

Comparison between Exfoliative Cytology and Biopsy in the Diagnosis of Oral Malignancy

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Abstract

Background:

The incidence rates of oral cancer differ from region to region. Overall incidence and mortality attributed to oral squamous cell carcinoma (OSCC) is increasing, with current estimates of age-standardized incidence and mortality of 6.6/100,000 and 3.1/100,000 in men and 2.9/100,000 and 1.4/100,000 in women, respectively. Symptoms that raise concern for the possibility of oral malignancy are non-healing ulcer on the tongue, in the floor of mouth or along the inner cheek. Cytology should be considered for any lesion of the surface of the oral mucosa if the diagnosis cannot be established by clinical exam or history. The cytology smear can be considered as an adjunct in the diagnosis of oral malignancy.

Materials and Methods

All patients who were treated in the Department of General Surgery with clinical suspicion of oral malignancy as IP/OP basis for the duration of two years (June 2005 – June 2007) Patients who were treated in the surgical department after mass screening program. Scrape the entire lesion with the cover slip. The scraping should not be painful to the patient but it should be vigorous enough so that it is noticeable and may generate a small amount of bleeding. Take the coverslip and spread the harvested cells onto the glass slide and fix the specimen.

Results

The male to female sex ratio in oral malignancy was found to be 2.6 :1. The majority of the cases affected by oral malignancy seemed to be clustered in the fifth decade with a mean age of occurrence at 53 years with a confidence limit of ± 10 years. The most common site of carcinoma in oral cavity was found to be cheek and tongue followed by lip and floor of mouth. The sensitivity of the procedure was found to be 82.2% and the specificity to be 100%.

Conclusions

1. The exfoliative cytology could detect malignancy in about 82.2% of those detected by biopsy and histopathological examination. This observation is in agreement with multi-centric International studies where the detection rate was about 90%.

2. Thus with a sensitivity of about 82.2% in a population where the prevalence rates of malignancy is high, the predictive value of the test is significant. The procedure is cost effective and the results are obtained faster. These factors might help exfoliative cytology to qualify as a screening procedure

Key Words: oral malignancy, exfoliative cytology, biopsy.

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I. Introduction

The incidence rates of oral cancer differ from region to region. Overall incidence and mortality attributed to oral squamous cell carcinoma (OSCC) is increasing

Indications

The following are indications for the use of oral cytology smears:

- A mucosal lesion that appears clinically innocuous and otherwise would not be biopsied.
- Evaluation of an extensive mucosal lesion when it is not possible to do a sufficient number of incisional biopsies for adequate sampling.
- Follow-up for patients with a prior diagnosis of either a premalignant or malignant mucosal lesion.
- If the patient's medical status is too fragile for a surgical biopsy or if the patient refuses.
- To assess potential oral candidiasis and viral infections.

Cytology should be considered for any lesion of the surface of the oral mucosa if the diagnosis cannot be established by clinical exam or history. The cytology smear is an adjunct in the diagnosis.

Contraindications

There are no contraindications for cytology.

II. Materials and Methods

All patients who were treated in the Department of General Surgery with clinical suspicion of oral malignancy as IP/OP basis for the duration of two years (June 2005 – June 2007).

This includes –

Patients referred from other departments.

Patients who were treated in the surgical department after mass screening programmes. **Technique**

The supplies needed for oral cytology are:

- 2 glass slides
- 1 Cover slip for each lesion
- A pair of gloves
- Koplins jar with fixative (80% alcohol)
- A Request for Tissue Examination form .



Sequence:

1. Prior to doing the smear, patient must be explained about the purpose of the exam and, in general, the steps of the technique.

2. With a pencil, write the patient's name, the date, and the anatomic location of the smear on the frosted end of a glass slide.

