Condyloma Acuminata in Infants and Children

A Survey of Colon and Rectal Surgeons

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PURPOSE: Condyloma acuminata are anogenital warts caused by a human papillomavirus. Human papillomavirus is a tissue-specific, site-specific, double-stranded DNA virus, which is capable of inducing high-grade genital intraepithelial neoplasia and malignancy. The incidence of anogenital warts in the pediatric age group is rising, and sexual abuse has been implicated as a potential cause. METHODS: Accumulated data from separate questionnaires sent to practicing colorectal surgeons who are members of The American Society of Colon and Rectal Surgeons and fellows in colon and rectal training programs have been analyzed. RESULTS: Thirty percent of those polled responded to our survey. Of the respondents, 93 percent see less than two pediatric cases per year. Seventy-two percent stated that tissue specimens would be sent routinely for histopathologic identification. Although 73 percent of surgeons consider anogenital warts a potentially sexually transmitted disease, only 26 percent reported screening for other sexually transmitted diseases. A diagnostic and therapeutic protocol is followed by 19 percent of respondents. Patient follow-up varied from six months (43 percent) to lifelong examinations (3 percent). Sixty-four percent of respondents agreed that a diagnostic and therapeutic protocol based on current knowledge would be beneficial. CONCLUSION: We conclude that colon and rectal surgeons have a low exposure to anogenital warts in infants and children. Furthermore, we believe that a diagnostic and therapeutic protocol based on the current literature would be helpful. [Key words: Condyloma acuminata; Infants; Children]


Incidence of condyloma acuminata (CA) in the pediatric age group is increasing. Some reports estimate that 50 percent of pediatric anogenital warts (AGW) are secondary to sexual abuse. Little is published in the colon and rectal literature on diagnosis and treatment of condyloma acuminata in infants and children, which may reflect a low exposure of colon and rectal surgeons to this problem. Purpose of this study was 1) more accurately to determine the level of exposure that colon and rectal surgeons in practice and fellows in training have to infants and children with condyloma acuminata, 2) to assess their level of comfort in diagnosing and treating children with condyloma acuminata, and 3) to determine whether a protocol for diagnosis, treatment, and appropriate follow-up based on current knowledge would be considered helpful.

METHODS

Members of The American Society of Colon and Rectal Surgeons and fellows in colon and rectal surgery training programs were polled. A questionnaire was developed to help determine the number of children that colon and rectal surgeons treat per year and the preferred method of treatment.

Colon and rectal fellows were asked more specific questions about adequacy of training, knowledge of viral subtypes, and comfort levels in treating such patients. Both groups were asked to respond to the question of whether a protocol for diagnosis, treatment, and appropriate follow-up based on current knowledge would be helpful.

RESULTS

Overall, 30 percent of colon and rectal surgeons and fellows returned the survey. In regard to practicing surgeons, 93 percent see fewer than two cases per year. Only 10 percent of fellows had seen and treated pediatric patients for anogenital warts during their training. Despite low exposure, 100 percent of the fellows stated that they would feel comfortable diagnosing and 85 percent said they would be comfortable treating these patients when in private practice.

In contrast to this finding, on another question, 50 percent of the fellows acknowledged that their comfort level was “not as good as they would like.” Sixty-three percent of the fellows felt that much of their knowledge was a direct result of their colon and rectal

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training. In a separate but similar question, 46 percent felt personal reading added to their comfort level.

Only 40 percent of fellows knew that human papillomavirus (HPV) 6 and 11 are the most common types of anogenital warts. Sixty-five percent knew that high-grade genital neoplasia can occur in viral subtypes 16 and 18. Seventy-two percent of practicing surgeons who were polled sent tissue specimens for routine histopathologic identification, but only 12 percent attempted HPV DNA typing. When given the hypothetical option, more than one-half of the fellows would not send tissue for HPV DNA typing.

