



ORIGINAL ARTICLE

Comparative study between biopsy and brushing sampling methods for detection of human papillomavirus in oral and oropharyngeal cavity lesions^{☆,☆☆}



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KEYWORDS

Polymerase chain reaction;
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Oropharynx

Abstract

Introduction: Many epidemiological studies have suggested that human papillomavirus (HPV), especially type 16, is involved in the genesis of squamous cell carcinoma of the oral cavity and oropharynx, especially in young, non-smoking patients; thus, its detection in lesions in this region is important.

Objective: To clarify the capacity of the brushing sampling method to detect the presence of HPV in oral or oropharyngeal lesions through polymerase chain reaction (PCR) testing, and to compare the results with those obtained by biopsy.

Methods: Prospective study of adult patients with oral or oropharyngeal lesions assessed by PCR, comparing biopsy specimens with samples obtained by the brushing method. The study was approved by the Research Ethics Committee of the institution.

Results: A total of 35 sample pairs were analyzed, but 45.7% of the brushing samples were inadequate (16/35) and, thus, only 19 pairs could be compared. There was agreement of results

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in 94.7% (18/19) of the pairs, with HPV identified in 16 of them. HPV DNA was detected in 8.6% (3/35) of biopsy and 5.7% (2/35) of brushing samples.

Conclusion: There was no statistically significant difference between the two methods, but the brushing sampling method showed a higher number of inadequate samples, suggesting that it is an unreliable method for surveillance.

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PALAVRAS-CHAVE

Reação de polimerase em cadeia;
Testes de DNA para papilomavírus humano;
Boca;
Orofaringe

Estudo comparativo entre biópsia e escovado na pesquisa do papilomavírus humano em lesões de cavidade oral e de orofaringe

Resumo

Introdução: Muitos estudos epidemiológicos indicam a participação do papilomavírus humano, especialmente o tipo 16, na carcinogênese dos tumores espinocelulares das cavidade oral e orofaríngea, principalmente em jovens e não fumantes, sendo portanto importante sua detecção nas lesões desta região.

Objetivo: Elucidar a habilidade do escovado em detectar o papilomavírus humano, pela reação em cadeia da polimerase, nas lesões orais e orofaríngeas, comparando os resultados com os obtidos por biópsia.

Método: Estudo prospectivo de pacientes com lesões orais e orofaríngeas, pela reação em cadeia da polimerase, no qual foram pareados os resultados de amostras obtidas por escovado e por biópsia. A pesquisa foi aprovada pelo Comitê de Ética em Pesquisa da instituição.

Resultado: Foram analisados 35 pares de amostras, porém estavam inapropriadas para análise 45,7% (16/35) das amostras obtidas por escovado, e portanto, somente 19 pares puderam ser comparados. Em 94,7% dos pares houve concordância dos resultados, sendo encontrado o papilomavírus humano – 16 em um destes pares. O ácido desoxirribonucleico do papilomavírus humano foi detectado em 8,6% (3/35) das biópsias e em 5,7% (2/35) dos escovados.

Conclusão: Não houve diferença estatística entre os métodos, mas como houve um grande número de amostras obtidas por escovado inapropriadas, este parece não ser confiável para o rastreamento.

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Introduction

Squamous cell carcinoma (SCC) comprises more than 80% of the mouth and oropharynx carcinomas and its incidence in the head and neck has been increasing over the last thirty years, especially in non-smokers and patients younger than 45 years of age.¹⁻⁴ Syrjänen et al. (1983) were the first to suggest that human papillomavirus (HPV) could also be involved in this carcinogenesis as it is in cervical carcinoma; since then, many studies have been performed to establish the prevalence of HPV in the mouth and oropharynx, both in patients with and without lesions.^{1,2,5,6}

For these reasons, it appears important to establish an affordable and reliable surveillance method for clinical or subclinical infection with high-risk HPV in oral and oropharyngeal mucosa for head and neck SCC prevention. HPV detection methods in SCC of the mouth and oropharynx show broad variations in sensitivity and specificity, with prevalence ranging between 0% and 78%; thus, it is very important to choose a method that has high sensitivity and specificity for HPV detection.

Currently, the most often used method is reverse hybridization with degenerate primers labeled with biotin found in commercial kits, which allows the genotyping of most types of high and low-risk HPV. There are many factors that can affect viral detection, such as lesion location, presence or absence of keratinization, type of sample collected, and collection procedure (how the sample was collected, preserved, and extracted), in addition to the methods used in detection.^{2,7-9}

Biopsy remains the preferred method for obtaining oropharyngeal lesion material, since, in addition to providing a more detailed morphological study, the biopsy sample allows the recovery of basal layer cells, where the HPV could be found in its latent form.^{3,10} However, it is a relatively expensive method, as it requires the presence of a physician and surgical material, which are not always available in the service unit.

This study aimed to compare, through polymerase chain reaction (PCR) and linear array hybridization, HPV presence in material collected by the brushing sampling method and biopsy of mouth and oropharynx lesions, testing the

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