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Penile Condyloma Acuminatum in A 27-Year-Old Patient: A Case Report (Mbujimayi/DR Congo)

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Abstract **Case Report**

The prevalence of genital warts, caused by human papillomavirus (HPV), has increased significantly over the past decades, with types 6 and 11 accounting for nearly 90% of cases. Although this condition is not life-threatening, it has a significant impact on patients' quality of life, their relationships, and their sexuality. We report the case of a 27-year-old patient with genital warts caused by high-risk HPV (Hr-HPV) types other than 16, 18, and 45, located on the penis. This patient has no history of unprotected sexual activity, and his serologies for human immunodeficiency virus (HIV), syphilis, as well as hepatitis B and C, were negative.

Keywords: Genital warts, HPV, vaccination.

INTRODUCTION

Condylomata acuminata are benign cutaneous-mucosal tumors caused by the proliferation of stratified squamous epithelium due to infection with human papillomavirus (HPV), mainly low oncogenic risk types (HPV 6 and 11) [1]. Age, immune status, lifestyle, and sexual practices all play a role in susceptibility to the development of condylomata acuminata [2]. They are found exclusively on the genital areas, around the anus, and inside the anal canal, and can also occur in the oral and laryngeal regions [3]. Among sexually active adults, 30 to 50% are thought to be infected with HPV, 1% carry genital warts, and 30% of warts disappear spontaneously [3]. Persistent condylomas for several years are a source of significant psychological effects on patients and can also develop into malignant lesions, such as Buschke-Löwenstein tumors or penile cancer, which are the most well-known complications in men [4]. Patients should receive counseling on treatment options, the importance of follow-up appointments, and safe sexual practices. Condylomas represent a major management challenge in Mbujimayi, notably manifested by significant delays in patient consultations, insufficient case follow-up, and limited interest from healthcare professionals in this condition. By reporting the observation of a young adult presenting with condyloma acuminatum on the penis, we describe the clinical, virological, diagnostic, therapeutic, and preventive aspects of this condition.

OBSERVATION

The patient was a 27-year-old man, married, with no children, no history of unprotected sexual promiscuity, and no homosexual practices. For the past 2 years, prior to his admission to our department, he had experienced non-itchy skin lesions on his penis. These lesions had gradually increased in size, accompanied by oozing and intermittent itching. He had been self-treating with tetracycline ointment for several years without success. He also mentioned the presence of small similar vulvar lesions in his partner at the very beginning of their relationship, which had been successfully treated medically. On physical examination, the patient was in good general health. The general examination revealed no abnormalities. On loco-regional examination,

irregular exophytic vegetations of whitish-gray color were observed on the shaft of the penis, with the largest measuring up to 1.5 cm in diameter. These lesions were located away from the urethral meatus, on the margin and around the glans, as well as on the shaft of the penis down to its base (figure 1). There were superficial wounds associated with the base of the penis. The ganglion areas were free, and no biopsy had been performed. HIV, syphilis (TPHA VDRL), hepatitis B (HBs antigen), and hepatitis C (anti-HBc antibodies) serologies were negative. The blood count was normal. The polymerase chain reaction (PCR) for HPV was positive for other high-risk HPVs excluding 16, 18, and 45 (table 1). The patient underwent cauterization with an electric scalpel (figure 2), combined with local care using Betadine and daily application of Flammazine cream. Clinical progress showed satisfactory healing and a reduction in condylomas (figures 2 and 3). After 2 months of follow-up, no recurrence was observed.

Figure 1

Figure 2

Figure 3

Table 1

Test Type: Specimen
Sample Type:

Assay Information

Assay	Assay Version	Assay Type
Xpert HPV HR	1	In Vitro Diagnostic

Test Result: HR HPV POS

Analyte Result

Analyte Name	Ct	EndPt	Analyte Result	Probe Check Result
SAC	23.3	58	NA	PASS
HPV 16	0.0	-5	NEG	PASS
HPV 18_45	0.0	-6	NEG	PASS
P3	27.6	321	POS	PASS
P4	33.7	116	POS	PASS
P5	31.3	188	POS	PASS

DISCUSSION

Condyloma acuminata are benign cutaneous-mucosal tumors that can occur at any age after puberty, with an average age of 45 years. They are caused by the proliferation of stratified squamous epithelium related to an HPV infection, which is a double-stranded circular DNA virus found in mammals, birds, and reptiles [5]. More than 200 HPV subtypes have been discovered and classified as high-risk HPV (Hr-HPV) and low-risk HPV (Lr-HPV) based on their carcinogenic potential. Among them, about 170 subtypes can infect humans, and 40 subtypes are associated with genital site infections (for example, types 6 and 11) [6].

The diagnosis of HPV is performed using immunohistochemical or molecular hybridization methods such as gene amplification by polymerase chain reaction (PCR) [7]. In our patient, it was the HPV PCR (the Xpert HPV Cepheid® test) that was carried out on the penile swab. The Xpert HPV Cepheid® test is a qualitative in vitro test designed to detect the E6/E7 region of the viral DNA genome from high-risk human papillomavirus (HPV) in patient samples. The test performs multiplex amplification of the target DNA using real-time polymerase chain reaction (PCR) for 14 types of HPV in a single analysis. The final categorical results were recorded as follows: “HPV 16; Primary” for HPV 16, “HPV18_45; Primary” for the grouped result of HPV types 18 or 45, “P3; Primary” for the grouped result of HPV types 31, 33, 35, 52, or 58, “P4; Primary” for the grouped result of HPV types 51 or 59, and “P5; 'Primary' for the combined result of HPV types 39, 56, 66, or 68 (Table 1) [8]. This explains the absence of detection of low-risk HPV (LR-HPV) in our patient.

