

# Verruca Vulgaris Developed on the Skin Tag

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Skin tags are very common skin tumors in middle age. In spite of their frequent occurrence, there was no reported cases of verruca vulgaris developing on the soft fibroma. We report a case of verruca vulgaris developing on the bag-like skin tag. We think that the incidence of HPV infection on the large skin tags may be higher than on normal skin due to their protrusion and repetitive irritation. (*Ann Dermatol* 6:(1) 105~107, 1994)

**Key Words:** Skin tag, Verruca vulgaris

Human papilloma viruses(HPV) produce epithelial tumors of the skin and mucous membranes, and have been closely associated with Bowenoid papulosis, genital bowen's disease, genital squamous cell carcinoma, and epidermodysplasia verruciformis<sup>1</sup>. More recently, there has been some association of HPV with nongenital Bowen's disease and nongenital squamous cell carcinoma. Skin tags are very common skin tumors in middle age. In spite of their frequent occurrence, there was no reported case of verruca vulgaris developing on the soft fibroma. We herein report a case of verruca vulgaris developing on the bag-like skin tag.

## REPORT OF A CASE

A 32-year-old Korean man visited the Department of Dermatology, Yonsei University Wonju College of Medicine, with a bean sized, dome shaped skin colored tumor on the back which had been present for 10 years(Fig. 1). Recently, this back mass had been slowly enlarging. No other

symptoms were present. The back mass was surgically removed. Histopathologically, the epidermis showed marked hyperkeratosis, parakeratosis, irregular epidermal hyperplasia, and vacuolization of the granular cells(Fig. 2). The results of the peroxidase-antiperoxidase(PAP) technique specific for the HPV showed positive stained of the infected cells(Fig. 3). The dermis showed loosely arranged collagen fibers, mature fat cells, and vascular proliferation(Fig. 4). This findings are compatible with skin tags.

## DISCUSSION

A skin tag is a very common skin tumor in the middle-aged and elderly<sup>2</sup>. Due to their frequent occurrence and the fact they normally do not cause any discomfort, they have attracted little attention. So, reported cases of skin tags are infrequent, and there are no reports in English literatures describing cases of verruca vulgaris developing on skin tags. The etiology of skin tags is unknown. Hormonal factors have been implicated in their pathogenesis. Ellis et al<sup>3</sup> suggest that sex steroid may affect the epidermal growth factor receptor metabolism in benign epidermal hyperproliferative lesions. A recent series of reports<sup>4</sup> have claimed an association between skin tags and adenomatous polyps.

Histopathologically, the bag-like skin tags gen-

Received July 5, 1993

Accept for publication August 30, 1993

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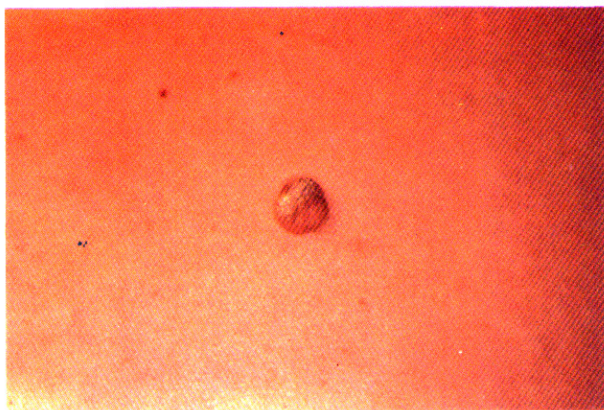


Fig. 1. Bean sized dome-shaped flesh color tumor on the back.

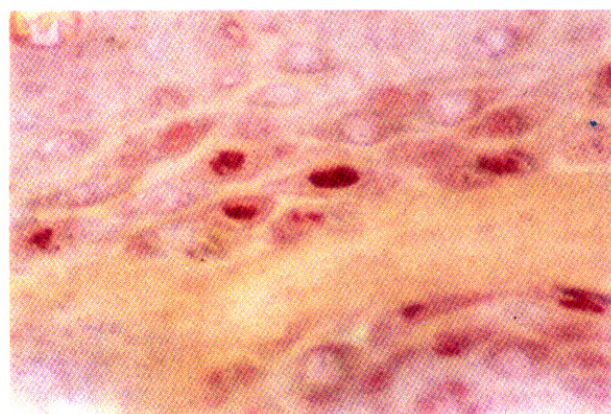


Fig. 3. Peroxidase-Antiperoxidase(PAP) technique specific for the HPV shows positive stained infected cells ( $\times 200$ ).

erally show a flattened epidermis. The dermis is composed of loosely arranged collagen fibers, and mature fat cells form the center<sup>5,6</sup>. Histopathologic findings of the dermis was compatible with a skin tag in our case. But the epidermis showed marked hyperkeratosis, papillomatosis, irregular epidermal hyperplasia, and vacuolization of the granular cells, and the result of the peroxidase-antiperoxidase(PAP) technique specific for the HPV showed positive staining of the infected cells. These findings suggest the possibility that verruca vulgaris developed on the skin tag.

All types of squamous or mucous epithelium may be infected by HPV. Infections probably occurs as a results of exposure of the basal cells to infectious virus particles after minor traumas to the epithelium. There was no previously apparent

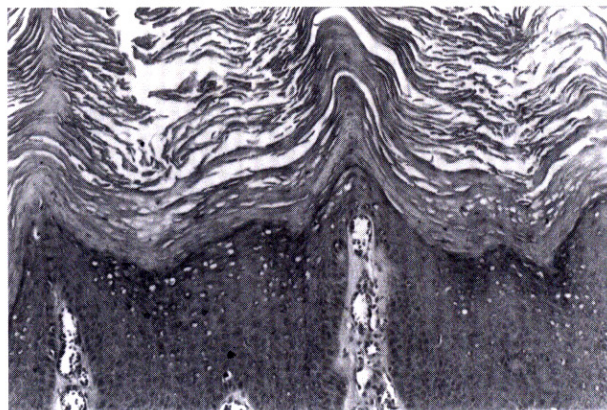


Fig. 2. Marked hyperkeratosis, parakeratosis, irregular epidermal hyperplasia, and vacuolization of granular cells in the epidermis(H & E stain,  $\times 100$ ).

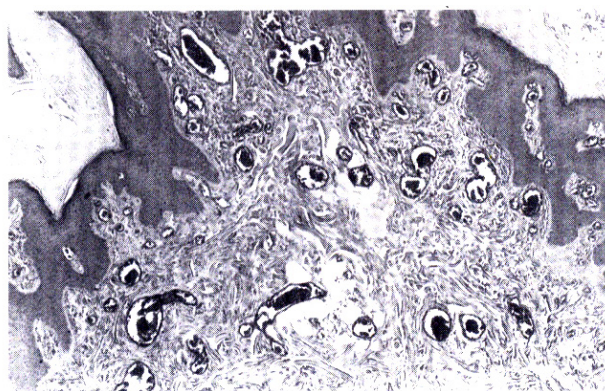


Fig. 4. The dermis showed loosely arranged collagen fibers, mature fat cells, and vascular proliferation (H & E stain,  $\times 40$ ).

trauma history in our patient. But we cannot exclude the possibility of traumatic inoculation with HPV due to repetitive irritation of the protruding mass. Another factor may be proliferation of blood vessels which contribute suitable growth condition to viral organisms. So we suggest that the incidence of HPV infection on large skin tags may be higher than on normal skin due to their protrusion and repetitive irritation.

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