# Androscopy for Anogenital HPV

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*Background.* Strong evidence now links anogenital intraepithelial neoplasia to the transmission of the human papillomavirus (HPV) through sexual intercourse. While there is increasing research on women with this disease, less is known about their male sexual partners.

*Methods.* Male patients whose female sexual partners had been diagnosed as having anogenital intraepithelial neoplasia were recruited for the study. The genital regions of the male patients were examined and biopsied with the aid of a colposcope after application of a 5% acetic acid solution. Treatment was based on the specific findings in each patient.

*Results.* Genital lesions were found on 65% of the male patients examined, even though no disease had been detected by the individual. Seventy-nine percent of patients who were compliant with the prescribed treatment protocol had no detectable HPV-related lesions at the time of their last androscopic examination.

*Conclusions.* Magnified examination of the male genitalia using an androscope following the application of 5% acetic acid solution is an effective method by which the primary care physician can detect and treat male HPV-related anogenital lesions.

*Key words.* Papillomaviruses; genital disease, male. *J Fam Pract 1991; 33:143-146.*

Strong evidence now links anogenital intraepithelial neoplasia to the transmission of the human papillomavirus through sexual intercourse. A study by Gagnon of 13,000 French Canadian nuns found no cases of carcinoma of the cervix.[1] Gissmann and zur Hausen[2] were the first to find HPV type 6 in a genital wart. This finding established that venereal warts were caused by a different strain of HPV than that which causes nongenital warts.

Using current DNA identification techniques, HPV types 6, 11, 18, 31, 33, 35, 39, 41, 51, 52, 53, 54, and 56 have been found to be associated with genital lesions. Types 6 and 11 are not usually associated with high-grade neoplasias but are the most common cause of large, pedunculated warts. Over 90% of cervical cancers contain the 16, 18, and/or 31 viral DNA.[3–5] Most researchers in the area of anogenital neoplasia believe that a causal relationship exists between sexually transmitted HPV and cancerous lesions.[6]

Anogenital HPV infection is now reported in the medical literature to be the most prevalent sexually transmitted disease; therefore, it is a problem that must be addressed at the primary care level.[7] Although, at present, it is impossible to eradicate this disease from the general population, it is still possible through effective patient education and treatment by family physicians to reduce the prevalence and consequences of HPV. Using androscopy to reduce the number of clinically apparent warts may thereby decrease the reservoir of virus in the population of sexually active men.[8]

## Methods

Between June 1989 and December 1990, fifty-one male patients were seen in private practice for evaluation of anogenital HPV-related disease. Most of the patients were the sexual partners of female patients in our family practice who were being treated for dysplasia of the cervix. Androscopy referrals also came from other family physicians (65%), as well as from gynecologists (33%) and urologists (2%).

After discussing the risks and benefits of the procedure, the patient was asked to undress, sit at the end of an examination table, and cover his genitals with a white vinegar-soaked cloth (5% acetic acid). A spray bottle was used to continually remoisten the cloth for a period of 5 to 10 minutes.

A binocular colposcope was then used to provide the high-quality magnification necessary to perform a satisfactory examination. Many genital lesions, including HPV-related epithelial changes, will turn white on appli-

*Submitted, revised, March 20, 1991.*

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ISSN 0094-3509

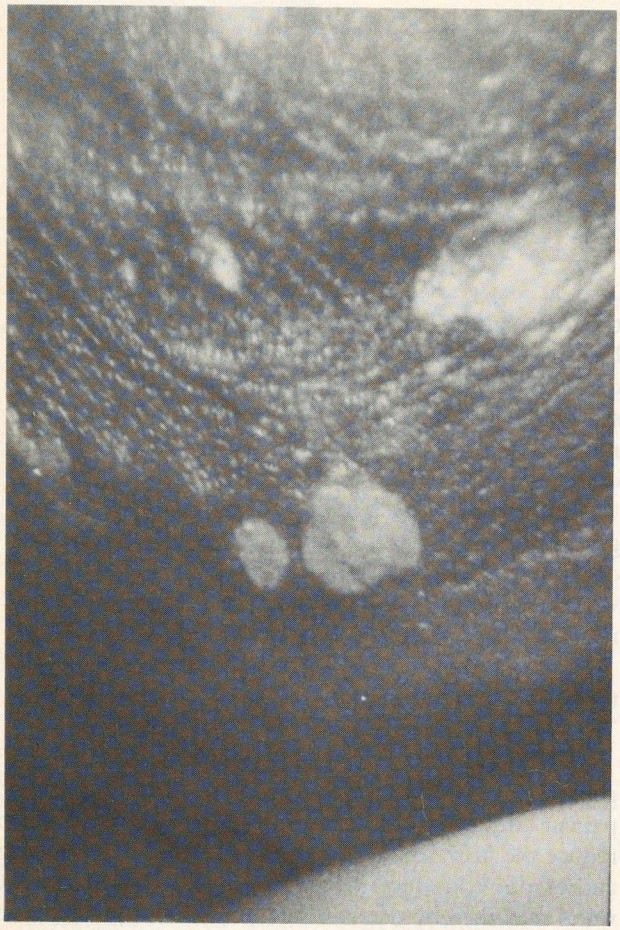

Figure 1. An aceto-white lesion on the dorsal penis noted after the application of 5% acetic acid (white vinegar). This HPV-related lesion was indistinguishable from the adjacent normal epithelium prior to the application of vinegar.

