



THYROID NODULES

Parathyroid lesions can be diagnosed by biopsy, but will need additional testing

BACKGROUND

The parathyroid glands control blood calcium levels. There are 4 parathyroid glands and are found right next to the thyroid gland on both sides. The normal parathyroid gland is usually not visible on ultrasound imaging. An enlarged parathyroid gland can indicate the disorder hyperparathyroidism, where calcium levels are very high. Surgery is often required for treatment of hyperparathyroidism. Parathyroid glands can sometimes look like thyroid nodules on ultrasound and other imaging, especially when they are found in unusual locations such as inside the thyroid gland. In these cases, biopsy is often considered to evaluate whether it is thyroid vs parathyroid. However, biopsy of a parathyroid gland usually is indeterminate, as parathyroid identification requires special stains. The goal of this study was to determine if other, less involved methods such as simple pattern recognition on cytology, could be used to accurately distinguish parathyroid from thyroid lesions with a thyroid biopsy specimen.

THE FULL ARTICLE TITLE

Cho M et al. Distinguishing parathyroid and thyroid lesions on ultrasound-guided fine-needle aspiration: a correlation of clinical data, ancillary studies, and molecular analysis. *Cancer*. June 16, 2017 [Epub ahead of print].

SUMMARY OF THE STUDY

A total of 143 indeterminate thyroid biopsy specimens were reviewed by experienced pathologists. Almost 25% were confirmed to actually be parathyroid tissue and not an indeterminate thyroid lesion. In these 34 parathyroid lesions, 3 different simple cytologic patterns were identified and there were many consistent cytologic features as well.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The identification of parathyroid glands that are within the thyroid is often a challenge. This study identifies characteristics of what a parathyroid lesion looks like under the microscope and should help cytopathologists to consider that diagnosis for thyroid lesions they are determining to be indeterminate.

— Melanie Goldfarb, MD, MS, FACS, FACE

ATA THYROID BROCHURE LINKS

Fine Needle Aspiration Biopsy of Thyroid Nodules:
<https://www.thyroid.org/fna-thyroid-nodules/>

ABBREVIATIONS & DEFINITIONS

Parathyroid glands: usually four small glands located around the thyroid that secrete parathyroid hormone (PTH) which regulates the body's calcium levels.

Parathyroid hormone (PTH): the hormone that regulates the body's calcium levels. High levels of PTH cause hypercalcemia, or too much calcium in the blood. Low levels of PTH cause hypocalcemia, or too little calcium in the blood.

Hyperparathyroidism — a condition of too much calcium in the blood (hypercalcemia) caused by 1 or more tumors of the parathyroid glands causing elevated parathyroid hormone levels

Thyroid biopsy: a simple procedure that is done in the doctor's office to determine if a thyroid nodule is benign (non-cancerous) or cancer. The doctor uses a very thin needle to withdraw cells from the thyroid nodule. Patients usually return home or to work after the biopsy without any ill effects.





THYROID NODULES, continued

Indeterminate thyroid biopsy: this happens a few atypical cells are seen but not enough to be abnormal (atypia of unknown significance (AUS) or follicular lesion of unknown significance (FLUS)) or when the diagnosis is a follicular or hurthle cell lesion. Follicular and hurthle cells are normal cells found in the thyroid. Current analysis of thyroid biopsy results cannot differentiate between follicular or hurthle cell cancer

from noncancerous adenomas. This occurs in 15–20% of biopsies and often results in the need for surgery to remove the nodule.

Cytopathologist: a doctor that examines cells and tissues through a microscope to make a diagnosis of the cause of an abnormal lump or mass after a biopsy.

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