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Research Article

**RATE OF OCCURRENCE OF THYROID INCIDENTALOMAS
IN POPULATION OF KARACHI**Dr Abdul Ghaffar Arain¹, Dr Madiha Shoaib²¹Department of Surgery DOW University of Health Sciences and Civil Hospital Karachi²Allied Hospital Faisalabad**Abstract:**

Objectives: The aim of this study is to find out the rate of occurrence of Thyroid Incidentalomas using Ultrasound and its relationship with the sex, age and ethnicity of the patients.

Methodology: This was a transverse research work. A sum of total two hundred and sixty-nine adults present with asymptomatic thyroid disease having age of twenty years or more were the part of this research work. They underwent the examination through ultrasound for their thyroid.

Results: The rate of occurrence of the Thyroid Incidentalomas was 21.0%. We detected the Thyroid Incidentalomas in 25.0% females and 16.0% male patients ($P= 0.0780$). Sixty-one percent patients were present with the Thyroid Nodules in single lobe and 39.0% patients were present with Thyroid Nodules in greater than one single site. Approximately 55.0% patients were present with single Thyroid Nodule and 45.0% patients were present with more than one Thyroid Nodules. Total 38.0% patients were present with the Thyroid Nodules above than one centimeter whereas 57.0% patients were present with Thyroid Nodules lower than one centimeter. Five percent were available with Thyroid Nodules smaller and greater than one centimeter. The rate of occurrence of Thyroid Incidentalomas was common in the participants from different ethnicities.

Conclusion: The rate of occurrence of the Thyroid Incidentalomas discovered in this research work was much high as compared to many stated with iodine sufficiency. Opposite to many other research works, Thyroid Incidentalomas was similarly common in the patients of both gender. This was because of the iodine deficient status of Pakistan in past. There is a need of further research works for the identification of the right status of Thyroid Incidentalomas.

KEY WORDS: Occurrence, Thyroid Incidentalomas, rate, methodology, centimeter, lobe, comparison, ultrasound.

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INTRODUCTION:

The development in the clinical field has enhanced the rate of the identification of sub-clinical nodules in organs of endocrine particularly in thyroid gland known as Thyroid Incidentalomas. The meaning of Thyroid Incidentalomas is the identification of the Thyroid Nodule using imaging examinations in the persons who are asymptomatic for this disease of thyroid. Thyroid nodules can be multiple, single, malignant or benign and cystic or solid. Mostly, Thyroid Nodules are asymptomatic in the normal tests for the thyroid function. Adenomas, thyroiditis and cysts are the most important factors of risk for the high rate of occurrence of Thyroid Incidentalomas. Research works of the past conducted in different countries have discovered that rate of this diseases increases with the age and it is much common in female gender.

Wiest in his research work discovered only 6.40% thyroid nodule size lower than 0.50 centimeter can be identified by palpation. The rate of occurrence of thyroid nodule detection using palpation is 2.0% to 21.0%. Whereas ultrasound can identify thyroid nodule as small as 2.0 mm reaching the rate of occurrence of 19.0% to 67.0%. Ultrasound is the non-invasive, fast, cheap secure and precise method for the identification of deep and small sized Thyroid Nodules. A thyroid nodule identified during the ultrasound examination has same potential to in malignant state as palpable thyroid nodule. High flow of blood in the center is the ultrasound traits of malignant thyroid nodule. The occurrence of the benign Thyroid Nodules is very common in our country Pakistan as compared to the malignant Thyroid Nodules. The rate of occurrence of benign Thyroid Nodules is 89.0% in our country, Pakistan. Adenomatous goiter is the most occurring with a frequency of 68.0%. The range of the rate of the thyroid malignancy in our country Pakistan is 11.0% to 14.35%.

METHODOLOGY:

This transverse research work conducted in six months from March 2018 to September 2018. Two hundred and sixty-nine willing persons having age of twenty-one years or more were the participants of this research

work. After the palpation of thyroid, all the patients had to undergo the ultrasound examination at the Department of Radiology in Civil Hospital Karachi. We calculated the samples with the use of the formula $N = Z^2 \times P(1-P) / D^2$.

In this formula;

N is the number of the subjects

P is the 13.60% (which is TI in the country) [17]

Z is the standard mean error which is 1.960

D is the absolute precision 5.0%=0.050.

All the patients with past thyroid disease history of who underwent thyroid surgery in the past were not the part of this research work. We took the written consent from every patient and filled the well-organized Performa. The machine of ultrasound (Toshiba SSA-590A with 7.50 MHz) was in use for the evaluation of the thyroid gland. We examined all the participants in supine position with their neck in a condition of hyper extension and placing pillow under their shoulders. We took into account the both lobes of the thyroid. The ethical committee of the institute gave the permission to conduct this research work. SPSS V.20 was in use for the statistical analysis of the collected information. We applied the Chi-square test for the determination of the relationship of thyroid nodule with the gender, age and ethnicity of the subjects.

