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Author Reply: Factors to Consider When Interpreting the Diagnostic Performance of Fine-Needle Aspiration and Core-Needle Biopsy in Specific Patient Population

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We would first like to thank the author of the letter for taking the time to read through our paper and share their concerns. We would also like to express our thanks to the Editors for providing us with the opportunity to further review and discuss our work.

In the Letter to the Editor, three potential concerns were brought up. The first concern was that our work included a specific subset of patients who had their thyroid nodules surgically confirmed and that this subset included a higher proportion of patients with malignancy. Second, the author discussed the limitation of reproducing the categorization of core-needle biopsy (CNB) pathology reports. Third, there were comments about certain results in our paper in which better diagnostic performance was observed for CNB than fine-needle aspiration (FNA).

First, we acknowledge the concerns about including a specific patient population, consisting of a high proportion of patients with malignant thyroid nodules (87.2%). As we selected patients based on surgical diagnosis, a selection bias was unavoidable. However, even if the inclusion criteria had included clinical follow-up as a standard, there would still remain the possibility of false-negative or false-positive cases. Nonetheless, this issue is a major concern that we agree needs to be addressed. Indeed, many previous studies have performed head-to-head comparisons of FNA and CNB based on clinical follow-up.[1,2]

Second, both FNA and CNB are dependent on the experience of individual pathologists and are prone to a certain level of inter-observer reproducibility, especially for indeterminate cytology, such as "atypia of undetermined significance or follicular lesion of undetermined significance (AUS/FLUS)".[3,4] It would be hard to say that this issue is limited to CNB alone.

Third, the letter pointed out that CNB showed marginal or significantly higher sensitivity than FNA in a certain subgroup of our study. This was consistent with what was seen in previous studies, in which CNB showed higher sensitivity and negative predictive value, compared to FNA.[5] However, considering that CNB is a more invasive method with a higher potential for complications (Fig. 1) than FNA and because most small thyroid cancers are indolent, our opinion is that we should not change our overall conclusions based on this finding alone.

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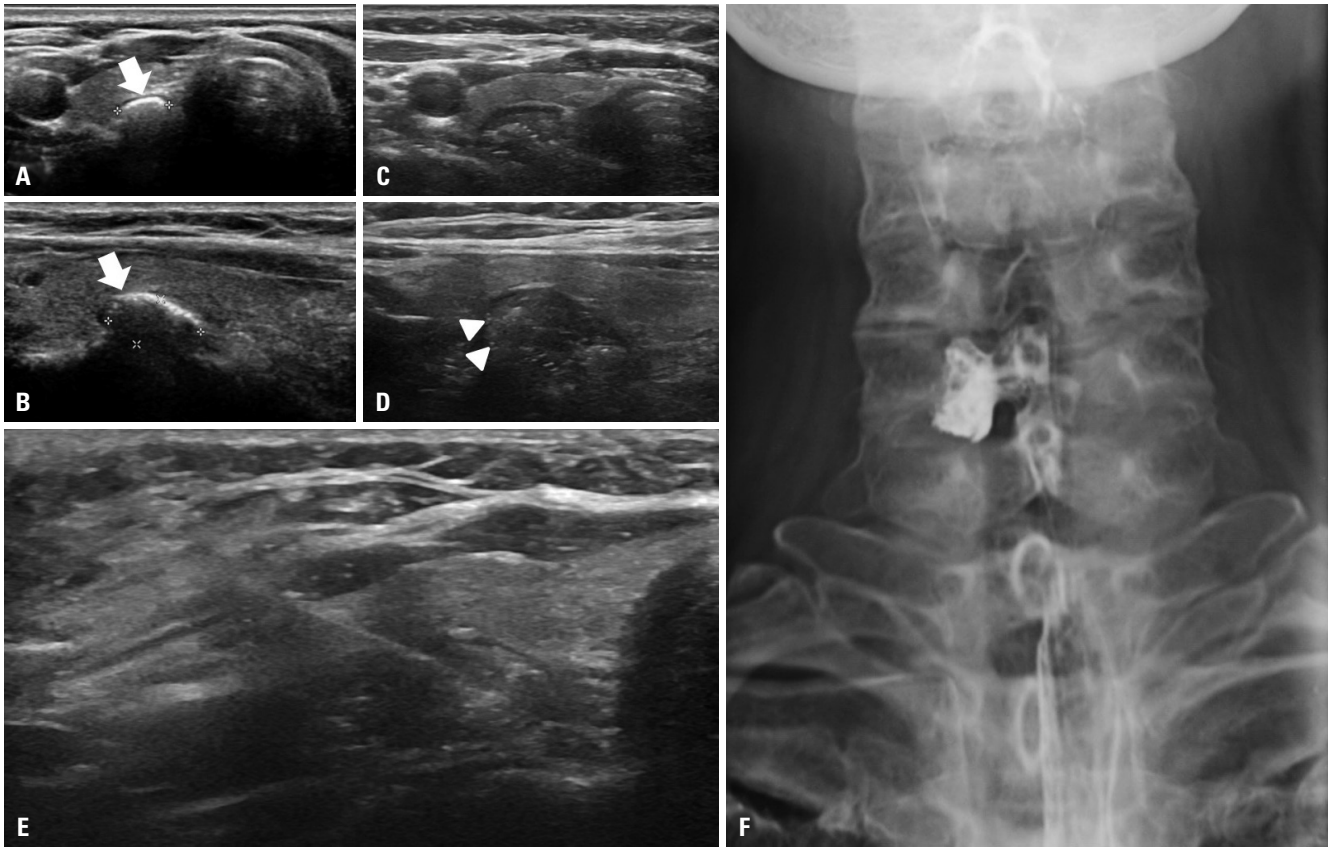

Fig. 1. (A and B) A 59-year-old female patient showing a nodule with an echogenic line (white arrow) in the right thyroid lobe on her first visit. (C and D) On her 3-year follow-up, the nodule had increased in size (white arrowheads), with new internal echogenic spots. (E) FNA was performed at an outside clinic with a nondiagnostic result without mutations. CNB was recommended at the outside clinic, but the patient refused to undergo the procedure. An esophagogram was recommended by a radiologist at our hospital who reviewed all prior US images. (F) The lesion was then diagnosed as an esophageal diverticulum on esophagogram. FNA, fine-needle aspiration; CNB, core-needle biopsy; US, ultrasonography.

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