BACKGROUND: This study evaluated the performance of oral brush biopsies using standard morphological analysis and haematoxylin and eosin (HE) staining for detecting oral squamous cell carcinomas and their respective precursor lesions.

PATIENTS AND METHODS: Brush biopsies were obtained in 169 consecutive patients who underwent routine biopsies and histological examination for clinically suspicious oral lesions. Air-dried smears were processed by acetone fixation and HE staining. Cytological assessment used well-established criteria of atypia to classify the specimen as either "tumor negative" (no signs of atypia, no malignant cells) or "tumor positive" (malignant cells, any sign of atypia or doubtful cells).

RESULTS: Despite a sufficient number of cells, a definite cytological diagnosis could not be established in six cases. According to the criteria specified above, these specimens were classified as "tumor positive." The cytological analysis identified 49 out of 62 oral malignancies (sensitivity 79%). Seven out of 107 benign lesions were classified as false positive (specificity 93%). The positive and negative predictive values were each 88%.

CONCLUSION: Oral brush biopsies will identify only about 80% of oral malignancies when the smears are processed by routine HE stains and are analysed via standard morphological criteria. Thus, this technique should not be used for diagnostic proof or to exclude...
malignant cells in a lesion suspicious for cancer. However, oral brush biopsy provides a versatile back-up strategy to uncover the true nature of the disease if a lesion is clinically considered benign by mistake.