cation of vinegar (the aceto-white reaction) (Figure 1). A careful, systematic inspection was done of the penis, scrotum, groin, perineum, and anus. The penile meatus was inspected using an endocervical speculum or simply by spreading the opening apart with the examiner's gloved fingers. Since most HPV lesions of the urethra occur in the outer 1 cm of the meatus, this method was believed to be effective for finding most lesions.

A small pair of Adson's forceps (without teeth) were used to lift the tissue for biopsy. A No. 15 scalpel blade was then used to shave a 2- to 3-mm tissue specimen. No local anesthesia was usually given, as the biopsies were well tolerated without it. Bleeding was controlled with local pressure, and the areas that were biopsied healed in 3 to 5 days.

Biopsies were performed on suspect lesions. To limit patient expense, biopsy of clinically obvious condylomatous lesions was avoided. Any flat warts that were not responsive to treatment were biopsied. Many lesions resolved spontaneously following biopsy. When perianal lesions were found, anoscopy was performed to rule out rectal involvement. Anal lesions do not necessarily suggest homosexual activity by the patient. The secretions of intercourse and local self-inoculation with HPV can spread infection to these areas.

Careful attention was given to recording information about the location and size of the lesions on a procedure documentation sheet. This information was needed to accurately gauge the progress of the lesions after treatment.[9]

Treatment was directed by clinical judgment based on the size, type, location, and number of the lesions. Anal lesions were referred for laser vaporization. A laser was used to remove recalcitrant penile lesions. The treatment that was most often used was cryosurgery; 5-fluorouracil (5-FU) and excision were also helpful. The frequency of using each treatment modality was 10% for circumcision, 13% for laser, 8% for excision, 38% for 5-FU, and 82% for cryosurgery. Some patients received more than one type of therapy. In patients with disease involving the foreskin, treatment proved to be totally ineffective unless a circumcision was first performed.

A Wallach nitrous-oxide cryogun was used to ensure good cryosurgical control. Application of liquid nitrogen with a cotton tip was not used because this procedure can damage the underlying tissues, causing scarring, nerve trauma, and vascular injury. The protocol for treatment using cryosurgery was to freeze the genital skin for 30 to 45 seconds. After contact was secured with the cryogun tip, the skin was then lifted to prevent damage to the underlying structures.

At home, the patient applied 5-flourouracil once or twice a week at bedtime for 8 to 10 weeks. The adjacent skin not involved with disease was covered with Vasoline or A&D ointment to prevent unwanted reactions. Tight-fitting underwear was then recommended to reduce spreading of 5-FU to other areas. The 5-FU was washed off in 6 to 8 hours.

A follow-up examination was done at 6- to 8-week intervals early in the treatment process. When the disease was under control, a longer follow-up time of 4 to 6 months was found to be adequate and more cost-effective.

## Results

Sixty-five percent of the men whose sexual partners had cancer or dysplasia of the cervix were found to have HPV-related anogenital lesions. Twenty-seven percent of

the patients were found to be free of any disease on their initial visit, and they were taught self-examination techniques for home follow-up. HPV-related lesions were confirmed by biopsy in 19 patients. Ten other patients had clinically obvious HPV disease and no biopsy was indicated. Twelve patients had no lesions to biopsy. Ten patients had biopsy findings of disease unrelated to HPV infection. These included fibroepithelial polyps, molluscum contagiosum, lichenoid dermatitis, epithelial inclusion cyst, lentigo, and lichen sclerosus et atrophicus. There were 10 patients (20%) lost to follow up and 10 patients (20%) still under follow-up care. No dysplasia or cancer was found in the patients examined in this study.

The average age of the patients was 32.3 years, with a range of 20 to 59 years. The marriage rate was 60%, and all but one patient acknowledged having had more than one sexual partner in his lifetime. No urethral involvement of HPV was found, which suggests that some disease may have been missed. The distribution in location of the lesions was 89% on the penis, 6% on the scrotum, 3% on the perineum, and 2% on the anus.

