A Garden of Cauliflower Lesions in Unsuspecting Places: Intertriginous Abdominal Verruca Vulgaris

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Introduction

- Human papilloma virus (HPV) is a double-stranded, non-enveloped virus with a predilection for squamous epithelial cells and is commonly transmitted through sexual contact.
- Contraction of the virus can lead to benign growths (papillomas or warts) which can progress to carcinomas.
- HPV can be categorized into low-risk and high-risk based on their oncogenic potential, or cutaneous vs mucocutaneous based on their tropism.
- Low-risk subsets of the virus cause cutaneous manifestations of condylomas (warts) which can be located anywhere on the body, but are typically found on the fingers, dorsal surfaces of hands of on sites that are prone to trauma.
- We present a case of verruca vulgaris found on the intertriginous skin folds of the abdomen.

Case Presentation

- Patient is a 63-year-old female with PMH of hypertension, hyperlipidemia, significant smoking history, and small cell lung cancer with brain metastases.
- Lung cancer was diagnosed in 2018 by bronchoscopy with associated superior vena cava syndrome.
- Cancer was treated with chemotherapeutic agents cisplatin and irinotecan as well as adjuvant radiation.
- In July of 2019, patient presents to ED with weakness and ataxia after recent brain biopsy. She also reports abdominal lesions that have been growing rapidly in last 2 weeks.
- Chart review reveals patient had verrucous lesions on abdomen in 2015-2016 that were treated by dermatology but have since recurred.
- On physical examination, verrucous epithelial growths with surrounding erythema were noted in the intertriginous skin folds of the abdomen.
- Patient denies associated pruritus.
- No oral or anogenital lesions were noted.

Discussion

- HPV is part of the papillomavirus family, which consists of a large group of DNA viruses that widely infect both animals and humans.
- The HPV genome encodes for eight different proteins, most notably proteins E6 and E7, which are implicated in malignant disease. E6 inhibits the p53 protein and E7 inhibits the retinoblastoma protein [12].
- The genome also encodes E1 and E2 proteins which are implicated in viral replication [3].
- HPV utilizes these proteins to bind receptors in proliferating epithelial cells after gaining access through damaged skin [4]. The virus then initiates three replication phases. First, the virus generates 50-100 viral genomes per cell in what is termed establishment replication. Next, the virus continues to replicate in the undifferentiated basal cells. Finally, when the epithelial cells differentiate, the virus generates thousands of copies per cell and virion release is activated. This unique life cycle, in addition to the fact that the upper epithelial layers are not subject to surveillance, enables HPV to escape human immune response [4].
- Cutaneous manifestations of a HPV infection can range from plantar warts (verruca plantaris), common warts (verruca vulgaris), or flat (plane) warts.
- Diagnosis made clinically; verruca vulgaris appear as hyperkeratotic flesh-colored firm papules, plaques or nodules [5]. Dermoscopy can reveal punctate black dots that represent thrombosed capillaries in the epidermis. If biopsied, findings of koilocytes are pathognomonic, but other features include acanthosis, elongated rete ridges, papillomatosis, and hypergranulosis [6].
- Cutaneous warts can self-resolve, but recalcitrant warts can be treated with local destructive therapies such as cryotherapy, salicylic acid, trichloroacetic acid, and surgery, or with therapies that stimulate a local immune response such as Iniquimod. Resolution of warts is denoted by the re-appearance of normal skin lines [7].
- Our patient was diagnosed with small cell lung carcinoma (SCLC) likely due to tobacco exposure. Several genetic and molecular characteristics have been identified in the cytogenicity of SCLC including the loss of tumor-suppressor retinoblastoma gene RB and mutations in TP53 [8]. HPV serotypes 16 and 18 have been found in tissues of patients with lung cancer, along with strong associations with the development of squamous cell carcinoma of the lung and HPV infections [9]. While our patient had cutaneous infection of HPV, our patient's lung tissue was not analyzed for a HPV infection. A retrospective meta analysis demonstrated there was an association with smoking and increased anogenital HPV infection and the development of anogenital warts [10].
- Despite the differences in serotypes, our patient’s past medical history of smoking could have increased her susceptibility of developing verruca vulgaris on her abdomen.

References

4. Moody C. Mechanisms by which HPV Induces a Replication Competent Environment in Differentiating Keratinocytes.