CME Session 5

Thyroid Committee
Monday, October 6, 08:00 – 09:30

Session Title

Parathyroid Carcinoma: Rare but Complex

Chairpersons

Petra Petranović Ovčariček (Zagreb, Croatia)
Virginia Liberini (Turin, Italy)

Programme

08:00 – 08:20 **Murat Tuncel** (Ankara, Turkey): Beyond the Surface: Advanced Ultrasonographic Detection and Characterization of Parathyroid Carcinoma
08:20 – 08:40 **Alfredo Campennì** (Messina, Italy): From Detection to Decision: [^{99m}Tc]MIBI Scintigraphy in Parathyroid Cancer Mapping
08:40 – 09:10 **Martin W. Huellner** (Zurich, Switzerland): [^{18}F]fluorocholine PET/CT(MR): A Molecular Beacon in Parathyroid Cancer Imaging
09:10 – 09:30 **Desirée Deandreis** (Paris, France): Decoding Parathyroid Malignancy: [^{18}F]FDG and beyond

Educational Objectives

1. Compare and contrast the principles and mechanisms of ultrasonography, [99mTc]MIBI scintigraphy, [18F]fluorocholine PET/CT(MR), and [18F]FDG PET/CT in parathyroid cancer imaging
2. Analyze the strengths and limitations of each imaging technique
3. Emphasize the role of whole-body imaging in parathyroid carcinoma assessment

Summary

Parathyroid cancer is a rare endocrine malignancy that usually shows slow growth with a metastatic preference for bones, lungs, and liver. Surgical intervention remains the primary treatment, given limited success with other therapies.

Diagnostic imaging plays a crucial role in patient care, offering multiple modalities that guide initial assessment and ongoing management decisions.

Modern ultrasound technology merges conventional B-mode scanning with advanced blood flow visualization. [99mTc]Tc-MIBI scintigraphy demonstrates distinctive radiotracer retention patterns in malignant tissue compared to benign parathyroid lesions. PET imaging with [18F]fluorocholine shows high efficacy for detecting both primary and metastatic disease. [18F]FDG PET/CT serves particularly well for less differentiated tumors.

Whole-body imaging is mandatory to identify distant metastases, contrasting with parathyroid adenomas, where scanning is typically limited to the neck and chest region.

Integrating multiple imaging approaches offers comprehensive disease assessment, combining anatomical and functional insights for improved patient care. This integrated approach enhances staging accuracy, surgical planning, and treatment monitoring.

Key Words
Parathyroid cancer; Imaging; ultrasound; [^{99m}Tc]MIBI; [^{18}F]fluorocholine; [^{18}F]FDG