



DIAGNOSTIC EFFICACY OF ORAL SCRAPPING AND ORAL BIOPSY IN THE EVALUATION OF MASS LESIONS OF ORAL CAVITY

Pathology

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ABSTRACT

Background: One of the most frequent cancers of the head and neck, oral cancer has a 5-year survival rate that is still below 50%. The main health risk that exists in South Asia, especially in the Indian subcontinent, is oral cancer. Oral cancer is the most common type of cancer, the leading cause of death in poor countries, and a major public health risk. In the Indian subcontinent, oral squamous cell carcinoma (OSCC) accounts for over 40% of all cancer cases, but in the West, it accounts for only 2-4% of cases. Patients actually appreciate oral exfoliative cytology (OEC) because it is a simple, sensitive, non-invasive, and quick procedure. A hospital stay and post-procedure surveillance may be necessary for oral biopsies, as they are highly invasive procedures. As such, it can serve as a valuable adjunct to gold standard biopsy, in addition to being used for early diagnosis of oral cancer in at-risk persons and surveillance.

KEYWORDS

INTRODUCTION:

Oral cancer is the world's sixth most prevalent type of cancer, with India accounting for about one-third of the total burden and ranking second in terms of oral cancer cases.⁶ Squamous cell carcinoma is responsible for about 40% of cancers in the Indian subcontinent, although accounting for only 2-4% of malignancies in the West.⁷ Despite improved treatment options, the death rate for oral cancer has remained high (over 50%) during the past 35 years. Over the past 50 years, despite new developments in treatment, the 5-year survival rate has remained around 50%. In India, it accounts for approximately 30% of all new cases each year, and the gingival-buccal complex (alveolar ridge, gingival-buccal sulcus, buccal mucosa) is the most common subsite for oral cavity cancer, as compared to tongue cancer, which is more common in the developed nations. There is a tendency of increased incidence and delayed presentation of oral cancer, with approximately 50 percent of patients presenting at stage III or IV. Although oral cancer is a disease of the older age groups, many individuals develop it at an early age (<40 years of age), especially in high incidence countries like India where the lower socioeconomic strata play a significant part.⁸

Early detection of OSCC and premalignant lesions improves survival and quality of life.⁹ Early detection and treatment of cancer is based on the idea that it develops over time and progresses through numerous phases with varying biological significance. Treating cancer at this early stage offers the best prognosis and even a cure. Biopsy is the primary diagnostic test for oral premalignant and malignant lesions. Scalpel biopsy is an invasive intervention. with possible risks, hence clinicians often use additional screening tools to detect early malignant transformations.¹⁰ Oral exfoliative cytology is a patient-accepted, non-invasive method for early detection of oral cancer, such as epithelial atypia and SCC.¹¹ Aim of this study is to assess the Diagnostic Efficacy of oral scrapping and oral biopsy in the evaluation of mass lesions of oral cavity.

MATERIALS AND METHODS

A retrospective investigation will be carried out on 50 patients who, between May 2023 and April 2024, who came to the Department of Pathology, AMCH and Government Dental College, Dibrugarh with a suspected clinical presentation of oral cancer. Its approval was obtained from the Ethical Committee of the institute (AMC/EC/2506). Cytobrush is a useful tool for collecting samples from difficult-to-reach oral areas. Cytobrush collects an adequate number of cells and enables for equal cell dispersion on a microslide, allowing for a reliable

cytopathological diagnosis. Cytobrush collects an adequate number of cells and allows for uniform cell dispersion on a microslide, facilitating reliable cytopathologic diagnosis.

Table-Age and Sex Distribution of Patients Under Investigations

Age	Male	Female	Total
11-20	3	2	5
21-30	13	1	14
31-40	6	1	7
41-50	7	1	8
51-60	5	0	5
61-70	6	1	7
71-80	1	1	2
81-90	1	0	1
Above 90	1		1
Total	43	7	50

Cytological Analysis

Based on above-specified parameters cytologic specimens were classified as follows:^[6-8]

- Class 0: Inadequate specimen
- Class 1: No/abnormal or atypical cells
- Class 2: Atypical cytology but no evidence of malignancy
- Class 3: Cytology suggestive of but not conclusive for malignancy
- Class 4: Cytology strongly suggestive of malignancy
- Class 5: Cytology conclusive for malignancy.

