EUS-guided fine-needle biopsy for histological examination: Is it time to change our sampling technique?

Dear Editor,

In the last decade, several novel core biopsy needles and endoscopic techniques have been developed to overcome the limitations of EUS-FNA, with varying degrees of success. These innovations may facilitate a crucial shift in this field from cytology to histology, increasing diagnostic capabilities and allowing for evaluation of predictive molecular markers to drive personalized therapies.[1]

However, persistent questions regarding the optimal technique must be addressed before widespread conversion to EUS-guided fine-needle biopsy (EUS-FNB).[2] Should the technique to perform EUS-FNB be different than for EUS-FNA cytological samples? Percutaneous core biopsies are done as a single "gun-shot," while the current standard practice for EUS-FNA is to gather cytological specimens from three to four different areas within the target lesion, with up to four of back and forth movements in each area.[3] This so-called "fanning" technique is superior to the previous approach, which utilized multiple to and fro movements inside a single area of the target lesion.[4]

What should be done differently when performing an EUS-FNB? It appears clear from the failure of the Trucut needle (QuickCore®, Cook Medical USA Bloomington, IN, USA) to show any advantage over standard FNA needles[5] that the answer is not a very stiff guillotine 19-gauge needle that allows for a single "firing" attempt.[6] On the other hand, very good results have been obtained using 19-guage needles, both standard needles and those specifically modified with a reverse side-bevel technology (Procore™, Cook Medical) to enhance the collection of the tissue core.[7-12] Interestingly, in some of the studies using a standard 19-guage needle, a technique named EUS-guide fine-needle tissue acquisition (EUS-FNTA) was utilized.[11,12] With this technique, the stylet is removed completely before insertion of the needle in the working channel of the echoendoscope to increase needle flexibility.[11] For both the Procore™ needle and EUS-FNTA studies,[7,11] once the needle is inserted in the target lesion, a single to and fro movement is performed in three to four different areas of the lesion. Changing of the position/angulation of the needle is obtained by moving the big dial upward while the needle is being retracted. If needed, it is also possible to retract the needle entirely to target a different area of the lesion.

We did not perform a comparative study to prove if our "gut feeling" was correct and continued to utilize the EUS-FNTA technique described above to perform both clinical studies and the daily clinical practice. Very recently, however, our chief pathologist met with four other experts and 5 nonexpert pathologists to perform a revision of cytological and histological samples from a meaningful number obtained during the ASPRO study, an international multicenter randomized controlled study comparing the performance of EUS-FNA *versus* EUS-FNB performed using a standard 25 FNA needle and the newly available EUS-FNB needle the 20-gauge Procore™ (Cook Medical) He came back from the meeting and proudly told us that our histological samples were quantitatively and qualitatively the best and that all the other pathologists asked him how the specimens were handled. Their thought was that the way specimens were handled resulted into a better result. Surprisingly, the way we treated the samples was among all the participants to the meeting the easies one, *i.e.*, the samples were handled as they were standard endoscopic biopsies by placing them directly in formalin, by flushing the needle with normal saline.

That day, we understood that what we were doing for years was completely right. It is the technique that matters even if you handle the specimens in the simplest way. We speculated that multiple to and fro

movements in the same area can create damage of the tissue with bleeding, which on the other hand is limited by the single back and forth movement done in a specific area of the solid lesion. Differently from cytological specimen, histological ones like the one-shot technique with three or four targeted areas.

With the very high rate of diagnostic accuracy reached with newly available needles for EUS-FNB[13-15] (The 20-gauge Procore™ (Cook Medical), the 22- and 25-gauge SharkCore™ (Medtronic PLC, Dublin, Ireland), and the 22- and 25-gauge Acquire™ (Boston Scientific Corporation, Marlborough, MA, USA), it will be difficult numerically to prove that our hypothesis is correct. However, sample quality is very important because EUS-FNB is expected to move the practice of EUS from cytology to histology thereby expanding the utilization of EUS throughout the world and facilitate targeted therapies and monitoring of treatment response in a more biologically driven manner.

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Conflicts of interest
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