



ELSEVIER



CrossMark

Canadian Association of Radiologists Journal 66 (2015) 79–85

CANADIAN  
ASSOCIATION OF  
RADIOLOGISTS  
JOURNAL

[www.carjonline.org](http://www.carjonline.org)

Ultrasonography / Échographie

## Benign Lesions That Mimic Thyroid Malignancy on Ultrasound

Dong Wook Kim, MD\*

*Department of Radiology, Busan Paik Hospital, Inje University College of Medicine, Busan, South Korea*

*Key Words:* Thyroid nodule; Ultrasound; Pitfall; Malignancy; Fine-needle aspiration

Thyroid ultrasound (US) and US-guided fine-needle aspiration (US-FNA) are the most preferred imaging and diagnostic tools, respectively, in the evaluation of nodular thyroid disease [1]. However, the accuracy of US diagnosis in the differentiation between malignant and benign thyroid nodules is controversial [1–4]. Sometimes, US-FNA may be required for diagnosing benign thyroid nodular lesions that show features of malignancy on US. On the basis of previously reported findings and personal experience, intra-thyroidal or perithyroidal lesions that can mimic malignancies on US can be classified into the following categories: (1) inflammatory thyroid abnormalities, (2) non-pathologic thyroid or perithyroidal abnormalities, (3) fibrotic collapse of benign cystic or solid thyroid nodules, and (4) abnormal perithyroidal structures [2–4]. These categories of lesions will now be discussed in detail.

### Inflammatory Thyroid Abnormalities

#### *Inflammatory Pseudonodule Related to Autoimmune Thyroiditis*

A thyroid nodule is defined as a discrete lesion within the thyroid gland that is distinguishable from the adjacent parenchyma by US [2]. Sometimes false nodular thyroid lesions may be found on thyroid US in patients with underlying autoimmune thyroiditis (Figure 1) [5,6]. These nodular lesions are known to be inflammatory pseudonodules associated with autoimmune thyroiditis. Although the

relationship between thyroid malignancy and autoimmune thyroiditis has been controversial, the incidences of thyroid lymphoma and papillary thyroid carcinoma are known to be higher in autoimmune thyroiditis [5,6]. Takashima et al [5] reported that the incidence of pseudonodules associated with Hashimoto thyroiditis is relatively high, at 24.0% (25/104) and that these lesions can mimic thyroid malignancy on US; therefore, they emphasized the necessity of using US-FNA for diagnosing these nodules. Moon et al [6] recommend that, if the thyroid nodules in patients with autoimmune thyroiditis show US features similar to those of malignant lesions and an increase or no interval change in size on follow-up US, then US-FNA should be performed. On follow-up US, an inflammatory pseudonodule may disappear or change in its shape or size, and this finding can be helpful for differentiating it from other nodular thyroid lesions [6]. However, true thyroid nodules can be cytologically misdiagnosed as inflammatory lesions in US-FNA, and this can be explained by the fact that the aspiration route inevitably passes through inflammatory thyroid parenchyma on US-FNA of the intraglandular thyroid nodule [6].

#### *Subacute Thyroiditis That Shows a Nodular Configuration*

Subacute thyroiditis, which is also called de Quervain thyroiditis or subacute granulomatous thyroiditis, is a self-limited inflammatory thyroid disease with a typical clinical presentation; it is known to be caused by a viral infection [7]. Typically, parenchymal lesions of subacute thyroiditis appear as an asymmetric, ill-defined, hypoechoic parenchymal abnormality on US and is characterized by a tendency for tenderness, migration, or decrease in size on follow-up US, and poor vascularity [7]. However, Zacharia et al [8] reported a case of subacute thyroiditis in which ill-defined hypoechoic

\* Address for correspondence: Dong Wook Kim, MD, Department of Radiology, Busan Paik Hospital, Inje University College of Medicine, 633-165, Gaegeum-dong, Busanjin-gu, Busan, South Korea (614-734).

*E-mail addresses:* [dwultra@lycos.co.kr](mailto:dwultra@lycos.co.kr), [dwultra@naver.com](mailto:dwultra@naver.com) (D. W. Kim).

