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Ultrasonographic Presentation of Various Thyroid Lesions and Their Correlation with Fine Needle Aspiration Cytology

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Abstract: ***Thyroid disorders are among the most common endocrine abnormalities. High-resolution ultrasonography (USG) and fine-needle aspiration cytology (FNAC) are crucial in the evaluation and diagnosis of thyroid lesions. This study aims to correlate ultrasonographic characteristics of thyroid lesions with FNAC findings to improve diagnostic accuracy. The results demonstrate that specific sonographic features, such as echotexture, vascularity, and presence of microcalcifications, can provide significant insights into distinguishing benign and malignant lesions.***

Keywords: Thyroid, Ultrasonography, Fine Needle Aspiration Cytology, Thyroid Nodules, Malignancy

1. Introduction

The thyroid gland plays a crucial role in metabolic regulation. Thyroid nodules are prevalent, with malignancy occurring in a subset. Ultrasound and FNAC are widely used diagnostic tools. This study evaluates the correlation between sonographic features and FNAC results to enhance diagnostic accuracy.

2. Materials and Methods

A prospective study was conducted on patients presenting with thyroid nodules at Rama Medical College, Kanpur. High-resolution ultrasound was performed using a linear probe (7-15 MHz), assessing nodule size, echotexture, vascularity, margins, and calcifications. FNAC was performed under sonographic guidance, and cytological findings were compared with ultrasound features.

3. Results

- Sonographic Features:
  - Hypoechoic nodules: 52%
  - Microcalcifications: 30%
  - Increased vascularity: 40%
- FNAC Results:
  - Benign: 75%
  - Malignant: 25%
- Correlation: Hypoechoic texture, microcalcifications, and irregular margins were significantly associated with malignancy.

4. Discussion

USG is highly sensitive in detecting thyroid abnormalities. Hypoechoic nodules, irregular margins, and microcalcifications were strong predictors of malignancy. Color Doppler analysis revealed increased vascularity in malignant lesions. FNAC confirmed malignancy in 25% of cases, demonstrating the utility of combined imaging and cytological assessment.

5. Conclusion

High-resolution USG is a valuable tool for thyroid lesion assessment, particularly when combined with FNAC. The correlation between sonographic features and cytology enhances diagnostic accuracy, aiding early detection and appropriate management.

References

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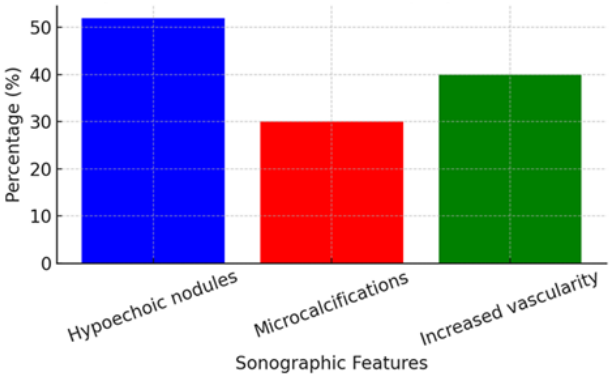
Tables and Graphs

Graph 1: Distribution of Sonographic Features

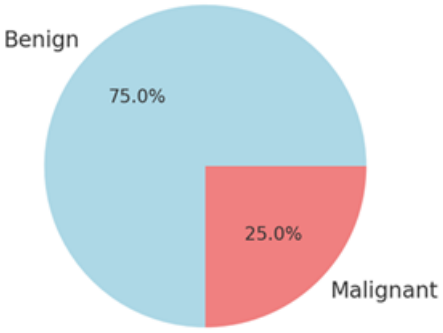
Feature	Percentage (%)
Hypoechoic nodules	52
Microcalcifications	30
Increased vascularity	40

Graph 2: FNAC Outcomes in Studied Patients

FNAC Result	Percentage (%)
Benign	75
Malignant	25



Graph 1: Distribution of Sonographic Features



Graph 2: FNAC Outcomes in Studied Patients