Utrasound-guided core-needle biopsy in thyroid nodules: 676 cases with surgical correlation

Thyroid nodules are a frequent problem. Most are benign, but up to 15% of them are malignant tumours. Ultrasound is the indicated technique to explore thyroid and search for nodules. When a nodule is discovered and it has certain suspicious features on ultrasound, a fine-needle aspiration (FNA) is usually performed to obtain some cells from the nodule and to carry out a cytological analysis to diagnose malignant lesions. Ultrasound is used to monitor and guide the needle to the lesion.

However, diagnostic performance of thyroid FNA is hindered by non-diagnostic biopsies due to insufficient samples or indeterminate cytological patterns (the later must be removed for definitive diagnosis). An up-till-now not used alternative is to perform an ultrasound-guided core-needle biopsy (CNB) to obtain a bigger sample of tissue suitable for histologic analysis (cells and tissue architecture can be analyzed).

We have reviewed 676 nodules in 629 consecutive patients that underwent CNB and posterior surgery in our institution to analyze the diagnostic accuracy of CNB of thyroid nodules. CNB showed a low rate of insufficient and indeterminate diagnosis (5.8% and 4.5%). On surgery, 8 of the 374 benign CNB diagnosis cases corresponded to a malignant lesion, and 3 of the 148 malignant CNB turned out to be benign. The 154 nodules classified as indeterminate in CNB included 122 neoplasms, 28 of them malignant. Only one major complication was observed.

When a CNB has a diagnosis of malignancy, in 98% the nodule is malignant, and in 18.2% when the diagnosis is indeterminate. Sensitivity for malignancy when surgery is indicated after CNB /malignant or indeterminate diagnosis) is 95.6. These figures are very good and mean that CNB is very accurate and correlates very well with the final surgical diagnosis.

As a conclusion, CNB is reliable, safe and accurate to evaluate thyroid nodules. It has low rate of non-diagnostic and undetermined cases, with high sensitivity. It can solve the drawbacks associated with FNA and can be an alternative technique to it, at least in the cases in which a definitive diagnosis has not made using this technique.

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Publication

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Paja M, Del Cura JL, Zabala R, Corta I, Lizarraga A, Oleaga A, Expósito A, Gutiérrez MT, Ugalde A, López JI.

Eur Radiol. 2016 Jan