PE 076

International Surgical Week
The World's Congress of Surgery
isw2024.org
Kuala Lumpur, Malaysia
25-29 August 2024

CORRELATION OF SURGEON PERFORMED ULTRASOUND NECK (TIRADS SCORE) AND ULTRASOUND GUIDED FNAC (BETHESDA SCORE) WITH THE FINAL HISTOPATHOLOGICAL REPORT IN THYROID MALIGNANCIES

Athulya Laila Sreekumar, Zahir Hussain, Shradha Srinivas, Aadarsh Raghavan, Aneesh Sugunan, M.S Kumaran,
Department of Endocrine Surgery, **Madras Medical College**, Chennai, India

INTRODUCTION

- Thyroid malignancies are the commonest endocrine malignancies. Endocrine surgeons perform a huge number of thyroidectomies for various reasons, hence if we are adequately equipped to do a USG neck as well as USG-guided FNAC the result yield may be better.

AIM

- To find out the sensitivity and specificity of Surgeon performed USG-TIRADS with final histopathology report.
- To find out the sensitivity and specificity of Surgeon performed USG guided FNAC with final histopathology report.
- To find out the Positive predictive value (PPV) and Negative predictive value for TIRADS and BETHESDA system
- To find out the diagnostic accuracy and percentage of agreement of TIRADS and BETHESDA classification.

MATERIALS & METHODS

- This was a diagnostic test evaluation study conducted in the Endocrine Surgery department of Madras Medical college. The study period was 24 months (January 2022-january 2024).

Inclusion criteria: -

1. All the patients admitted in endocrine surgery who were planned for elective thyroidectomy.

Exclusion criteria: -

1. Small nodules <1cm with no sonological features of malignancy
2. Previous history of thyroid surgery/ Recurrence
3. Patients with scoring system other than ACR-TIRADS

- Study subjects were all the patients with thyroid abnormalities presenting in the endocrine surgery OPD in Madras Medical College who were screened by USG neck (surgeon performed ultrasound) and TIRADS score was given for respective nodules. In case of multiple nodules, most suspicious looking nodule was taken into account. He/she was asked to undergo surgeon performed ultrasound guided FNAC subsequently and BETHESDA score was given and surgery was planned accordingly. Written informed consent including [USG neck, FNAC and surgery including biopsy] was obtained from the participants.

Statistical analysis

- All the data collected were coded and entered in Microsoft Excel sheet which was re-checked and analyzed using SPSS statistical software version 25. A p value of <0.05 was considered statistically significant.

Factors associated with malignancy

Variable	Malignant		P value
	Yes (N=100)	No (N=210)	
Age			
Mean ± SD	43.41±14.53	43.87±13.90	0.788
Age			
≤20 years	5(31.3)	11(68.8)	0.768
21-30 years	12(40)	18(60)	
31-40 years	29(33.3)	58(66.7)	
41-50 years	27(31)	60(69)	
51-60 years	13(25)	39(75)	
>60 years	14(36.8)	24(63.2)	
Sex			
Male	21(50)	21(50)	0.008*
Female	79(29.5)	189(70.5)	
TIRADS			
TIRADS 1	0(0)	0(0)	<0.001*
TIRADS 2	23(14.3)	138(85.7)	
TIRADS 3	13(17.3)	62(82.7)	
TIRADS 4	29(76.3)	9(23.7)	
TIRADS 5	34(97.1)	1(2.9)	
Bethesda classification			
I	2(50)	2(50)	<0.001*
II	29(13.4)	187(86.6)	
III	18(52.9)	16(47.1)	
IV	7(63.6)	4(36.4)	
V	31(96.9)	1(3.1)	
VI	13(100)	0(0)	

DISCUSSION & CONCLUSION

- From our present study we have concluded that **surgeon performed USG (ACR-TIRADS) & US-FNAC** had a good specificity and PPV and NPV and diagnostic accuracy when compared with radiologist and pathologist performing the same and the results were in par with other studies. Whereas the sensitivity was found to be lower for both TIRADS and BETHESDA classification.

