A-17: Morphometric analysis of cytological smears in oral premalignancy and malignancy : further studies

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Presently biopsy is the diagnostic test of choice for oral premalignant and malignant lesions. Sampling of individual cells by exfoliative cytology might

provide some chances of detecting malignant changes. Exfoliative cytology is a simple and non invasive technique. Both nuclear size and cell size are parameters known to be of significance in the diagnosis of malignancy. Application of morphometry of oral cytological smears would improve the diagnostic value of exfoliative cytology and make it more objective. This study was designed to see the cytomorphometric changes in the smears of oral premalignant (leucoplakia) and malignant lesions.

Buccal smears were collected from 40 patients with oral leucoplakia,15 patients with carcinoma of buccal mucosa and 26 controls in the same age range. The smears were stained with Papanicolaou Stain. Biopsies were obtained from the lesions and paraffin sections stained with Haematoxylin and Eosin. Histopathological diagnosis was made for all the lesions. In the smears, the nuclear diameter and cell diameter of 100 cells were measured for each case by using an eyepiece graticule. The mean nuclear diameter (ND) and cell diameter (CD) were obtained for each case. A correlation analysis was performed between the ND and CD or the disease group and the control group. Analysis of variance (one way ANOVA) for ND and CD was performed between the groups which were grouped according to histopathological diagnosis of the lesions.

The correlation between the ND and CD was negative for the disease group ($r=-0.49$) ($p>0.05$). However, there was a positive correlation for the control group ($r=0.4$, $p<0.05$). Analysis of variance for ND and CD was performed between the groups. The mean ND and CD for the 4 groups are given below.

Group Histopathological diagnosis	*Mean diameter (in m)*	
	ND	CD
Leucoplakia with no dysplasia (LND)	8.67	44.64
Leucoplakia with dysplasia (LD)	9.43	40.84
Squamous cell carcinoma (SCC)	9.69	38.97
Controls (CON)	8.52	52.70

For nuclear diameter, there was a significant difference ($p<0.01$) observed in the comparisons between the groups LND and LD, and SCC, LD and SCC, LD and CON and LD and SCC. For cell diameter there were significant differences ($p>0.01$) for comparison between the groups LND

and LD, LND and SCC, LND and CON, LD and CON , and SCC and CON while LD and SCC were not significantly different.

1. There is negative correlation between the ND and CD cells obtained from oral premalignant and malignant lesions and a positive correlation for normal cells.

2. The difference in cell diameter may be an early cytological indication in the diagnosis of oral malignant and dysplastic lesions.

3. There is a difference in cytomorphometry at different stages of malignancy.