

Circumcision: lower rates of HPV in men

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Human papillomavirus (HPV) infection is the principal cause of cervical cancer (1) and is an etiologic agent of other malignancies (2-3). The natural history of HPV infection is well-characterized in women, and most female infections are acquired through sexual contact with men (4). HPV infection is also common in men and is usually asymptomatic, although prevalence estimates vary widely, from 1% to 73% (3).

There are some evidences that HPV infection and genital warts occur more frequently in uncircumcised than in circumcised men (5) and that uncircumcised men have an increased risk of penile cancer. An observed elevated risk of cervical cancer among partners of uncircumcised men suggests that lack of circumcision may also enhance the transmission of HPV to female partners.

Nevertheless, the relationship between circumcision and HPV has not been supported by all studies (6). Inconsistencies across studies may be due to differences in sampling sites and methods, outcome measures (i.e., HPV DNA vs. clinical lesions), HPV DNA testing methods, and populations studied.

In examining the association between HPV infection and circumcision status, it is critical to

include site-by-site comparisons of genital organ, which permits distinction between the external genitals and the urethra and between individual penis subsites. In a study conducted in US they examined the prevalence of HPV by circumcision status in multiple, specific, external genital sites and in semen and urine in a cohort of multiethnic and predominantly heterosexual adult men (7).

Specimens for HPV testing were collected from a cohort of 379 (primarily heterosexual) adult males. HPV prevalence in the glans penis and coronal sulcus, penile shaft, scrotum, semen, and urine was compared by circumcision status.

They found Overall, HPV DNA prevalence ranged from 6% in semen to 52% in the penile shaft. The prevalence of any HPV infection in the glans/corona was significantly higher in uncircumcised men (46%) than in circumcised men (29%) (odds ratio [OR], 1.96 [95% confidence interval {CI}, 1.02-3.75], adjusted for demographic characteristics and sexual history). Uncircumcised men also had an increased risk of oncogenic HPV infection (adjusted OR, 2.51 [95% CI, 1.11-5.69]) and infection with multiple HPV types (adjusted OR, 3.56 [95% CI, 1.50-8.50]). Among uncircumcised men, HPV prevalence in the foreskin (44%) was comparable to that in the glans/corona, and type-specific positivity was observed between the 2 sites (7).

They confirmed that uncircumcised men had an increased risk of HPV infection, including

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oncogenic HPV, specifically localized to the glans/corona. This is likely because of its proximity to the foreskin, which may be particularly vulnerable to infection.

REFERENCES

1. Bosch FX, de SS. Chapter 1: Human papillomavirus and cervical cancer-burden and assessment of causality. *J Natl Cancer Inst Monogr* 2003; 31:3-13.
2. Al-Ghamdi A, Freedman D, Miller D, Poh C, Rosin M, Zhang L, et al. Vulvar squamous cell carcinoma in young women: a clinicopathologic study of 21 cases. *Gynecol Oncol* 2002; 84:94-101.
3. Syrjanen S. Human papillomavirus (HPV) in head and neck cancer. *J Clin Virol* 2005;32(Suppl 1):S59-S67.
4. Winer RL, Lee SK, Hughes JP, Adam DE, Kiviat NB, Koutsky LA. Genital human papillomavirus infection: incidence and risk factors in a cohort of female university students. *Am J Epidemiol* 2003;157:218-26.
5. Lajous M, Mueller N, Cruz-Valdez A, Aguilar LV, Franceschi S, Hernández-Avila M, et al. Determinants of prevalence, acquisition, and persistence of human papillomavirus in healthy Mexican military men. *Cancer Epidemiol Biomarkers Prev* 2005;14:1710-16.
6. Daling JR, Madeleine MM, Johnson LG, Schwartz SM, Shera KA, Wurscher MA, et al. Penile cancer: importance of circumcision, human papillomavirus and smoking in in situ and invasive disease. *Int J Cancer* 2005;116:606-16.
7. Hernandez BY, Wilkens LR, Zhu X, McDuffie K, Thompson P, Shvetsov YB, et al. Circumcision and human papillomavirus infection in men: a site-specific comparison. *J Infect Dis* 2008;197(6):787-94.