A firm or hard consistency is associated with an increased risk of malignancy in thyroid nodules. Ultrasound (US) elastosonography is a new powerful diagnostic technique that assesses hardness as indicator of malignancy that was recently applied in the diagnostic approach of nodular thyroid disease. The basic principle of elastosonography is that tissue compression produces strain (displacement), that is less in hard than in soft tissues and is scored measuring the degree of distortion of US beam under the application of an external force, during the examination. The US elastogram is displayed over the B-mode image in a colour scale that corresponds to tissue elasticity. The US elastosonography performed on selected series of patients has displayed a sensitivity of 97%, a specificity of 100%, a positive predictive value of 100% and a negative predictive value of 98%. The predictivity of US elastographic measurement was independent from the nodule size, high sensitivity and specificity being observed also in nodules <1 cm. These data were also confirmed by other authors in smaller cytological series. Available data suggest that predictivity of US elastosonography is maintained in indeterminate lesions. Conventional US maintains a pivotal importance to define which nodules are suitable for elastographic characterization. Indeed, nodules in which US reveals the presence of calcified shell and cystic nodules have to be excluded from the US elastographic evaluation. Another limitation is that the nodule to be examined must be clearly distinguishable from other nodules present in the thyroid. Thus, multinodular goiters with coalescent nodules are not suitable for this analysis. US elastosonography seems to have a great potential as a new tool for the diagnosis of thyroid cancer, especially in nodules with indeterminate cytology.