Summary

Early stage breast cancer typically produces no symptoms when the tumor is so small and treatable. It is therefore very important for women to follow recommended guidelines for finding breast cancer at an early stage before symptoms develop. American Cancer Society guidelines for early detection of breast cancer consider fine needle aspiration cytology as one of the commonest methods for early detection of breast mass**.**

Periodic Acid Schiff (PAS) stain is a simple and quick histochemical technique based on periodic acid oxidation of a substance containing the 1,2-glycol grouping, then the aldehyde groups are detected by the Schiff reagent. The presence of strong intracytoplasmic PAS positive, diastase resistant (DPAS) staining within atypical cells is noticed in fine needle aspirates from breast lesions that may help in predicting malignancy.

In normal cells episialin/MUC1 is expressed by ductal epithelial cells and it is exclusively present at the apical side of the cell. In malignant tumors MUC1 is expressed as diffuse cytoplasmic and stromal patterns.

In the present study we determine the sensitivity of FNA of palpable breast masses, significance of DPAS staining and MUC1 immunohistochemical study in the diagnosis of breast cancer.

This prospective study includes 50 female patients with palpable breast mass; (42%) of cases were non-malignant (breast abscess, fibrocystic, and fibroadenoma) and (58%) were

malignant (invasive duct carcinoma and mucinous carcinoma).

All cases were subjected to the following:

Preoperative FNA cytology smears and subsequent excisional biopsy histopathologic sections stained by:

-H&E stain

-DPAS stain

-MUC1 immunohistochemical stain

The following results were obtained:

Statistical analysis of FNA diagnosis showed that sensitivity was 94.34% (±4.5), specificity was 95.78% (±3.1), positive predictive value (PPV) was 94.05% (±4), negative predictive value was 64.49% (±2.5), and accuracy was 70.8% (±3).

Grading of breast carcinoma on FNA smears showed sensitivity was 77% and specificity was 57%. There was no concordance between cytologic and histopathologic grading systems.

Histopathologic examination of subsequent excisional biopsies revealed 13 (26%) non neoplastic lesions (breast abscess, fibrocystic disease), 8 (16%) benign cases (fibroadenoma) and 29 (58%) malignant cases (25 cases of invasive duct carcinoma and 6 cases of mucinous carcinoma).

Staining FNA cytology smears by Periodic acid Schiff stain with diastases (DPAS) showed statistically significant correlation between DPAS staining and FNA results (P-value <0.05).

On histopathologic sections stained by DPAS, there was statistically significant correlation between DPAS staining and histopathology results (P-value <0.05).

There was an association between DPAS positivity (++, +++) on FNA and subsequent malignant histopathology with positive predictive value 96%. However, statistically there was insignificant correlation between DPAS staining, FNA results and histopathologic diagnosis (P-value >0.05).

Studying MUC1 expression on FNA biopsies, there was statistically, insignificant correlation between MUC1 staining smears and FNA results as most of the smears showed low cellularity which were not sufficient for immunostaining (P-value >0.05).

While on histopathologic biopsies; there was statistically significant correlation between MUC1 staining results and histopathologic diagnosis (P-value <0.05).

However, there was insignificant correlation between MUC1 expression on FNA smears and MUC1 on histopathological diagnosis (P-value>0.05).

Correlating DPAS staining results and MUC1 immunohistochemical results on FNA smears; revealed that there was statistical insignificant correlation (P-value>0.05).

Also comparing DPAS staining results and MUC1 immunohistochemical results on histopathological sections; showed that there was insignificant statistical correlation (P-value >0.05).