

A Case of Buschke-Löwenstein Tumor in Renal Transplant Recipient

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Buschke-Löwenstein tumor is a rare disease in the category of tumors designated as verrucous carcinoma characterized by its invasive downward penetration of underlying tissues in the perineum and perianal regions.

Viruses, unclean sanitation and cytotoxic immune reaction have been proposed as the etiology of the tumor. However, among all the causes, recent studies have emphasized on the association of the tumor and human papilloma virus(HPV). Especially, HPV also has been discovered in several cutaneous and anogenital lesions of solid organ transplant recipients.

We herein report a case of Buschke-Löwenstein tumor in a renal transplant recipient with HPV 6 and 16 coinfection proved by HPV genotyping of DNA extracted from the biopsy specimen of the tumor. (*Ann Dermatol* 14(3) 164~167, 2002).

Key Words : Buschke-Löwenstein tumor, Human papilloma virus, Renal transplant

Buschke-Löwenstein tumor was first described in Europe in 1896 and elaborated on in 1925 by Buschke and Löwenstein¹. It is also known as giant condyloma acuminatum. Unlike usual condyloma acuminatum, this form is characterized by its invasive downward penetration of underlying tissues in the perineum and perianal regions. It is a rare disease in the category of tumors designated as verrucous carcinoma, which include florid oral papillomatosis of Ackerman, epithelioma cuniculatum, papillomatosis cutis carcinoides of Gottron. Furthermore, it is considered by some to even represent an intermediate stage between condylomas and squamous cell carcinoma².

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mor and human papilloma virus(HPV)³. Especially, HPV also has been discovered in several cutaneous and anogenital lesions of solid organ transplant recipients⁴.

We describe herein a case of Buschke-Löwenstein tumor in a renal transplant recipient with HPV 6 and 16 coinfection proved by HPV genotyping of DNA extracted from the biopsy specimen of the tumor.

CASE REPORT

A 25-year-old renal transplant recipient male presented with a three-year history of asymptomatic verrucous nodules on his penile shaft that have rapidly grown into a large fungating mass over the last month. He stated that the first papule was noticed just before the transplantation and the size and number of the lesion started to increase and spread since then even with the continuous treatment by cryotherapy and podophyllin application. He had his renal transplantation due to chronic renal failure in 1997 and was on the medication with Sandimun® (cyclosporin), Cellcept® (mycophenolate) and Delta-cortef® (corticosteroid). His other past history and family histo-

Received August 30, 2001.

Accepted for publication December 12, 2002.

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Fig. 1. 6 × 6cm sized exophytic, cauliflower-like, verrucous mass involving left side of penile shaft.

ry were not contributory.

Physical examination revealed a 6 cm sized red to gray brown colored verrucous and filiform mass with crusts on the left side of the penile shaft (Fig. 1). The laboratory tests including complete blood count, liver function test and urinalysis were within normal range except slight increase in the plasma creatinine level. Histological study of the biopsy specimen revealed irregularly acanthotic epidermis with several dyskeratotic cells in the upper and lower advancing areas of the tumor, and basal cell layer was clearly preserved and no obvious malignant changes were observed in the squamous cells (Fig. 2). From the biopsy specimen, DNA was extracted and the HPV genotyping was performed with a result of type 6/16 coinfection.

The patient was referred to the department of urology for the excision, however, the excision of the mass was impossible without castration due to its extensive base. Thus, the patient was recommended to continue podophyllin application before the surgical excision to reduce the size of the base. The patient is in close observation with podophyllin application.

DISCUSSION

Buschke-Löwenstein tumor is a relatively rare

Fig. 2. Photomicrograph of the tumor showing hyperkeratosis, papillomatosis with acanthosis. Epidermis pushes downward to the dermis at the base with wide and blunt rete ridges (H&E, × 100).

condition which differs from the common condyloma acuminatum. The lesions present a clinical picture of malignancy by fungating growth, large size, ulceration, infection, multiple recurrences, extension and penetration into the deeper tissues and yet, histologically they show benign-appearing features, which resemble that of condyloma acuminatum. The tumor invades by expansion rather than by infiltration, leaving the basement membrane intact and shows a well-stratified epithelium with minimal cellular dysplasia, mitoses or atypical cells⁵. The tumor does not metastasize initially and is thus considered as a benign condition. However, since the first malignant transformation questioned by Machacek and Weakly⁶, up to 30 to 50% of the cases have been reported for its malignant transformation in the course of the disease^{2,7,8}. Moreover, Creasman et al², reported its malignant transformation in 30% of 20 immunocompetent patients. Furthermore, it is about 20-fold more frequent in renal transplant recipients than in the general population⁴.

HPV type 6 or 11 DNA is regularly found in verrucous carcinomas including Buschke-Löwenstein tumor strongly suggesting a pathogenic role in tumor development⁹. In benign forms, only

low-risk HPV types that lack malignant potential are found, but in malignant transforming forms, they usually contain DNA of high-risk HPV, mainly type 16 or 18. Increased viral gene expression, inability to mount a cytotoxic immune response and other viral risk factors of the host have been proposed as the features that may change the oncogenic potential of HPV types 6 or 11, causing progression of benign condyloma acuminatum to the invasive giant condyloma phenotype⁷. In our case, the patient was on constant immune suppressing medication after the transplantation. Therefore, our patient's inability to mount a cytotoxic immune response may have contributed to stimulate the oncogenic potential and the progression of the disease.

Nasca et al¹⁰. have reported the presence of HPV 16 in 80% of lesions in squamous cell carcinoma of immunocompetent patients. Also, despite the potential for local recurrence and malignant transformation of giant condyloma acuminatum, only the low risk HPV type 6 was detected in immunocompetent patients with giant condyloma acuminatum⁴. The result of HPV6/16 coinfection in our case, thus, may implicate the possibility of malignant transformation in the lesion. Therefore, a long-term follow-up and a close observation of such patients are essential in the perspective of managing the patients. Furthermore, HPV screening in Buschke-Löwenstein may be crucial in determining the treatment and in the prognosis of the disease.

The common treatment for Buschke-Löwenstein tumor has included topical podophyllin resin, radiation therapy and wide surgical excision with or without adjunct chemotherapy. Other treatments include topical systemic chemotherapy with fluorouracil, systemic bleomycin therapy in combination with cisplatin and methotrexate, laser excision and tumor destruction using cryotherapy or electrocauterization¹¹. Treatment guidelines have not been established due to lack of controlled studies on the tumor. Nevertheless, based on an analysis of 42 published cases, the only consistently effective therapy was wide surgical excision of the tumor with clear margins, with or without adjunct chemotherapy⁷. In our case, the initial lesions of condyloma acuminatum were treated with cryotherapy. Therefore, when the rapid growth of the tumor occurred, cryotherapy was initially tried. However, the patient

could not bear the extreme pain and thus, the treatment modality was changed to topical podophylline application and the size of the tumor was slightly reduced. Also, we referred the patient to a urologist for an excision, but he recommended the patient wait until further reduction of the mass since the wide excision may not be performed without castration. Thus, he is in close observation.

We elucidate that an inability to mount a cytotoxic immune response may be a host risk factor to change the oncogenic potential of HPV after experiencing a case of Buschke-Löwenstein tumor with high-risk HPV type coinfection in renal transplant recipient.

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