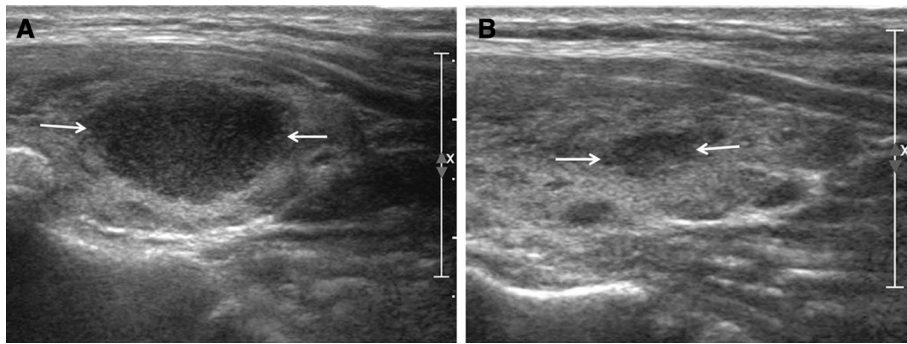


Figure 1. (A) A longitudinal grey-scale sonogram, showing an ovoid nodule with marked hypoechoogenicity, ovoid shape, and microlobulated margin in the left thyroid ( $9.6 \times 14.3 \times 17.6$  mm) (arrows) in a 53-year-old woman with underlying diffuse thyroid disease. Ultrasound (US) guided fine-needle aspiration and US-guided core needle biopsy for this nodule were consecutively performed to rule out thyroid lymphoma, and it was histopathologically confirmed to be chronic lymphocytic thyroiditis. (B) On follow-up US 6 months later, the nodule shows a marked decrease in size ( $4.3 \times 5.8 \times 6.5$  mm) (arrows).

nodular lesions without tenderness were observed on US. Sometimes atypical subacute thyroiditis without a typical clinical presentation may show suspicious US features (Figure 2). Nevertheless, nodular lesions related to subacute thyroiditis tend to rapidly change in the size or disappear on follow-up US [7].

### Nonpathologic Thyroidal or Perithyroidal Abnormalities

*Pseudolesions Due to a Small Vessel, Glandular Lobulation, a Dense Thyroid Capsule, Prethyroidal Muscular Fascia, or Other Dense Structures*

Even in the absence of evidence of diffuse thyroid disease on thyroid US, a pseudonodule(s) can be detected by the presence of various sonic artifacts related to thyroidal vessels, glandular lobulation of the thyroid, or a dense thyroid capsule (Figure 3). Edge shadowing is a common US artifact and is attributed to both refraction and the phase-cancellation mechanism [9]. Refraction of the US beam by normal anatomic structures, such as blood vessel walls, produces artifactual shadows [9]. These pseudolesions can be differentiated from true thyroid nodules by performing a high-resolution US, colour- or power-Doppler US, and US with

modifications in the direction, angle, or position of the probe can be helpful [9].

### Intraglandular Fatty Tissue or Lipoma

The origin of adipose tissue in the thyroid gland is unclear. However, the thyroid gland contains multiple lobules, each of which is composed of multiple follicles, and, in normal thyroid glands, a small amount of adipose tissue is occasionally present adjacent to the capsule or surrounding vessels or in connective tissue septa [10]. Occasionally, localized, intraglandular fatty tissue may be detected as a nodular thyroid lesion on thyroid US, and it can mimic thyroid malignancy (Figure 4). Intraglandular fatty tissue or lipoma can be diagnosed as areas with the same echogenicity and attenuation to that of adjacent fatty tissue on US and computed tomography.

### Fibrotic Collapse of Benign Thyroid Nodules

*Regression After Spontaneous Collapse or FNA of Benign Cystic Thyroid Nodule*

Spontaneous regression of benign cystic thyroid nodule is not rare, and such regressing lesions can mimic thyroid malignancy on follow-up US (Figure 5). US-FNA is the standard diagnostic

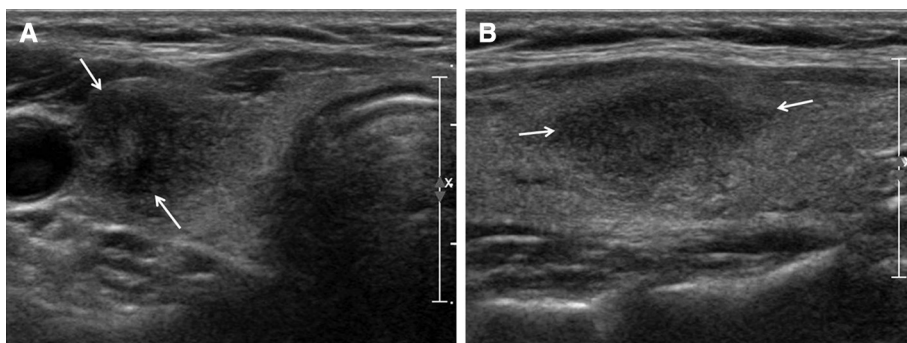


Figure 2. Transverse (A) and longitudinal (B), grey-scale sonograms in a 51-year-old woman, showing a suspicious nodule with marked hypoechoogenicity and spiculated margin in the right thyroid (arrows in A and B). This nodular lesion revealed cytologic findings of subacute thyroiditis in ultrasound-guided fine-needle aspiration, and it was finally diagnosed as subacute thyroiditis with a nodular configuration.

Download English Version:

<https://daneshyari.com/en/article/4220634>

Download Persian Version:

<https://daneshyari.com/article/4220634>

[Daneshyari.com](https://daneshyari.com)