This should be done on two glass slides per lesion because two smears will increase the probability of getting an adequate number of cells

3. Take the coverslip from the box.

4. Put the gloves on.

5. With a gauze gently remove any excess saliva in the area that will be smeared.

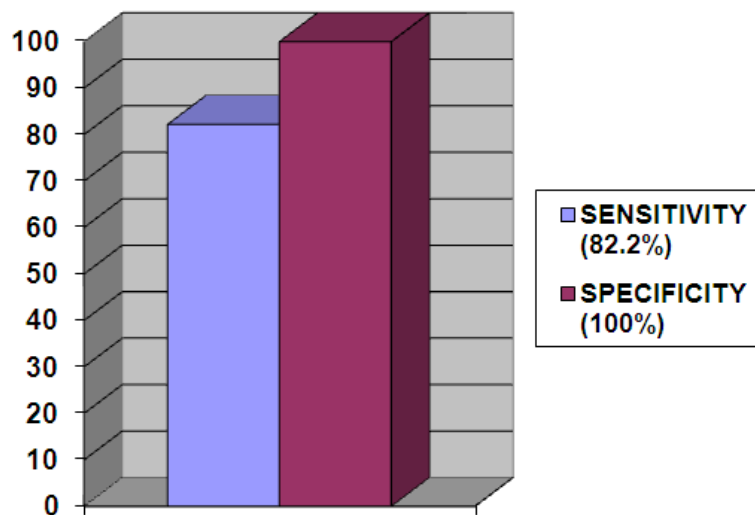
6. Scrape the entire lesion with the cover slip. The scraping should not be painful to the patient but it should be vigorous enough so that it is noticeable and may generate a small amount of bleeding.

7. Take the coverslip and spread the harvested cells onto the glass slide by starting at the frosted end and spreading until the other end is reached. We should be able to see a white, filmy debris on the glass slide. If the slide appears to be completely clear, then it may mean that there are no cells on the slide
8. The slide should be immediately placed in the Koplun jar containing the fixative. The cells will degenerate if they are allowed to air dry. The alcohol fixative that prevents the cells from degenerating for days to weeks.
9. Repeat the procedure for the second smear on the same lesion.
10. Fill out the Request for Tissue Examination form that includes information about the patient, location of the lesion, clinical description, and clinical impression.
11. If there is another lesion(s), we must use a different coverslip to prevent crossover of the cells placed on the glass slides. We can use the same Request for Tissue Examination form and indicate that there was more than one lesion.

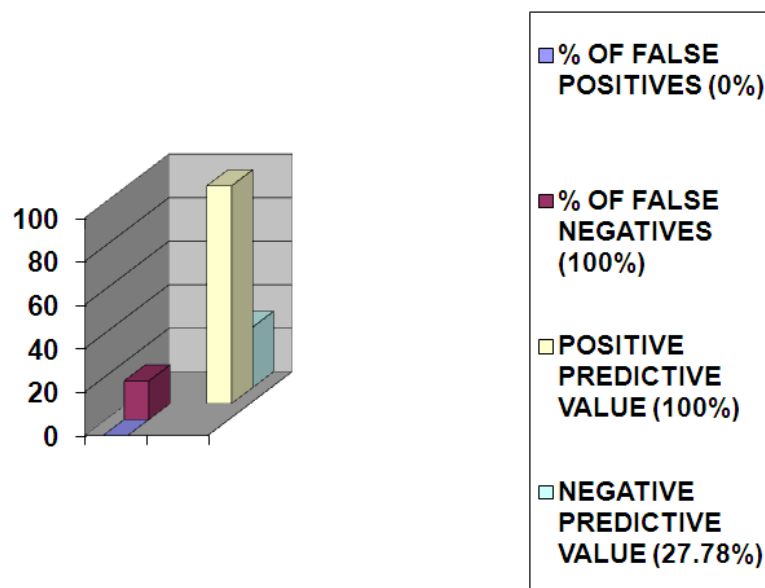
III. Results

The sensitivity of exfoliative cytology in the diagnosis of oral malignancy was found to be 82.2% and the specificity to be 100%.

VALIDITY OF THE TEST



PREDICTIVE VALUE OF THE TEST



IV. Discussion and Conclusions

The exfoliative cytology could detect about 82.2% of the malignancy proved by biopsy. The sensitivity can be improved by using cyto-brush and fixing techniques where the yield of exfoliated cells is better.

The histological diagnosis by exfoliative cytology is more economical when compared to that by biopsy and the results are obtained faster. The exfoliative cytology could detect malignancy in about 82.2% of those detected by biopsy and histo-pathological examination. This observation is in agreement with multi-centric International studies where the detection rate was about 90%.

Thus with a sensitivity of about 82.2% in a population where the prevalence rates of malignancy is high, the predictive value of the test is significant. The procedure is cost effective and the results are obtained faster. These factors might help exfoliative cytology to qualify as a screening procedure.

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Declaration

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