With regard to mode of viral transmission, 73 percent of practicing colon and rectal surgeons consider anogenital warts a potentially sexually transmitted disease (STD). Only 26 percent reported screening for other STDs.

Diagnostic and therapeutic protocols are followed by 19 percent of members. Sixty-four percent agreed that a diagnostic and therapeutic protocol based on current knowledge would be helpful. Fellows seemed more receptive to a protocol, with only one negative response.

**DISCUSSION**

Condyloma acuminata virus has been transmitted among humans for hundreds, if not thousands, of years. The Greek word Kondyllos means knuckle or knob and the Latin word acuminatus indicates a sharp point or edge. It is believed that condyloma acuminata are caused by HPV, which is tissue-specific, site-specific, and species-specific virus.³

In 1968, Dunn and Ogilvie⁴ demonstrated the 55 nm viral particles in human genital warts by using the electron microscope. In 1980, Gissmann and Zur Hausen⁵ were able to identify the viral genome in condyloma acuminata as a distinct viral subtype, HPV 6.

Although more than 70 subtypes of HPV have been identified,⁶ few subtypes are isolated from the anogenital region, notably HPVs 6 and 11. These constitute up to 80 percent of isolated HPV in this anatomic region, followed by HPV 2 (up to 18 percent) and HPV 16 and 18 (2 percent).⁷ This is in comparison with HPV 1 and 4 that are commonly isolated from plantar warts and HPV 2, which is also found in verruca vulgaris (common warts). Whereas HPV 6 and 11 have a low oncogenicity, HPV 16 and 18 may induce high-grade genital intraepithelial neoplasia and, eventually, malignancy.⁸

Deciphering these viral subtypes is usually by type-specific molecular hybridization, such as southern blotting, dot blotting, and *in situ* hybridization with the latex test.⁹ These tests are readily available in most reference laboratories.

In 1980, Stumpf² postulated that condyloma acuminata in young children, previously a rare occurrence, was being seen more frequently as incidence increased in adults. Each year, two to four million children suffer physical abuse or neglect at the hands of caregivers.¹ Subsequently, more reports are being published on the increase of STDs in infants and children. Lowy¹⁰ in 1992 stated that transmission of STD pathogens occurs in 2 to 10 percent of abused children, with a higher risk when penetration occurs.

In adults, nearly all anogenital warts are sexually transmitted. With reports in children increasing, the question of sexual abuse will be ever present. Incidence of documented or strongly suspected sexual abuse-related cases of HPV ranges from 4.8 to 90 percent.¹¹,¹² Proven cases are highest among females aged 8 to 13 years.¹¹,¹² In 1984, the task force on pediatric dermatology estimated at least 50 percent of AGW cases were associated with child abuse when reviewed by knowledgeable investigators.¹³

Several routes of HPV infection appear possible in children. These include transmission from an abusing adult, from an adult who is not abusing, from a mother either transplacentally, or by passage through an infected birth canal. In the case of skin-type warts, HPV can be transmitted from the child's own hands, other children, or adults who have common warts.¹ Handley and colleagues¹² conducted a study of 42 prepubertal children with anogenital warts and found that 28.6 percent acquired their warts by vertical transmission from an infected birth canal and 7.1 percent by autoinoculation from common hand warts.

As noted, epidemiology of AGW is multifactorial and incubation period is usually two to three months, but it can be up to 20 months.¹⁴ AGW are often asymptomatic and discovered incidentally by parents or pediatricians. In symptomatic cases, dysuria, painful defecation, vaginal discharge, and vaginal/rectal bleeding may be encountered.

More detailed mapping of AGW distribution by Cohen *et al.*⁷ in 1990 revealed that the perianal area alone is the most common site in 57 percent of boys and 37 percent of girls. The labia alone is the next most common site (23 percent). In boys, the penis and scrotum alone are involved 17 percent of the time.⁷ Circumcision is advised for affected male chil-