ULTRASOUND GUIDED THYROID FINE-NEEDLE ASPIRATION, SAMPLE ADEQUACY WITH AND WITHOUT IMMEDIATE CYTOPATHOLOGY ANALYSIS

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DISCLOSURES

• NONE
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BACKGROUND AND HYPOTHESIS

• **BACKGROUND:** Ultrasound guided fine-needle aspiration has become a valuable tool in differentiating benign and malignant thyroid nodules found on diagnostic ultrasound examinations (1, 2, 3, 4). The cost effectiveness and accuracy of having aspirate samples immediately analyzed by the pathology department on site versus having the sample evaluated at a later time in the pathology department varies by institution and operator (1, 4).

• **HYPOTHESIS:** Fine needle aspirate samples obtained by a well trained practitioner and sent for cytology/pathology evaluation is more cost effective than having pathology on site for every thyroid FNA procedure. There should be no statistical difference in adequacy rates for tissue obtained with and without immediate cytopathology analysis (3).
METHODS

• The institutional review board (IRB) approved this HIPAA-compliant study, and the need for patient informed consent was waived. In this retrospective study, all ultrasound guided thyroid fine-needle aspirations were completed by a single practitioner during an eighteen month period from September 2014 through January 2016. Cytology was present for approximately 50 percent of the procedures. During the cases where a cytotechnologist and pathologist were present, samples were immediately stained and analyzed microscopically to ensure an adequate sample. Once a sufficient quantity of material was obtained, as verified by the cytotechnologist and pathologist, the procedure was concluded. During the procedures where cytology was not present, a total of four passes were made through the thyroid nodule using a 25-gauge needle. The first two samples were obtained without using aspiration technique, followed by two samples obtained utilizing the aspiration technique. These samples were placed in a specimen container containing cytologic fluid and sent to the pathology department for further analysis. If sufficient tissue was not obtained, the patient was brought back to the radiology department for repeat evaluation (2).
ULTRASOUND OF THYROID NODULE: LARGE INFERIOR POLE THYROID NODULE WITHIN THE RIGHT THYROID LOBE. AS NOTED IN THE DIAGRAM (RIGHT IMAGE), FNA NEEDLE WITHIN THE THE NODULE. METALLIC NEEDLE WITH POSTERIOR ACOUSTIC SHADOWING.
LEFT IMAGE: DIFF-QUICK-STAINED THYROID TISSUE SHOWING ADEQUATE SAMPLE FOR CELLULAR DIAGNOSIS.
RIGHT IMAGE: HIGH POWER FIELD OF VIEW SHOWING CYTOMORPHOLOGY CONSISTENT WITH THYROID PAPILLARY CARCINOMA.
RESULTS:
SPECIMEN ADEQUACY WAS FOUND TO BE SUFFICIENT IN 95% OF THE CASES WHERE CYTOPATHOLOGY WAS AVAILABLE AND 87% WHERE CYTOPATHOLOGY WAS NOT AVAILABLE. HOWEVER, DUE TO COST AND SCHEDULING FEASIBILITY, IT SEEMS TO BE MORE EFFECTIVE TO PERFORM ULTRASOUND GUIDED THYROID FINE-NEEDLE ASPIRATION WITHOUT A CYTOTECHNOLOGIST AND PATHOLOGIST PRESENT, WITH NO SIGNIFICANT LOSS OF SAMPLE ADEQUACY.
CONCLUSION

- Results of this study show it to be more cost effective to perform ultrasound guided fine-needle aspiration of thyroid nodules without immediate cytopathology analysis. Data analysis will continue to further strengthen this conclusion and show the lack of statistical significance between the two sample arms.
REFERENCES


