

## DELICATE NEEDLE WITH THE FINEST GAUGE FOR A BUTTERFLY GLAND, THE THYROID: IS IT WORTH MENTIONING?

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Thyroidology has yet to declare the optimal needle size for thyroid fine-needle aspiration (FNA) cytology. In this respect, the researches on this issue remain restricted in English-language literature. Currently, Saraph and colleagues (1) evaluated dissimilarity between 23- and 25-gauge needles in terms of nondiagnostic/unsatisfactory rates of The Bethesda System for Reporting Thyroid Cytopathology (TBSRTC) after FNA applications. The authors had worked with a sum of 141 23- and 157 25-gauge needles and reported their nondiagnostic/unsatisfactory rates as 31.09% and 35.07%, respectively, with no statistical difference. However, Dong et al. (2) reported working with 240 consecutive nodules, had undergone US-guided FNA (US-FNA), and obtained the highest scores of sample quality with 25-gauge needles in thyroid FNA cytology, comparing with 22- and 23-gauge needles, very recently. The authors declared the nondiagnostic scores of 15.42%, 19.58%, and 14.17% for US-FNA with 22-, 23-, and 25-gauge needles, respectively (2). In addition, recently, Shumrick et al. (3) reported 148 thyroid nodules in 107 cases, had undergone US-FNA, revealing significantly less non-diagnostic cytology with 27-gauged needles, 11.3%, comparing 25-gauge needles, 24.7%. We recently have studied the possible impact of size cutoff of 10- and 15-mm for the thyroid nodules on three diagnostic tools; *i*) strain elastography (SE), *ii*) sonography-guided FNA cytology, and *iii*) histopathology. A sum of 425 cases with 500 thyroid nodules had undergone US-guided FNA (US-FNA) with 27-gauge *finest-needle* by a single surgeon (I.S.), surgeon-performed US (SUS), with a local anesthetic agent (1-3 mL of 1% lidocaine with 1:100,000 epinephrine) based on American Thyroid Association (ATA) management guidelines for patients with thy-

roid nodules and differentiated thyroid cancer [i.e. low, intermediate, and high suspicion nodules]; 2015 ATA management guidelines for adult patients with thyroid nodules and differentiated thyroid cancer] for three years and two months. TBSRTC 1st ed. had been used for this period, for the mentioned considerable and novel ‘SUS based’ US-FNA terminology with the specific and also ‘well-accepted and crucial’ size cut offs of 10- and 15- mm in Thyroidology revealing the FNA cytology outcomes with 27-gauge fine needles, for Category I, per se, TBSRTC, 1st ed. were revealed as 9.0% (4). Moss et al. (5) notified that regular and coordinated thyroid FNA should be performed with smaller needle gauges, 24-27-gauges, without aspiration, routinely, in a systematic review and meta-analysis. Saraph et al. (1) specified the utilization of a 25-gauge needle did not produce a lower nondiagnostic rate, comparing the 23-gauge one. In addition, they pointed out that larger nodules might increase diagnostic rates, while the older and cystic nodules are prone to inadequate samples. We agree with Saraph and colleagues’ (1) opinion about the limitations of nodule location, such as a posterior, more difficult to reach nodules, and sonography of composition (mixed and solid) and echogenicity which may be crucial parameters for this issue. Nonetheless, we postulate that the so-called needle gauge concept selectively enriches with finer needles. Additionally, we currently introduced the proposal of a novel terminology, “minimally invasive FNA (MIFNA)” and “minimally invasive thyroid FNA; Thyroid MIFNA (Thy MIFNA)”, including 27-gauge fine-needle with pre-procedural topical and local anesthetic agents administration, hope to contribute in Thyroidology (6). Of note, we might recommend *opting for a 27-gauge*

*finest needle* in terms of US-FNA for a butterfly gland, the thyroid, with reasonable low rates of non-diagnostic/unsatisfactory cytology, TBSRTC, 1st and 2nd ed. and low severity of pain, as a matter of course. To this end, we also recommend: “*think twice with larger needles for thyroid US-FNA*”. This issue merits further investigation.

**Keywords:** Thyroid gland, Needle, Gauge, Optimal size, Fine-needle aspiration, Thyroidology.

## Abbreviations

**FNA** — Fine-needle aspiration

**US** — Ultrasonography

**SE** — Strain elastography

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**ATA** — American Thyroid Association

**TBSRTC** — The Bethesda System for Reporting Thyroid Cytopathology.

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