Revista Odontológica Mexicana

Facultad de Odontología

Vol. 20, No. 1 • January-March 2016
pp e39-e43

CASE REPORT

Diagnosis and treatment of solitary tongue papilloma. Case report and literature review

Diagnóstico y tratamiento de un papiloma solitario de lengua. Reporte de caso y revisión de la literatura

Alejandro González Gleason,* Dulce María Stefany González Ponce,§ Drusso Vera Gaspar||

ABSTRACT

Human papilloma viruses constitute a heterogeneous viral group; their genome is made up of a helicoidal double-stranded DNA molecule with a protein capsid. There are over 230 HPV types (118 of them well characterized; more than 40 are anal-genital types, out of which 15 are oncogenic). In humans they represent one of the viral groups which more frequently infect epithelium of skin and mucosae, conjunctive tissue, oral cavity, larynx, and bronchial tree among others. Oral mucosa squamous papilloma, caused by genotypes 33 and 32, is the most frequently found papillary lesion and represents 2.5% of all lesions of the oral cavity, larynx, bronchial tree, esophagus, bladder anus and genital tract. The aim of the present study was to conduct a literature review on oral papillomatosis as well as to review a clinical case.

Key words: Human papilloma virus, tongue, papilloma.

RESUMEN

Los virus del papiloma humano (VPH) constituyen un grupo viral heterogéneo, cuyo genoma está constituido por ADN de doble cadena helicoidal con una cápside proteica. Existen más de 230 tipos de VPH (118 de ellos bien tipificados), más de 40 tipos anogenitales, de los cuales 15 son oncogénicos y, en humanos, constituyen unos de los grupos virales que con mayor frecuencia infecta el epitelio de piel y mucosas: conjuntivas, cavidad bucal, laringe y árbol bronquial entre otros. El papiloma escamoso de la mucosa oral, ocasionado por los genotipos 33 y 32, es la lesión papilar más frecuente y constituye el 2.5% de todas las lesiones de la cavidad oral, laringe, árbol bronquial, esófago, vejiga, ano y tracto genital. El objetivo del presente estudio es realizar una revisión de la literatura sobre la papilomatosis oral y reportar un caso.

Palabras clave: Virus del papiloma humano, lengua, papiloma.

INTRODUCTION

Human papilloma viruses (HPV) conform a heterogeneous viral group; their genome is constituted by a helicoidal double stranded DNA molecule with a protein capsid. They are formed by epitheliotropic entities which infect the epithelium´s basal state and, as a result, preserve its DNA transcription and replication at basal levels, producing hyperplastic papillomatous and verrucous lesions in the skin and mucosae.[1]

There are over 230 HPV types (118 of them well characterized) and over 40 anal-genital types, out of which 15 are oncogenic. In humans, they represent one of the viral groups more frequently infecting epithelium of skin and conjunctive mucosae, oral cavity (genotypes 33 and 32) larynx, bronchial tree, esophagus, bladder, anus and genital tract.[2,3]

In the case of tongue HPV, there are two main groups of clinical presentation:

a) Benign lesions and b) pre-malignant or malignant lesions. Among benign oral lesions we can find oral papilloma, oral *verruca vulgaris* (common wart), oral acumina condyloma and focal epithelial hyperplasia (Hecks disease).[4-6] Malignant and pre-malignant lesions are mainly represented by leukoplakia and squamous cell carcinoma.[7]

* Master in Sciences, Specialist in Gynecology and Obstetrics, re-certified by the Mexican Board of Gynecology and Obstetrics, Professor of Genital Tract and Anal-Perineal Complex Pathology (UNAM) (CONADICO), Medical Director of the Satelite Hospital and Surgical Center.

§ Student, Nursing School, Mexico´s Technological University (UNITEC).

|| Specialist in Gynecology and Obstetrics, re-certified by the Mexican Board of Gynecology and Obstetrics, Professor of Genital Tract and Anal-Perineal Complex Pathology Degree (UNAM), (CONADICO), Medical Director of the Satelita Surgical Center Hospital.

Received: January 2015. *Accepted: March 2015.*

This article can be read in its full version in the following page: http://**www.medigraphic.com/facultadodontologiaunam**

VÉASE CONTENIDO RELACIONADO:
http://dx.doi.org/10.1016/j.rodmex.2016.02.006,
Revista Odontológica Mexicana 2016;20:39–43.