RESULTS

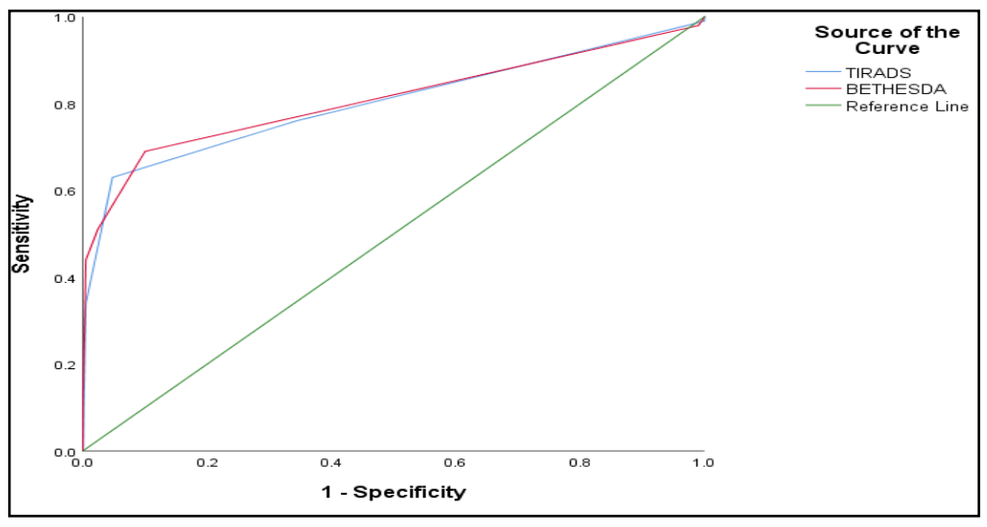
- A total of 310 patients were examined in our study.

Diagnostic characteristics and measure of agreement of TIRADS

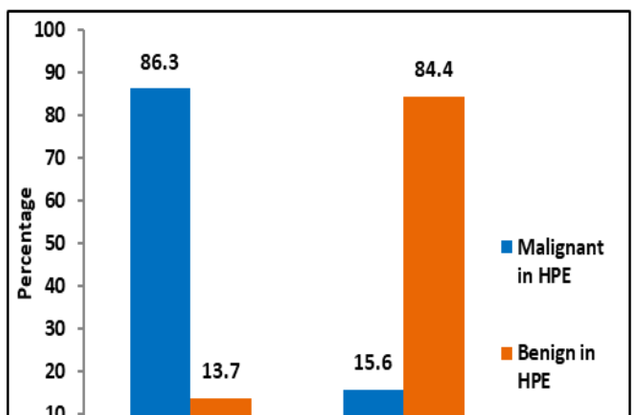
Sensitivity	Specificity	PPV	NPV	Accuracy	Percentage of agreement (Kappa value)
63	95.2	86.3	84.4	84.8	62.7

Diagnostic characteristics and measure of agreement of Bethesda

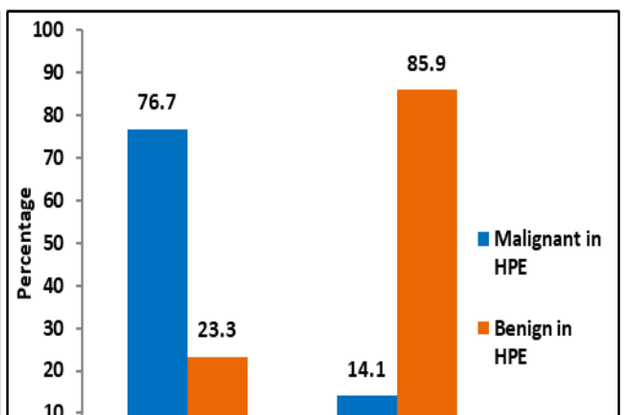
Sensitivity	Specificity	PPV	NPV	Accuracy	Percentage of agreement (Kappa value)
69	90	76.7	85.9	83.2	60.6



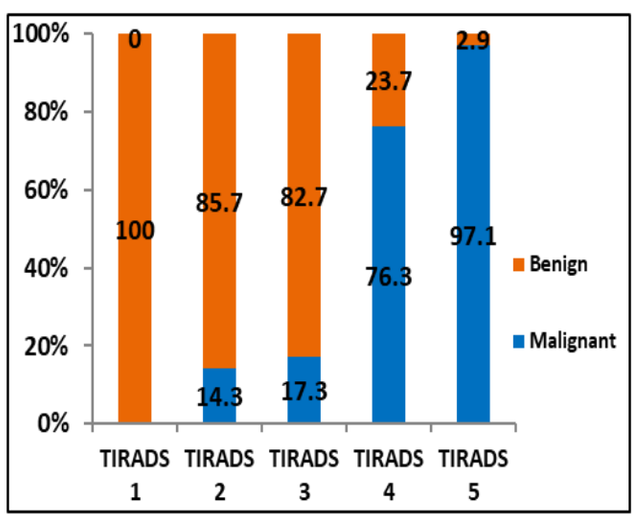
ROC curve of TIRADS and Bethesda classification for predicting malignancy in HPE



