Updates in Ultrasound and Dopplar Studies of Thyroid Nodules

Essay

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وَقُلِ اعْمَلُوا فَسَيَرَى اللَّهُ عَمَلَكُمْ وَرَسُولُهُ وَالْمُؤْمِنُونَ

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Mona Salem

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LIST OF ABBREVIATIONS

Abbreviation	Name
2D	Two dimensionals
3D	Three-dimensional
3D US	Three dimensional Ultrasound
AJCC	American Joint Committee on Cancer
ATA	American Thyroid Association
CEUS	Contrast enhanced ultrasound
CT	Computed Tomography
FNA	Fine Needle Aspiration
FNAB	Fine Needle Aspiration Biopsy
LN / LNs	Lymph node / s
MHz	Mega Hertiz
ML	Milliliter
MM	Millimeter
MRI	Magnetic resonance imaging
PI	Pulsality Index
PSV / SPV	Peak systolic velocity / systolic peak velocity
RI	Resistive index

SD	Standard deviation
UICC	Union Internationale contreIe Cancer
US & U/S	Ultrasonography

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Introduction

The thyroid gland plays a critical role in the regulation of several metabolic functions including cardiac rate and output, lipid catabolism, and skeletal growth, as well as oxygen and heat production. It is shield-shaped consists of right and left lobes that are usually joined by the isthmus. It is situated with its upper margin near the oblique line on the thyroid cartilage and its lower margin at the level of the fourth or fifth tracheal cartilage ***(Loevner, 2003)***

Nodular thyroid disease is commonly seen in daily practice. Its prevalence varies according to the diagnostic approach. Palpable nodules occur in 4% to 7% of the general population. However, in studies using ultrasonography, the prevalence has been reported to be as high as 67.2%. In autopsy findings, the prevalence of thyroid nodules is 50.3%. Approximately 5% of thyroid nodules are malignant ***(Iared et al., 2010).***

The main pathologic types of thyroid carcinoma are papillary, follicular, medullary, and anaplastic. Papillary and follicular thyroid carcinomas both have an excellent prognosis. Medullary thyroid carcinoma is more aggressive. Anaplastic thyroid carcinoma has an extremely poor prognosis. Risk factors for thyroid carcinoma include age of less than 20 years or more than 60 years, a history of neck irradiation, and a family history of thyroid cancer ***(Hoang et al., 2007).***

High-resolution ultrasonography (US) is commonly used to evaluate the thyroid gland ***(Hoang et al., 2007).***

Many sonographic features have been described and studied individually as potential predictors of thyroid malignancy**.** These features include rapid changes in size,