Original article

Can Ultrasound Predict Malignancy in Patient with Thyroid Cold Nodule?

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Abstract

Thyroid nodule is one of the most common endocrine diseases in the world; it occurs in 4–7% of the general population. Depending on the method of discovery, 4–8% nodules are discovered using palpation, 10–41% with ultrasound (US), and 50% through autopsy where only 20% or less of cold thyroid nodules are caused by cancerous lesions. The aim of this study was to assess US as supporting modality for thyroid scintigraphy to predict malignancy in patient with thyroid cold nodules. In a retrospective study between 2009 and 2013, we analyzed 399 subjects with cold thyroid nodule, where 39 subjects (36 women and 3 men) presented with malignant thyroid cold nodule and 19 subjects underwent US. The US showed malignancy parameters in 8 (42.11%) subjects, while the rest of the 11 (57.89%) subject were benign. Out of all the subjects who underwent US in this study, only 8 (42.11%) subjects shown malignancy characteristics in cold thyroid nodule with papillary thyroid cancer (PTC). That means US parameters of malignant thyroid nodule do not always show up in malignant cold thyroid nodule.

Keywords: Cold nodule thyroid, thyroid scintigraphy, ultrasound thyroid malignancy

Introduction

Thyroid nodule is one of the most common endocrine diseases in the world. It affects approximately 4–7% of the general population in the iodine-sufficient areas, with a markedly increased incidence in iodine-deficient regions. Thyroid nodules are classified as adenomas, carcinomas, or hyperplastic lesions based on their macroscopic and microscopic histological features.[1,2]

Adenomas consist of encapsulated lesions derived from the follicular epithelium, and they may be present in isolated, macrofollicular (colloid), microfollicular (fetal), and trabecular/solid (embryonic) forms.[2,3] Adenomas may be functioning (autonomous), in which case they are proportionally larger than the rest of the parenchyma and they produce excessive thyroid hormones; or they may be nonfunctioning, in which case hormone levels are unchanged. Autonomous adenomas can occur at any age, but they are rarely toxic in individuals under 60 years of age. These nodules are generally considered benign, with rare cases of malignancy.[4]

Nodular hyperplasic lesions are characteristically present in multinodular goiter (MNG) and are caused by follicular cell hyperplasia. In some cases, hyperplasic nodules can grow and become autonomous even in the absence of external stimuli.[5]

Differentiated thyroid carcinomas (DTCs), which encompass papillary and follicular carcinomas, are relatively uncommon tumors. They are generally associated with a good prognosis, with an estimated incidence rate of 1–10 cases per 100,000 people per year.

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