Ultrasound-guided fine-needle aspiration biopsy of thyroid nodules in children and adolescents has high diagnostic accuracy


RESULTS A total of 52 nodules in 42 patients underwent US-FNAB. The mean age of the patients was 14.75 years (range, 8.67 to 19.75); 29 patients (69%) were female, and 13 (31%) were male. The surgical histology results were available in 16 thyroid nodules. The US-FNAB cytology specimens were papillary thyroid cancer in 6 nodules (12%), indeterminate in 2 (4%), nonneoplastic in 42 (83%), and inadequate for diagnosis in 1 (2%) (Figure 1). Twenty-two of 36 nodules with benign cytology (61%) had follow-up with clinical and ultrasound examinations for an average of 20 months without any significant change in nodule size. Among the 16 patients who had thyroid surgery for which the histology diagnosis was available, the US-FNAB sensitivity was 100% and the specificity was 89%. There were no known false-negative cytology specimens, but there was one false-positive case. The overall diagnostic accuracy was 94%, which compares favorably with the results in a previous publication by these authors of historical controls that had fine-needle aspiration biopsy by palpation (Figure 2).

CONCLUSION Ultrasound-guided fine-needle aspiration biopsy of thyroid nodules in children and adolescents has high diagnostic accuracy.
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A number of studies show that US-FNAB is more precise and provides greater diagnostic accuracy than does FNAB performed by palpation to guide placement of the aspiration needle. Danese et al. (1) found that the sensitivity, specificity, and diagnostic accuracy was 92% vs. 97%, 69% vs. 70%, and 73% vs. 76%. In another study, by Carmeci et al. (2) The cancer yield at surgery for palpation-FNAB was 40%, and the cancer yield at surgery for US-FNAB was 59%. A study by Redman et al. (3) concluded that US-FNAB with on-site evaluation of cytology specimens substantially increases the adequacy of cytology specimens and decreases the number of required needle passes, which ultimately reduces patient discomfort and diagnostic errors, thus raising the question as to whether this should eventually become the standard of care. I think this is a goal that training programs should strive to achieve.

The current American Thyroid Association management guidelines for patients with thyroid nodules and differentiated thyroid cancer (4) makes the following recommendations concerning neck ultrasound in the workup of thyroid nodules:

- Ultrasound guidance for FNAB is recommended for those nodules that are nonpalpable, predominantly cystic, or located posteriorly in the thyroid lobe.
- Ultrasound guidance should be used when repeating the FNAB procedure for a nodule with an initial nondiagnostic cytology result.

My opinion is that most thyroid nodules that require fine-needle aspiration biopsy should be performed under ultrasound guidance and with assessment for cytology adequacy.

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References