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Liquid-Based preparations in thyroid fine needle aspiration

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Fine-needle aspiration cytology (FNAC) of thyroid nodules became the primary diagnostic tool in the evaluation of thyroid nodules. In recent, thin layer technique (liquid-based) is widely used especially in gynecologic case due to its convenience in reading. Some study has been published on the liquid-based cytology (LBC) in non-gynecological specimens. However, the efficacy of preparing thyroid FNAC as a LBC in thyroid FNA has not been widely evaluated.

In our study, we examined LBC of 204 sono-guided thyroid FNA cases. To evaluate efficacy of liquid-based cytology, we first prepared conventional smears from FNA of thyroid. After conventional smear, we obtained sample for liquid-based cytology from the discarded needle and syringe. Cytologic examination was done by two pathologists about each conventional slide and liquid-based cytology. The analysis of these two separated sample is categorized into unsatisfactory, benign, atypical and malignant (including papillary carcinoma). By each pathologists, 61 (30.0%) and 49 liquid-based cytology slides (24.0%) were considered unsatisfactory specimen compared with 35 (17.2%) in conventional smear slides.

The unexpected high rate of unsatisfactory cases LBC method is probably due to few cells left in needle tip. As a same reason, LBC showed atypical in 11 cases (5.4%) and 4 cases (2.0 malignant in 8 cases (4.0%) and 9 cases (4.4%). Against, conventional smear diagnosis was atypical in 17 cases (8.3 and malignant in 13 in cases (6.4%).

However, the LBC slide, we can more easily achieve the details of nuclear feature, discrete nucleoli and cytoplasm.

LBC is easier, useful technique for reduction of labor time consuming and also for evaluating cytologic features. In this study split-sample technique produced unexpected low cell yield including high unsatisfactory rate and missing of malignancy.

However LBC is more convenient and less time consuming method than conventional smear of FNA of thyroid.