Table 2: Comparison of cytopathological and histopathological diagnosis

Histopathological Diagnosis	Cytological Diagnosis						Total
	Class 5 Conclusive for Malignancy	Class 4 Strongly suggestive of malignancy	Class 3 Suggestive but not conclusive	Class 2 Atypical but no evidence of malignancy	Class 1 No abnormal cells	Class 0 Inadequate smear	
SCC		1					1

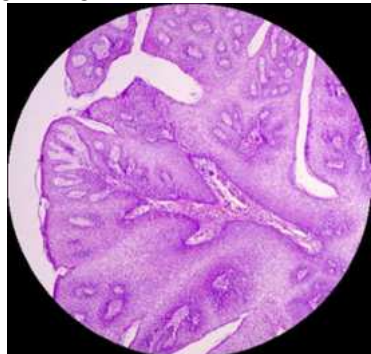
Squamous Papilloma		-	1			1
Mild to moderate dysplasia		4				4
High grade dysplasia	3		1			4
Pyogenic granuloma			1			1
Inflammatory lesion				30		30
Non neoplastic lesions			7			7
Oral Submucosal Fibrosis				2		2
Total	4	4	10	32	50	50

Table 3: Evaluation of cytopathological diagnosis of all the cases

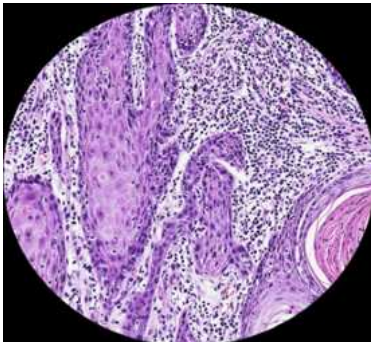
TP	40
FP	1
TN	6
FN	3
Sensitivity	93.0%
Specificity	85.71%
PPV	97.56%
NPV	66.66%



Clinical Presentation of patient with oral lesion in OPD at Government Dental College, Dibrugarh



Squamous papilloma, papillary proliferation of stratified squamous epithelium with occasional hyalinization and fibrovascular core of the papillae.



Squamous cell carcinoma, malignant epithelial cells showing

eosinophilic cytoplasm, hyperchromatic nuclei, pleomorphism, mitotic activity, individual cell keratinization and intercellular bridging.

Table 4: Evaluation of Sensitivity and Specificity

	Disease positive (biopsy positive)	Disease negative ((biopsy negative)	
Swab Test positive	40	1	PPV=[TP/(TP+FP)] 40/(40+1)=97.56%
Swab Test negative	3	6	NPV=TN/(TN+FN) 6/(6+3)=66.66%
	Sensitivity= TP/TP+FN=93% [40/(40+3)]=93.0%	Specificity= TN/TN+FP=85% [6/(6+1)]=85.71%	50

CONCLUSION:

Oral scrapping with its strong diagnostic concordance with the histopathological approach and its high sensitivity, specificity, positive predictive value, and accuracy, oral scrapping has the potential to be a useful tool in resource-constrained environments. But in cases when the cytopathological diagnosis is inconclusive, the histopathological approach ought to be used. As a result, we think that whenever the cytopathological diagnosis is inconclusive—that is, suspect for OSCC or positive for epithelial dysplasia—the histological approach should always be used; conversely, when the cytopathological diagnostic is definite for OSCC, the result of which, can be used for further treatment in oncology centre and fast expedition of treatment of the disease. The chances of false positive and false negative results due to oral scrapping examination is small but a biopsy must be taken wherever a strong clinical and cytological suspicion is seen along with clinical history of the patient.

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