Human Papillomavirus in oesophageal cancer
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SUMMARY

Introduction: Human Papillomavirus (HPV) is popularly known as condyloma virus (genital warts). They are able to infect epithelial cells and induce mild and malignant neoplastic changes in different areas of the human body (1-3). They are the etiological agent in almost 100% cervical uterine carcinomas, in 100% genital, commun and plantar warts, and most of skin cancers. These viruses have also been reported in mouth, larynx, oesophagus, colon, anus and prosthata (4-9). Recently they have been found in liver tissue from newborn infants with giant-cell neonatal hepatitis and biliar duct atresia, whose mothers, with genital warts, were having the same HPV types, detected by polymerase-chain reaction (PCR). Currently, 216 HPV types are known. The koilocytes (intermedium layer squamous cells, with hyperchromatic nucleus and well defined perinuclear vacuolae) in a cytologic smear allow us to diagnose HPV infection in any mucosa lined by squamous epithelium. HPV can be seen by electron microscopy, but different types cannot be recognized. There are several ultrastructural studies on HPV infection in uterine cervix (4), but there are not similar studies reporting HPV in esophagus. Objective: To call attention on the possibility of morphological diagnosis of HPV infection in injuries.

Material and methods: Brushing smears and biopsies from mucosa were sampled by endoscopy to seven patients with papillomatous-aspect tumor injuries. Transmission Electron Microscopy (TEM), Immunohistochemistry (anti HPV monoclonal antibody), Polimerase Chain Reaction (PCR) with degenerated primers and typing with restriction enzymes were the techniques used. Results: The initial cytological diagnosis of HPV-associated epidermoid carcinoma, determined by koilocyte presence, some with malignant aspect (Figure A), was confirmed in the histological analysis of all the cases (Figure C), those collocytic images were seen at electronic microscope (Figure D). In two of the three cases studied by electron microscopy, viral particles were found within bee honey-comb-like cell nuclei (Figure F). Nuclei showed filamentous inclusions and some enlarged irregular shaped nucleus with chromatin aggregates close to the nuclear membrane, protrusions of nuclear material through interruptions of the nuclear envelope (Figure E), loss of the endoplasmic reticulum normal architecture, multiple membranous changes in mitochondria, and abundant desmosomes with atypical arrangement were observed in the cytoplasm. Besides, cytoplasmic bridges among neighbour cells were observed. Only one of these three was HPV-16 positive by PCR. Endoscopic images of papillomatous injuries had a whitish color polypoid aspect (Figure B). These results might compel Gastroenterologists to pay more attention to these viruses in this specialty.
REFERENCES

Figure 1 (A) A tadpole cell (arrow) with its hyperchromatic irregular and large nucleus and a perinuclear halo (malignant koilocyte). H-E x800, (B) Endoscopic image of a polypoid formation of epidermoid carcinoma of the oesophagus, (C) Oesophagus. Verrucose carcinoma. H-E x100, (D) Epidermoid carcinoma of the oesophagus. Ultrathin section with koilocytic image and malignant nuclei. X8,000, (E) Epidermoid carcinoma of the oesophagus, malignant epithelial cell with loss of normal architecture of its organelles, enlarged irregular shaped nucleus with chromatin aggregates close to the nuclear membrane, protrusions of nuclear material through interruptions of the nuclear envelope. x5,000, (F) HPV particles x 40,000.