and Gravida: National Centre for Growth and Development and Matariki Diagnostics fund the scientific work," she says.

More information: "A clinicopathological study of episomal papillomavirus infection of the human placenta and pregnancy complications." *Modern Pathology* , (21 August 2015) | [DOI: 10.1038/modpathol.2015.88](https://doi.org/10.1038/modpathol.2015.88)

Provided by University of Otago

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