Squamous papilloma of the oral mucosa is the most frequently found papillary lesion, it represents 2.5% or all lesions found in the mouth.[6] HPV clinical lesions are most frequently observed in the upper lip, the lower lip, lingual frenulum, dorsum of the tongue and corners of the lips.[8]

The most commonly observed morphology of these lesions assumes a cauliflower-like shape, nevertheless, other shapes can be observed such as common warts, hyperkeratosis or even non-keratinized surfaces , which exhibit superficial color changes (normally a violet hue).[9] According to bibliographic references, this disease is mostly transmitted through a oral-genital sexual practice.[10]

The aim of the present study was to conduct a literature review on oral papillomatosis review as well as reporting a clinical case.

HISTOLOGY OF THE TONGUE

Cells located in the tongue exhibit a poly-stratified structural arrangement. They are settled on a (superficial) *stratum corneum*, a granular layer, spinous layer and basal layer (deepest layer). The nucleus of these cells changes in size according to their maturity and specialization.[11]

PAPILLOMA VIRUS GENOME

Viral particles are composed of a protein capsid which is composed of 95% protein L1 and 5% protein L2. These proteins link to form icosahedral capsomers. Double-stranded circular DNA of approximately 8000 base pairs can be found inside the capsid. It is formed by eight genes and a non-codified regulatory region; this region contains linking sites for host´s hormonal and protein factors, needed by the virus to complete its replication cycle.[12]

HPV virus is similarly conformed by two types of genes: genes codified during the early infection stages, better known as E genes (E for early) and genes codified during late stages of replication known as L genes (L for late). Six early genes are known: E1, E2, E4, E5, E6, E7 (although E4 is considered a late gene) as well as two late genes, L1 and L2. Early genes codify proteins involved in viral replication and regulation, as well as in their carcinogenic capacity. On the other hand, late genes codify structural proteins which form a viral capsid.[12,13]

HPV CYCLE OF LIFE

HPV enters the host through a small abrasion in the tongue's integral epithelium.[13] It then initiates its productive cycle infecting poorly differentiated cells of the epithelium´s basal layers, where transcription of genes begins.[12]

When infected cells differentiate and migrate from the basal layer into the epithelium's spinous layer (immunological permissibility), viral replication is stimulated producing thus virion accumulation within the nucleus and the assembly of the capsid in the cytoplasm. There are at least two cycles for viral replication: a) lytic infection and b) lysogenic infection.

In cases of lytic infection, the virus arrives into the para-basal cells with replication ability, it penetrates the cytoplasm and later the nucleus. Once within the nucleus, it replicates in the episomal area, without integrating into the cellular genome, producing thus approximately 20 viral copies. These complete viral particles cause cell death and remain thus free and in proximity to epithelial surfaces.

In cases of lysogenic infection cell genome is directly affected. This is the case of the high risk HPV (16 and 18). After reaching cell nucleus, the virus integrates into the host's cell genome, mainly segments E6 and E7. In this case, virus replication assumes a latency stage until the host cell replicates its own DNA as well as DNA of integrated viruses. Viral DNA segments are transcriptionally active after cell division; this guarantees their propagation[13] Unlike lytic infection cases, this type of infection is observed in cells experiencing malignant growth.

Gene expression of different HPV types is strictly and specifically regulated through transcription factors such a AP-1, keratinocyte specific factor, NF-1CTF, CEFI, CEFII and TEFI as well as some hormonal origin factors.

In both types of infection, E1 and E2 proteins initiate their expression in an ascending direction (supra-regulation), activating thus DNA transcription as well as basal cells' controlled expression.[12]

E6 and E7 HPV genes are directly related to cell malignant transformation through oncoproteins E6 and E7. These proteins are able to form compounds with cellular gene products which regulate cellular cycle, among which p53 and Rb can be found. Oncoprotein E6 creates a compound with p53 protein, whereas E7 creates a compound with Rb protein.

Rb protein regulates the passage from G1 to S Oncoprotein E7 sequesters Rb preventing it from regulating cell proliferation proteins, this forces the cellular cycle to remain in synthesis phase.[13] These two events: viral gene integration to cell genome and blocking of normal function of tumor suppressor genes p53 and Rb are associated to cellular transformation of cells infected with high oncogenic potential viruses