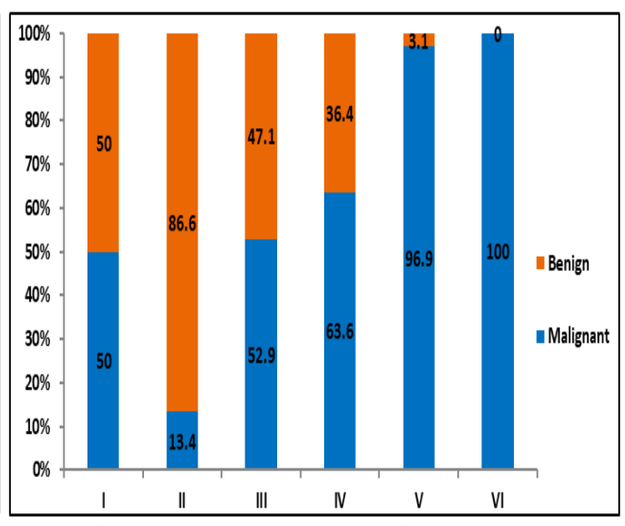
Comparison of TIRADS with HPE



Comparison of Bethesda with HPE



Malignancy in different TIRADS



Malignancy in different Bethesda classification

REVIEW OF LITERATURE

	Present study	Nebu et al.	Acharya et al.	Abdelkader et al.	Horvath et al	Hamdan Ahmed pasha et al.
Year	2022-2024	2019	2022	2018	2017	2021
Place of study	Madras medical College, India	RCC, Trivandrum, India	Tribhuvan university teaching hospital Nepal	General Surgery Department, Benha University, Egypt	Radiology dept, clinica Alemana, Santiago	Jinnah medical college Pakistan
Sensitivity & specificity (TIRADS)	63% 95.2%	72.3% 66.4%	-	-	99.6% 74.35%	-
Sensitivity and specificity of BETHESDA	69% 90.1%	78.7% 100%	84.9% 89.4%	76.9% 91.3%	-	81.30% 77.06%
PPV and NPV of TIRADS	86.3 84.45	97.14 13.332	-	71.4% 76.4%	82.1% 99.4%	-
PPV and NPV of BETHESDA	76.7 85.9	100 23.08	86.4% 88.2%	-		91.64 57.14
Degree of Accuracy	84.8% (TIRADS) 83.2% (Bethesda)	72 (TIRADS) 80 (Bethesda)	87.3%	75.4% (Bethesda)	Not available	78.22%

REFERENCES

- George NA, Suresh S, Jiji V, Renu S, Thomas S, Janardhan D, Jagathnath Krishna KM, Patil S, Samuel DM, George CK, Moideen SP. Correlation of TIRADS and Bethesda Scoring Systems with Final Histopathology of Thyroid Nodules - An Institutional Experience. Indian J Otolaryngol Head Neck Surg. 2022 Dec;74(Suppl 3):5753-5758. doi: 10.1007/s12070-021-02380-8. Epub 2021 Jan 21. PMID: 36742706; PMCID: PMC9895457.
- Pasha HA, Mughal A, Wasif M, Dhanani R, Haider SA, Abbas SA. The Efficacy of Bethesda System for Prediction of Thyroid Malignancies- A 9 Year Experience from a Tertiary Center. Iran J Otorhinolaryngol. 2021 Jul;33(117):209-215. doi: 10.22038/ijorl.2021.50538.2687. PMID: 34395320; PMCID: PMC8339890.
- Younis, Mohamed. (2018). Preoperative Evaluation of Thyroid Nodules: A Prospective Study Comparing the accuracy of Ultrasound (TI-RADS) Versus the FNAC Bethesda System in Relation to the Final Postoperative Histo-pathological Diagnosis. Annals of Pathology and Laboratory Medicine. 5. 10.21276/APALM.2110. Heller MT, Gilbert C, Ohori NP, et al. Correlation of ultrasound findings with the Bethesda cytopathology classification for thyroid nodule fine-needle aspiration: a primer for radiologists. Am J Roentgenol. 2013;201(3):W487–W494. doi: 10.2214/AJR.12.9071.
- Horvath E, Silva CF, Majlis S, Rodriguez I, Skoknic V, Castro A, Rojas H, Niedmann JP, Madrid A, Capdeville F, Whittle C, Rossi R, Domínguez M, Tala H. Prospective validation of the ultrasound based TIRADS (Thyroid Imaging Reporting And Data System) classification: results in surgically resected thyroid nodules. Eur Radiol. 2017 Jun;27(6):2619-2628. doi: 10.1007/s00330-016-4605-y. Epub 2016 Oct 7. PMID: 27718080.