Treatment was carried out on 39 patients with HPV-related lesions, one patient for severe lichen sclerosus et atrophicus, and one patient with molluscum contagiosum. Twenty-nine of the 39 patients with HPV-related anogenital lesions complied with treatment plans (74%). Of these compliant patients, 79% were found to be free of clinically significant HPV-related lesions at the time of their final follow-up examinations.

Serious complications were not experienced by any of the patients. Two patients had scrotal irritation from poor compliance with the 5-FU treatment protocol. This dermatitis cleared quickly with the aid of topical steroids. No complications were seen from biopsy, excision, cryosurgery, or laser use.

## Discussion

Other large studies have shown results similar to the findings reported in this study. The rate of finding HPV-related anogenital disease in men with known exposure to women who have HPV was 64% in the study of 480 cases conducted by Barrasso et al[10] and 69% in the study of 92 male patients reported by Sand and associates.[11] The frequency of finding lesions in the various locations of the male genitals was also similar to Krebs and Schneider's[12] study of 127 men. The penis is by far the most common site of involvement.

This author believes that androscopy is indicated for any man whose sexual partner has had a diagnosis of anogenital intraepithelial neoplasia or cancer, and that it should be offered to those individuals with obvious condylomatous disease. It is not cost-effective to use androscopy as a screening technique for all men unless they are involved in frequent high-risk sexual activities.

There is a need to try to reduce the reservoir of HPV in the male population, thereby helping to decrease its transmission to women. The incidence of carcinoma of the penis is very rare in the United States, probably because of adequate hygiene and the common practice of circumcision.[13] However, anogenital cancers do occur in men.

The risk of anal and rectal cancer associated with HPV infection is well documented.[14,15] There is evidence that the male sexual partners of women with high-grade dysplasia and cancer of the cervix have a documented risk of developing dysplasia or cancer of the penis, the progression of which would be missed without the aid of androscopy and biopsy.[16] The rates of squamous and adenocarcinoma of the cervix are increasing.

Androscopy is an important procedure for the diagnosis and treatment of men with anogenital HPV, but patient education on the methods of prevention are even more important. Some have stated that there is no reason to treat this infection because there is no way to eradicate the HPV virus from epithelium. It has been suggested that all squamous epithelium contains some form of HPV.

The goal of treatment can never be the eradication of virus particles. The virus exists in either a latent noninfectious form or in a productive infectious state.[17] Treatment can be effective only in the presence of an intact host immune system. It is believed that the various methods of treatment not only kill tissue with productive infection, but also heighten the host's immune response against the virus.[18]

The maintenance of a latent state is nearly as clinically significant as not having the virus at all. While androscopy is a useful procedure for reducing productive infection, the most beneficial results probably come from the intense patient education that should be carried out during the procedure. The procedure may also encourage patients to use better judgment in regard to their future sexual encounters.

There has been much discussion and debate on the diagnosis and treatment of subclinical HPV lesions. Subclinical lesions are those HPV-associated anogenital epithelial changes that are found during androscopy that would not be visible without the aid of the androscope. These aceto-white lesions cannot be seen without the use of a vinegar solution and are approximately 1 to 2 mm in size. Most agree that these lesions do not need treatment unless carcinoma or dysplasia is suspected. Subclinical lesions were treated in this study only if they occurred in

clusters or were associated with larger local lesions. The best method of treatment for subclinical disease in this study was the use of topical 5-fluorouracil.

The knowledge of the activity of the various viral types of HPV will become more clinically significant in the future as typing becomes less expensive. This information will allow for a selection of treatment plans more appropriate for each patient. Those with types 6 and 11 lesions will not need aggressive treatment, as these lesions are known to progress slowly and are almost never associated with cancer.[19] Type 16 is seen in about 70% of all cancers of the cervix. Type 18 is the most aggressive type of all; the rapid progression of infection to cancer is well documented. Type 18 is found most frequently in individuals developing cancer of the cervix before the age of 20 years and in individuals with invasive cervical cancer.[20,21]

It is important to inform patients that warts on the extremities do not infect the genitals and that genital warts do not infect the extremities. Fomite transmission is believed to be important; however, adequate research has not been done in this area.

The marked increased incidence of HPV-related anogenital disease is readily apparent as evidenced by the increased number of women who have abnormal Papanicolaou smears. This public health problem is seen worldwide. The incidence of death from cervical cancer in underdeveloped countries is significant. Even though the health care system in the United States has been very successful in reducing the severe consequences of HPV-related disease, many deaths from cervical cancer still occur.[19]

The sexual habits of much of our population allow the continued spread of HPV. With the divorce rate up to 50% and the estimated incidence of infidelity in marriages even higher, there will be a great need for primary care physicians to become skilled in the treatment of HPV-related disease.

Family physicians are best suited for treating this national health problem because they have access to both sexual partners. Family physicians need to take a leadership role in the patient education and management of this sexually transmitted cancer-causing virus.

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