Condylomas are the most common sexually transmitted infection in the world, and the disease has been known since the time of Hippocrates, around 300 BC. They are transmitted through direct skin-to-skin contact, usually during oral, genital, or anal sexual intercourse with an infected partner, as is the case with our patient [5]. There is also an indirect mode of transmission via surfaces (swimming pools) or contaminated materials (clothing). Self-inoculation is also possible. The condition mainly affects immunocompromised individuals, particularly those infected with HIV, which was not confirmed in our case. The diagnosis of condylomas is primarily based on clinical examination. Confirmation is provided by an anatomopathological analysis of a biopsy or excision specimen. In our case, the anatomopathological analysis was not performed due to the limited technical facilities of our clinic.

Clinically, condylomas appear as exophytic lesions (cauliflower-like) that can be single or multiple, with a pinkish appearance, more or less pedunculated, localized or disseminated. They measure on average 1.0 to 1.5 cm in diameter. They are small at first and can multiply and develop into large masses with a cauliflower-like appearance. They rarely cause itching, pain, or bleeding [9].

They are found exclusively on the genital areas and around the anus, and inside the anal canal (up to a maximum of 1 cm), and sometimes in the oral and laryngeal regions. On the genital areas, condylomas develop in men mainly on the foreskin and glans, and in women on the vulva, the cervix, rarely in the vagina, and exceptionally inside the urethra (urinary canal). In the absence of deviant sexual practices, other locations cannot be affected, as in the case of our patient [9].

The anatomical pathology examination, for its part, shows the presence of numerous koilocytes, associated with an exophytic papillary proliferation [10]. The presence of koilocytes, which are vacuolated keratinocytes with large nuclei, is pathognomonic of HPV infection. In our country, anatomical pathology examinations are not commonly practiced, which explains why our patient did not undergo this examination. Just as the lack of an anatomical pathology laboratory within our institution, the patient's poor economic conditions were among the factors that further hindered the request for the examination externally.

The traditional treatment of condyloma essentially involves surgical resection, cryosurgery, electrosurgery, or the use of CO2 laser, as well as topical treatments with 5% imiquimod, podophyllin, or interferon, with the primary goal being the macroscopic disappearance of lesions. However, the recurrence rate is significant and depends on the type of treatment used [11]. In recent years, photodynamic therapy mediated by aminolevulinic acid (ALA-PDT) has emerged as an alternative for the treatment of condyloma, with a low recurrence rate of 8.62%. In China, ALA-PDT has become the first-line treatment for condylomas located in the urethra, vagina, cervix, and anal canal. Furthermore, this treatment is non-invasive, reducing perforation, scarring, and luminal stenosis [11].

Depending on the resources available in our setting, we opted in our case for electrocoagulation. This technique involves applying a scalpel through which a high-frequency alternating electric current passes to the contact of the condyloma. The heat effectively cauterizes the condyloma, leading to its removal or reduction, and any viral DNA released into the air is therefore aspirated using a smoke vacuum. The other treatment consists of:

A. Cold-blade surgery involves resecting the condylomas, and the consequences are bleeding and large wounds that heal slowly.
B. Cryotherapy involves freezing the condylomas with liquid nitrogen applied either with a cotton swab for a few seconds or using a spray [9].
C. Laser treatment (Nd-Yag, CO2), like electrocoagulation, burns the condylomas; however, histopathological analysis becomes

difficult, which is why it is important to perform a biopsy before any such treatment [9].

D. Regarding medical therapeutic methods, the topical application of 5% imiquimod works by stimulating keratinocytes to produce Interferon-α. The latter inhibits viral replication and promotes the induction of cytotoxic T lymphocytes, thereby enabling the elimination of lesions, while 0.5% podophyllotoxin has a pronounced antimitotic and cytolytic action leading to necrosis of the condylomas [12].

There is no standardized treatment algorithm for the management of condylomas; treatment depends on the lesion's location, morphology, patient preference, and available resources. Only surgical therapies have clearance rates approaching 100%.

Postoperatively, prescribing a chlorhexidine bath and an analgesic is preferable. In our case, given the local wounds, we prescribed local care with Betadine, Flammazine cream, as well as paracetamol. Healing was therefore rapid after 9 days (figure 3). Patients should be informed that after treatment, recurrence of lesions is possible. These recurrences are often related to the surrounding tissues that appear normal but may harbor the infectious agent [9].

The most effective means of preventing genital warts is provided by HPV vaccination, as well as by sexual abstinence. Without vaccination, almost all sexually active individuals will contract an HPV type at some point in their lives. Of the three HPV vaccines available worldwide, the Nonavalent ("9HPV" - 6/11/16/18/31/33/45/52/58) offers the broadest protection. Like high-income countries, the Democratic Republic of Congo is preparing to adopt HPV vaccination. When implementing this health policy, it would be advisable to simultaneously vaccinate both girls and boys, especially since the immune response to natural infection is significantly weaker in men, with a rate of blocking antibodies of 7 to 11% after HPV-16 infection, compared to 58-67% in women. In a cohort study of 210 patients with or without condylomas, HPV vaccination reduced the incidence of condylomas and their recurrences in a population of men who have sex with men [13,14]. The use of physical protection measures, such as condoms, helps prevent any contamination that could lead to this type of lesion. However, condoms only protect the covered areas and therefore incompletely in terms of the risk of HPV transmission.

CONCLUSION

Genital warts are the most sexually transmissible infection. The condition affects both men and women. The main causative agent is low-risk oncogenic HPV (types 6 and 11), but other high-risk oncogenic viruses should not be excluded. All these viruses are mainly transmitted sexually, but other routes of transmission should not be overlooked. Without vaccination, anyone who is sexually active could be infected with HPV at some point. The risk of recurrence depends on the type of treatment and immune status.

Conflicts of interest: None.

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