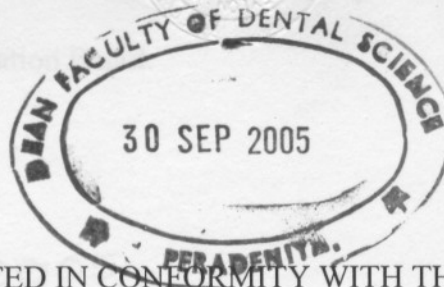



PR
616.31
NAN

THE ASSESMENT OF ACCURACY OF DIFFERENT CYTOLOGICAL
TECHNIQUES COMPARED TO HISTOPATHOLOGY IN THE DIAGNOSIS
OF ORAL PREMALIGNANT & MALIGNANT LESIONS



A THESIS SUBMITTED IN CONFORMITY WITH THE REQUIRMENTS
FOR THE DEGREE OF MASTER OF PHILOSOPHY

PR616.31
NAN



635515
DENTAL LIBRARY
UNIVERSITY OF PERADENIYA

IN

THE FACULTY OF DENTAL SCIENCES
UNIVERSITY OF PERADENIYA

Dr. P.A.P.D. Amarathunga 2005.

Dr. B. G. Nanayakkara

Supervisors

LABORATORY WORK

PILANE GODAKANDAGE CHANDRA LALITH NANAYAKKARA

MBBS (RUHUNA)

University of Peradeniya, Peradeniya, Sri Lanka

635515

Library
Faculty of Dental Sciences,
University of Peradeniya.

ABSTRACT

This thesis includes a comparative study on the uses of two different cytological techniques and the biopsy technique in the diagnosis of oral premalignant and malignant lesions. A cytological smear was taken from the same oral mucosal lesion by using a cytobrush and a spatula. Cytological diagnosis by these two techniques was compared with the histopathological diagnosis of the same lesion by the use of standard surgical biopsy technique. In addition, the cytological diagnosis by the two cytological techniques was compared with each other in order to investigate the accuracy between the two techniques.

According to the clinical appearance, there were 116 leukoplakias, 08 erythroplakias and 76 oral carcinomas. The smears taken from these lesions were stained with Papanicolaou stain and histopathological sections were stained with haematoxyline and eosin.

A sample of 25 normal oral mucosal smears was studied prior to the study of pathological smears to be familiarized with the normal cytology of the oral mucosa. The epithelial cells contained in normal smears were mostly superficial and intermediate cells.

The surgical biopsies taken from leukoplakias showed varying histopathological diagnoses from hyperkeratosis to oral squamous cell carcinoma. The majority of them, i.e., 77, showed dysplastic features and 28 of them were oral squamous cell carcinoma. There were 08 hyperkeratotic lesions and 03 lesions were diagnosed as hyperplasia and acanthosis. The smears taken by the use of spatula technique from leukoplakias showed epithelial cells from superficial and intermediate cell layers. A few parabasal cells were also seen in the smears taken from ulcerative leukoplakia lesions. The smears taken by the use of cytobrush technique showed cells from superficial, intermediate and parabasal cell layers. The cell harvest from the cytobrush technique was much higher than that by the spatula technique.

According to histopathology of 76 clinically malignant lesions, there were 50 squamous cell carcinomas, 19 dysplastic lesions. Single case each of keratosis, chronic inflammatory lesion, mucus cyst and four other malignant lesions were also present.

When the spatula technique was used to take smears from them, the majority of cells were superficial and intermediate cells and a few parabasal cells. However, with the cytobrush technique more than 80% smears showed the presence of parabasal cells in addition to the superficial and intermediate cells.

Out of eight erythroplakia lesions, histopathologically four lesions were squamous cell carcinomas and four lesions were dysplastic. Smears taken with the use of both cytology techniques showed epithelial cells from superficial, intermediate and parabasal cell layers.

There was a statistically significant difference between the spatula technique and the histological technique in the diagnosis of squamous cell carcinoma and dysplasia whilst cytobrush technique appears to be as accurate as histological diagnosis. Thus, the cytobrush technique is superior to the spatula technique in the diagnosis of both squamous cell carcinoma and dysplasia.

When the spatula technique was evaluated in the diagnosis of malignant and premalignant lesions, the sensitivity, specificity and accuracy figures obtained were as follows.

Diagnosis		Sensitivity	Specificity	Accuracy
Leukoplakia	Precancer	86.67	72.97	82.14
	Carcinoma	53.85	98.84	88.39
Squamous cell carcinoma	Precancer	88.89	64.71	71.01
	Carcinoma	60.42	95.24	71.01
Erythroplakia	Precancer	75.00	100.00	87.50
	Carcinoma	100.00	75.00	87.50

TABLE OF CONTENTS

When the cytobrush technique was evaluated in the diagnosis of malignant and premalignant lesions, the sensitivity, specificity and accuracy figures obtained were as follows.

Diagnosis		Sensitivity	Specificity	Accuracy
Leukoplakia	Precancer	96.00	83.78	91.96
	Carcinoma	76.92	98.84	93.75
Squamous cell carcinoma	Precancer	100.00	90.20	92.75
	Carcinoma	89.58	100.00	92.75
Erythroplakia	Precancer	75.00	100.00	87.50
	Carcinoma	100.00	75.00	87.50

When the agreement (reliability) of the two cytological techniques were assessed against the surgical biopsy technique and against each other, the agreement between the cytobrush and the biopsy techniques was excellent in the diagnosis of both leukoplakia and oral carcinoma. The agreement between the spatula and the biopsy techniques in the diagnosis of both leukoplakia and carcinoma appear to be moderate. The agreement between the cytobrush and the spatula techniques in the diagnosis of cancers was shown to be moderate.

1.1.2 Precancerous stage

1.1.2.1 Liver cirrhosis

1.1.2.2 Human papilloma virus