Author’s response to reviews

Title: Echogenic Foci in Thyroid Nodules: Diagnostic Performance with Combination of TIRADS and Echogenic foci

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Echogenic Foci in Thyroid Nodules: Diagnostic Performance with Combination of TIRADS and Echogenic foci

BMC Medical Imaging

Reviewer reports:

Banu Alicioglu (Reviewer 1): The authors studied retrospectively diagnostic performance and malignancy prediction of thyroid nodules with combination of various TIRADS system and echogenic focus and they reached a PPV of 50-90.9%.

Malignancy rate was high (77.8%) in solid nodules with echogenic focus and comet-tail artifact. Echogenic focus are generally accepted microcalcifications and mostly psammoma bodies, it is reasonable with high incidence of papillary cancer. But according to your study, 6 of the 9 follicular cancer, 11 of 25 other cancer had echogenic focus. What could represent echogenic foci in those tumors? What represent comet tail artifact histopathologically?

→Response to Reviewer 1 comment 1) Thank you for your reply. Echogenic foci are common in thyroid nodules and in literatures, echogenic foci are often poorly defined and simply referred as calcifications. As you comment, microcalcifications are generally assumed to represent psammoma bodies, which are considered specific for papillary cancer but may also be found in follicular or medullary thyroid carcinoma and even thyrotoxicosis (Acta Cytol1986;30: 285–93Medline, AJNR Am J Neuroradiol. 2018 Jan;39(1):156-161). The comet tail artifact is indeed
an artifact with a characteristic reverse triangular shape caused by the principle of reverberation, associated with number of echogenic foci at thyroid imaging (RadioGraphics.2009;29:1179±1189).

Material and method: 'Spongiform appearance' of the nodules were assessed but in results never been mentioned about it.

➔Response to Reviewer 1 comment 2) There was no case of spongiform appearance nodule included in our study population (Supplementary Table 1), however we used this US feature when analyzing the images. To avoid confusion, we deleted the spongiform descriptions in material and method section.

Please give sonographic figures of all 6 types of echogenic focus.

➔Response to Reviewer 1 comment 3) As your suggestion, we provided all 6 types of echogenic foci figures.

Kaan Orhan (Reviewer 2): The authors studied retrospectively diagnostic performance and malignity prediction of thyroid nodules with combination of various TIRADS system and echogenic focus and they reached a PPV of 50-90.9%.

Although the authors stated that they evaluated 'Spongiform appearance' of the nodules but I couldn't find any results regarding this.

➔Response to Reviewer 2 comment 1) There was no case of spongiform appearance nodule included in our study population (Supplementary Table 1), however we used this US feature when analyzing the images. To avoid confusion, we deleted the spongiform descriptions in material and method section.

Please provide USG images all types ecgonic focus.

➔Response to Reviewer 2 comment 2) As your suggestion, we provided all 6 types of echogenic foci figures.

There are couple of studies missing esp. TIRADS, which should be discussed and also entered into Introduction part as well.

➔Response to Reviewer 2 comment 3) As your comment, we discussed some details about TIRADS in discussion and introduction as well.