

Application of thyroid volume determination to evaluate thyroid swelling found in health screening for young adults

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Key words Thyroid volume, Ultrasonography, Health screening



Food Science and Human Nutrition

Summary

Backgrounds and Purpose

- Thyroid volume determined by ultrasonography has been utilized for investigation of pathological thyroid growth in patients with various thyroidal diseases.
- In this study, thyroid volume was measured in order to determine the accuracy of health screening of thyroid gland in young adults.

Subjects and Methods

- 34 female young adults, screening-positive and recommended further evaluation, were studied. The mean age was 20.4 yr (range, 17-25yr), 29 of 34 subjects were indicated to have thyroid swelling by physical examination including palpation. Thyroid volume was measured by our ultrasonographic technique as reported previously. (*JCEM81:3257, 1996*).

Results

- Thyroid volume increased more than 20.0mL (above normal range) in only 5 of 29 subjects with thyroid swelling by screening test. (Fig.1)
- 9 of 34 (26.5%) had thyroid autoantibodies.
- Ultrasonography revealed abnormal findings such as nodular lesion and/or cystic lesion in 17 of 34 (50.0%).
- With fine needle aspiration biopsy (FNAB), 5 subjects were diagnosed to have thyroid cancer. (Fig.2)

Discussion

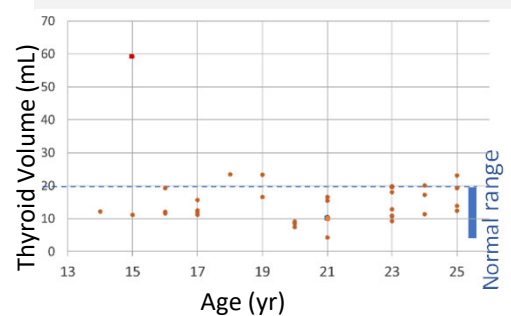
- In young adults, especially in female subjects, thyroid swelling found in health screening is a relatively common symptom. However in this study, thyroid volume was not consistent with physical findings. More than 80% of thyroid swelling by screening examination was false positive.
- On the other hand, not a few of attended subjects had some abnormal findings in thyroid gland with ultrasonography.
- These data suggest thyroid volume determination by ultrasonography will be essential after health examination to evaluate thyroid swelling and to find complicated disorders in the thyroid gland.

Prospects of collaboration

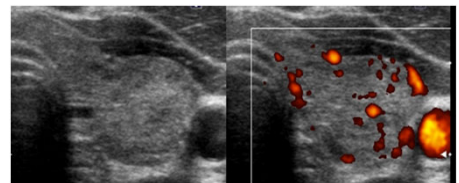
【Collaboration with Medicine and Food science】

Relationship between thyroid volume and nutritional characteristics, for example iodine intake, is still unclear especially in Japanese young adults.

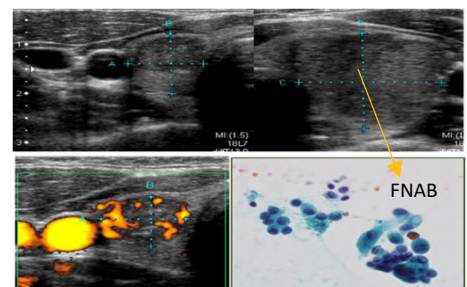
(Fig.1) Distribution of age and thyroid volume



(Fig.2) Ultrasonographic finding of thyroid gland



CASE : 17yr Female, who was found to have thyroid swelling in a health screening. Although thyroid volume was 15.7ml, within normal range, thyroid autoantibodies were positive. She was diagnosed as chronic thyroiditis.



CASE : 23yr Female
Thyroid volume was 19.0ml and a solitary nodule in the left lobe was revealed. FNAB was performed and diagnosed papillary thyroid carcinoma.



Selling point

We are aiming to apply the thyroid volume determination for basic nutritional sciences.