Detection of Human Papillomavirus Type 56 in Giant Condyloma Acuminatum

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Giant condyloma acuminatum (GCA) is a cauliflower-like condyloma acuminatum. Low-risk human papillomavirus (HPV) infection, such as that of HPV types 6 or 11, is associated with the disease (1). HPV type 56 is a high-risk HPV type that is sometimes detected in skin tumours (2). In particular, nail Bowen’s disease presenting with longitudinal melanonychia has been reported to be frequently associated with HPV type 56 (2–4). We herein report a case of multiple giant condylomata acuminata in the groin and scrotum caused by high-risk HPV type 56 infection.

CASE REPORT
A 54-year-old man noted a small nodule on the right groin 6 years previously that had slowly increased in both size and number. The patient had neither a significant past medical history nor a significant family history. A physical examination revealed multiple cauliflower-like nodules in his right groin and scrotum. We suspected GCA and performed a skin biopsy. A histopathological examination revealed marked hyperkeratosis, parakeratosis and papillomatosis. Koilocytosis was seen in some areas without nuclear atypia. Routine laboratory tests revealed no abnormalities. Antibodies against HIV, HCV and HBV were negative. The patient was diagnosed as having GCA. Some of the tumours were surgically excised, while the others were resected using carbon dioxide laser ablation under general anaesthesia.

Formalin-fixed and paraffin-embedded tissue samples were cut into 10-µm sections. After obtaining informed consent, DNA was extracted from the sections using Dexpat® (Takara, Kyoto, Japan). The method and PCR conditions used have been previously described (2). HPV PCR was performed with the GP5+/GP6+ consensus primers (5). The PCR products were purified and cloned into a pGEM®-T Easy vector (Promega, Madison, WI, U.S.A.) and transfected into Escherichia coli. The PCR products cloned into the vectors were sequenced with an automated sequencer. DNA extracted from Bowenoid papulosis of another patient was used as a control, in which HPV type 16 was detected (2).

The amplified PCR products were electrophoresed on 2% agarose gel, and a PCR band was seen at the expected position of 140 bp. DNA sequencing revealed that the sequences corresponded to the L1 gene of HPV 56 (GenBank: X74483.1) (data not shown).

HPV-56-positive cells with nuclear staining were observed in the upper epidermis and stratum corneum of the lesion on in situ hybridisation (Fig. 1a). Furthermore, HPV immunohistochemistry revealed that the viral proteins were localised in the upper epidermis and stratum corneum (Fig. 1b).

DISCUSSION
HPV type 56 was reported as a new type of HPV in 1989 and belongs to the high-risk group (6). HPV type 56 is sometimes found in invasive cancers of the cervix and cervical intraepithelial neoplasia. Recently, we demonstrated a relatively high prevalence of HPV type 56 infection in patients with Bowen’s disease and a close association between HPV type 56 and Bowen’s disease with longitudinal melanonychia (2, 4). We also previously reported a case of an HPV type 56-positive lesion in the groin that exhibited deeply pigmented keratotic plaques (4). There have been several reports...
of skin lesions in which HPV type 56 was detected; however, all of these cases involved Bowen’s disease (3, 7–9). Low-risk HPVs such as HPV types 6 and 11 are usually detected in patients with condyloma acuminatum. However, other HPVs, including intermediate- and high-risk HPVs such as HPV types 2, 16, 18, 30–33, 35, 39, 41–45, 51–56 and 59, have been detected in patients with condyloma acuminatum (1). To the best of our knowledge, this is the first case of GCA caused by HPV type 56.

GCA is also called GCA of Buschke and Löwenstein and is recognised to be one type of verrucous carcinoma, along with verrucous carcinoma of the oral cavity and plantar verrucous carcinoma (10). Our case did not show the clear downward proliferation characteristic of GCA of Buschke and Löwenstein. Therefore, we did not diagnose the patient with GCA of Buschke and Löwenstein, but rather with multiple giant condylomata acuminata.

Condyloma acuminatum usually manifests as multiple exophytic papillomatous lesions; however, several unusual clinical manifestations have been reported, i.e. condylomata acuminata with pigmented papular lesions (11), pigmented plaque-type condyloma acuminatum (12) and GCA of Buschke and Löwenstein. Why our patient developed multiple giant tumours is unclear; however, infection with high-risk HPV type 56 may partly account for this phenomenon.

REFERENCES