

Title: Fundamental aspects of human papilloma viruses (HPVs). Endoscopic, cytological, histological and ultrastructural images in esophageal cancer with HPVs infection.

Authors: Sara Hilda Mandado Pérez, William Haedo Quiñones, Carlos Domínguez Alvarez, Ivis Amores, Bienvenido Gra Oramas, Ernesto Acosta Acosta.

Institutions: Instituto Nacional de Gastroenterología, Hospital Clínicoquirúrgico Hermanos Amejeiras.

## SUMMARY

### Introduction

HPVs are popularly known as condyloma viruses (genital warts). They are able to infect epithelial cells and induce mild and malignant neoplastic changes in different human body areas. They are the etiological agent in almost 100% cervical uterine carcinomas, in 100% genital, common and plantar warts, and most of skin cancers; besides, these viruses have been reported in prosthata, larynx, esophagus, colon, and, recently, in liver tissue from newborned infants with giant-cells neonatal hepatitis and biliary duct atresia, whose mothers, with genital warts, were having the same HPVs types, detected by polymerase-chain reaction (PCR). Currently, 216 HPVs types are known. The koilocytes (intermedium layer squamous cells, with hyperchromatic nucleus and perynuclear vacuolas well defined) in a cytologic smear allow us to diagnose HPVs infection in whichever mucosa lined by squamous epithelium. HPVs can be seen through electronic microscopy, but the different types cannot be recognized..

In reviewed literature, we found several ultrastructural studies on HPVs infection in uterine cervix (Coleman, Meisels, Casas Cordero, Hills, Pilotti, Stanbridge, and others), but I found no similar studies on esophagus.

In Cuba, no due attention has yet been paid to these viruses in Gastroenterology specialty.

**GOALS:** To call attention on the possibility of morphological diagnosis of HPVs infection in esophageal injuries in our country.

**MATERIALS AND METHODS:** Brushing smear and biopsy from esophageal mucosa specimens under endoscopic view to four patients with papillomatous-aspect esophageal tumor injuries. In three of the four cases, we used techniques of transmission electronic microscopy, and polimerase-chain reaction with degenerated primers and typing with restriction enzymes in three tumor-mucosa fresh specimens from surgical pieces.

### RESULTADOS:

The initial cytological diagnosis of HPVs-associated epidermoid carcinoma, determined by koilocyte presence, some of which having malignant aspect, was confirmed in the pathological analysis of all the cases. In two of the three cases studied by electronic

microscopy, viral particles within bee honey-comb like cell nuclei were found. Nuclei also had filamentous inclusions, and nuclear membrane had interruptions. In cytoplasm, lost of normal architecture of endoplasmic reticulum, multiple membranous changes in mitochondriae, and presence of abundant desmosomas with atypical arrangement were observed. Besides, continuation bridges among neighbour cells were observed. The PCR study was positive in one case, which showed viral particles under electronic microscopy, and was negative in the other two. Endoscopic images of papillomatous injuries had a whitish color polypoid aspect. Endoscopic, cytological, histological and ultrastructural images are shown in pictures.