DOI: 10.1002/cncy.22797

EDITORIAL

Diagnosing medullary thyroid carcinoma is facilitated by measuring calcitonin in FNA washout fluids: *Alea iacta est*

The prognosis for patients diagnosed with medullary thyroid carcinoma (MTC) varies significantly based on the timing of detection; the earlier the diagnosis, the higher the likelihood of achieving a complete cure or, at least, a better outcome. Having reviewed the study by Ogmen et al.[1] with interest, we provide a commentary on the challenging diagnosis of MTC and the improvement achieved by measuring calcitonin in fluids from fine-needle aspiration (FNA).

The diagnosis of MTC remains challenging. Ultrasound (US) is acknowledged as the most reliable procedure for assessing malignancy risk in thyroid nodules, however, its accuracy in detecting MTC is low.[2] FNA cytology is an essential examination when thyroid cancer is suspected after US; however, just over half of MTC cases are identified in cytological samples.[2] Serum calcitonin is the most sensitive and accurate tool for detecting MTC, however, routine measurement is not universally accepted for all patients diagnosed with thyroid nodules.[3,4] Strong evidence supports measuring calcitonin in FNA washout fluids, with an estimated sensitivity at 98%, showing consistency across studies.[2] Ogmen et al.[1] found that routine measurement of calcitonin in serum, coupled with the search for calcitonin in FNA fluids in patients with elevated serum values, led to an earlier MTC diagnosis. Sensitivities of both serum and FNA calcitonin were significantly higher than those of cytology alone. This can be attributed to the wide variety of architectural patterns and cellular features in MTC cytology, often overlapping with follicular-derived pathologies, posing diagnostic challenges.[5] Ogmen et al.[1] reported additional important data, supporting those published over the last 15 years.

In recent decades, endocrinologists have recognized the difficulty in diagnosing MTC and the need for an alternative strategy to the conventional approach for patients with thyroid nodules. Although US combined with FNA cytology is highly accurate for differentiated thyroid carcinoma, it is insufficient for detecting or excluding MTC, even in patients with elevated serum calcitonin levels. There is robust evidence supporting the measurement of calcitonin in FNA fluids to avoid false-negatives in cytology, especially when cytopathologists are aware of serum and FNA calcitonin values. Cytopathologists should be integrated into patient management, staying informed about suspected MTC cases. This enables cytopathologists to definitively diagnose MTC using calcitonin immunocytochemistry, and confirming the parafollicular origin of the tumor.

A multidisciplinary approach to this topic is required. The challenge is ongoing, starting with new diagnostic tools.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

Pierpaolo Trimboli MD[1,2]
Anna Crescenzi MD[3]

[1]*Servizio di Endocrinologia e Diabetologia, Ospedale Regionale di Lugano, Ente Ospedaliero Cantonale (EOC), Lugano, Switzerland*
[2]*Facoltà di Scienze Biomediche, Università della Svizzera Italiana (USI), Lugano, Switzerland*
[3]*Dipartimento di Scienze Radiologiche, Oncologiche ed Anatomo Patologiche, Facoltà di Medicina e Odontoiatria, Università Sapienza, Rome, Italy*

Correspondence
Pierpaolo Trimboli.
Email: pierpaolo.trimboli@eoc.ch

ORCID

Pierpaolo Trimboli https://orcid.org/0000-0002-2125-4937
Anna Crescenzi https://orcid.org/0000-0002-8156-5753

REFERENCES

1. Ogmen BE, Ince N, Aksoy Altınboga A, et al. An old friend, a new insight: calcitonin measurement in serum and aspiration needle washout fluids significantly increases the early and accurate detection of medullary thyroid cancer. *Cancer Cytopathol*. 2023. doi:10.1002/cncy.22779
2. Trimboli P, Mian C, Piccardo A, Treglia G. Diagnostic tests for medullary thyroid carcinoma: an umbrella review. *Endocrine*. 2023;81(2):183-193. doi:10.1007/s12020-023-03326-6
3. Haugen BR, Alexander EK, Bible KC, et al. 2015 American Thyroid Association management guidelines for adult patients with thyroid nodules and differentiated thyroid cancer: the American Thyroid Association Guidelines Task Force on Thyroid Nodules and Differentiated Thyroid Cancer. *Thyroid*. 2016;26(1):1-133. doi:10.1089/thy.2015.0020
4. Wells SA Jr, Asa SL, Dralle H, et al. American Thyroid Association Guidelines Task Force on Medullary Thyroid Carcinoma. Revised American Thyroid Association guidelines for the management of medullary thyroid carcinoma. *Thyroid*. 2015;25(6):567-610. doi:10.1089/thy.2014.0335
5. Pusztaszeri MP, Bongiovanni M, Faquin WC. Update on the cytologic and molecular features of medullary thyroid carcinoma. *Adv Anat Pathol*. 2014;21(1):26-35. doi:10.1097/PAP.0000000000000004

