

Role of liquid based cytology vs. conventional cytology in FNAC of abdominal masses

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Abstract

Background: The study was conducted to assess the role of Thin Prep, one of the FDA approved Liquid based cytology techniques in the diagnostic cytology work up of abdominal masses. We evaluated a total of 30 patients presenting with abdominal masses. The aspirate material was processed by conventional technique and by Thin Prep method and also rinsed into cell block fluid. The slides prepared from both the methods were compared by two independent pathologists. They were evaluated by comparing adequacy, cellularity, architectural pattern, cellular morphology preservation and background. Findings suggested that cellularity was more often higher in conventional smears than on Thin Prep slides (p value=0.025). Architectural pattern preservation was better on conventional smears (p value=0.001). Cytoplasmic preservation was better on conventional smears (p value=0.001), but difference in preservation of nuclear details was not statistically significant. The background in smears prepared by Thin Prep slides were significantly cleaner than direct smears (p value=0.001). Non epithelial elements like mucin and neurofibrillary tangles were better preserved on direct smears (p value=0.001), but diagnostic accuracy for both the methodologies showed no statistically significant difference (p value=0.226). The Liquid based cytology techniques utilize expensive equipment, reagents and they also generate certain morphological artifacts in slides with which a cytologist needs to get familiar. On using alone they might not consistently provide any added benefit in the work up of such lesions and should be employed as an adjunct to conventional smears. They may be preferred in situations where material needs to be transported or is required for ancillary tests.

Keywords

Conventional cytology, FNAC, Liquid based cytology

Background

Fluid based arrangements were initially produced for application to cervical spreads yet have continuously picked up kindness when applied to both nongynecological cytology tests and fine-needle suction cytology. Fluid based arrangements have a few preliminary, screening,

and demonstrative points of interest including uniform assortment techniques, staying away from perils of needle dealing with needed during traditional planning, and simple transportation to the lab, making them a proper option in contrast to the customary cytology. It requires quick fluid obsession, which jam morphology and doesn't prompt any air-drying curio. The leftover material can be utilized to handle various slides, cell block for auxiliary tests, for example, immunocytochemistry, and other sub-atomic tests, specifically, PCR, stream cytometry, and DNA ploidy analysis.

In the ongoing past, contemplates have contrasted the conventional smear procedure with fluid based, dainty layer innovation in the assessment of gynaecologic material. These investigations discovered that fluid based techniques increment the location of intraepithelial injuries and irresistible specialists and lessening the extent of inadmissible diagnoses. Studies have additionally been performed on nongynaecologic material with variable outcomes. Notwithstanding, to legitimize the utilization of such a method, which adds considerable expense to existing techniques, an intensive fair-minded examination should be attempted to decide its indicative worth. A few examinations have clashing outcomes with respect to the quality and sufficiency of example readiness of FNA spreads by this technique.

The two FDA affirmed fluid based cytology (LBC) procedures for both gynecological and nongynaecological cytology tests are Thin Prep (CYTYC Co., Marlborough, MA) and Tri Path PREP (TriPath, Inc., Burlington, NC). There are numerous manual strategies additionally, for example, SYNERMED GLUCYTE[®], PAPSPIN (Thermoshandon), CYTOSCREEN (Seroa, Monaco), TURBITEC (Labonord, Templemars, France), and others. The immediate smears are set up by manual spreading of the example on a slide in light of which there is absence of consistency and little command over basic example segments, for example, cell morphology, lucidity, thickness, and consistency. Cell conveyance on slides will in general be lopsided and cells are probably going to get harmed via air drying and get darkened by blood, bodily fluid, and covering cells. There are numerous investigations in the writing surveying utility of LBC methods in the fine-needle goal cytology (FNAC) of bosom and thyroid yet there is generally couple of studies on their part in stomach aspirates. This investigation was embraced to assess the function of LBC and contrast it and that of regular smear procedure in the suction of stomach masses. The most well-known disease around the globe is Lung cancer. The way in to the adequacy of its therapy is early identification and diagnosis. Early analysis is too needed to separate the sores which are favorable or dangerous, as their course of treatment varies impressively in thoracic sores be it lung or mediastinal mass. Fine needle yearning cytology has for quite some time been acknowledged as a fast, compelling, minimal effort and less horrendous strategy for assessment of lung neoplasm in relationship with clinical

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and radiological findings.⁵ For profound situated sores, similar to those in the thoracic pit, FNAC can be performed with the assistance of CT or USG guidance. The FNA material can be prepared by two strategies for example ordinary smear cytology (CC) and fluid based cytology (LBC). CC is as yet the significantly utilized strategy in agricultural countries attributable to its minimal effort, however there are numerous challenges looked by pathologists in surveying spreads handled by customary strategy. These incorporate darkening components, for example, blood, bodily fluid and provocative cells covering, obsession curios, poor cell protection, and non-uniform cell thickness. LBC is an arising strategy over CC in created countries because of its set up preferences in cervical cytology. LBC was begun in 1996 for FNA assessment what's more, has a few focal points like less unsuitable smears, less clouding materials, for example, blood, mucous, fiery cells in smears, less odds of air-drying curios, uniform cell thickness, and the utilization of leftover material for cell block groundwork for additional testing such as immunocytochemistry (ICC), PCR and stream cytometry.⁹⁻¹² Liquid Based Cytology (LBC) has picked up interest and notoriety among pathologists in created countries even in non-gynecological examples attributable to its focal points over CC of expanded affectability and specificity. Many examinations have been accounted for in the writing on the utility of LBC strategies in FNAC of lymph hub, thyroid, bosom, salivary organ and stomach suction likewise, yet there is restricted information on their part in lung suction and no rules has been set up for the utilization of LBC in lung/mediastinal aspirates. The point was this examination was to survey the symptomatic viability of the fluid based cytologic test (LCT) and regular smear cytology (CC) in fine needle suction of lung and mediastinal masses and to think about the cyto-morphological boundaries.

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