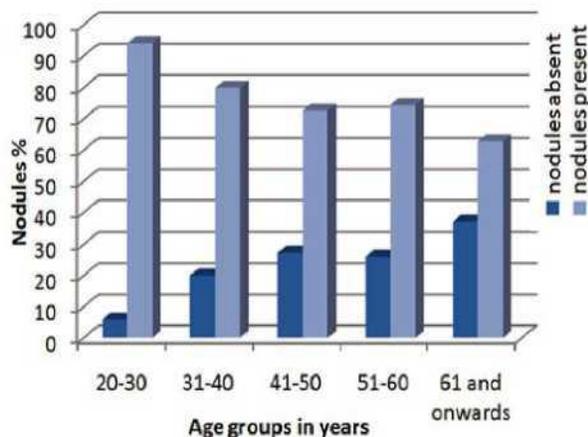
RESULTS:

Out of two hundred and sixty-nine patients, 52.0% (n: 140) were females and 48.0% (n: 129) were male subjects. There was an important disparity in the average age of the subjects with nodules 48.80 ± 14.80 years and with no nodules 39.250 ± 14.80 years. We discovered that overall rate of occurrence of Thyroid Incidentalomas was 21.0% (n: 56). The occurrence of Thyroid Incidentalomas was unimportantly common in females 25.0% (n: 35) in comparison to the males 16.0% (21) as elaborated in Table-1. In this research work, rate of occurrence of Thyroid Nodules increased with the increase of age (Graph-1 and there was much disparity in the frequency of Thyroid Incidentalomas among various groups of age (Table-1). The frequency of Thyroid Incidentalomas was similarly common among the subjects of all ethnicities (P=0.7580) (Table-1).

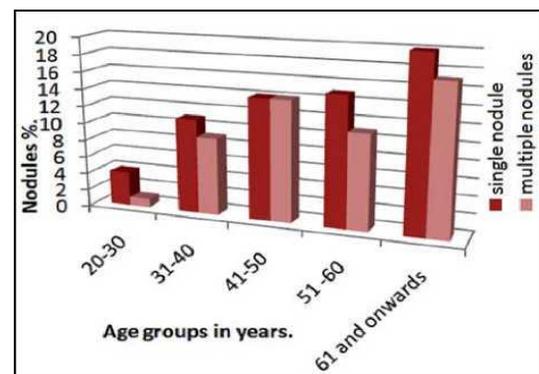
Table-I: Characteristics Of Individuals With Nodule And Without Nodule

Characteristics		Nodule + ve		Nodule -ve		P value
		No	Percent	No	Percent	
Gender	Male	21.0	16.30	108.0	83.70	0.0780
	Female	35.0	25.00	105.0	75.00	
Age (years)	20 to 30	4.0	5.90	64.0	94.10	0.0020**
	31 to 40	15.0	20.00	60.0	80.00	
	41 to 50	12.0	27.30	32.0	72.70	
	51 to 60	12.0	25.50	35.0	74.50	
	More than 60	13.0	37.10	22.0	62.90	
Ethnicity	Urdu speaking	18.0	21.70	65.0	78.30	0.7580
	Sindhi	8.0	30.80	18.0	69.20	
	Punjabi	9.0	21.40	33.0	78.60	
	Pathan	19.0	21.10	71.0	78.90	

About 55.0% (n: 31) participants of this research work were present with single nodule and 45.0% (n: 25) were available with multiple nodules. Graph-2 shows the percentage of single nodule and more than single nodules of thyroid gland in various groups of age. Approximately 39.0% (n: 22) subjects were present with Thyroid Nodules in greater than one site. Total 38.0% (n: 21) subjects were available with Thyroid Nodules only in the right lobe, 21.0% (n: 12) participants were available with Thyroid Nodules in left lobe only and 2.0% (n: 1) person was present with Thyroid Nodules in isthmus. Approximately 38.0% (n: 21) persons of this research work had Thyroid Nodules above than one centimeter and 57.0% (n: 32) persons were present with Thyroid Nodules lesser than one centimeter. Five percent participants (n: 3) were present with Thyroid Nodules smaller and above than one centimeter.



Graph 1



Graph 2

DISCUSSION:

The most common method for the identification of the Thyroid Nodules is palpation. But it cannot detect the deep and small nodules. The most suitable method for the identification of the nodules is ultrasound which is cost-effective, precise and no-invasive. There is a variation in the rate of occurrence of Thyroid Incidentalomas in various regions of the world. Some

of the factors for this variation are iodine intake, sex and age. The rate of occurrence of Thyroid Incidentalomas in Iran is 13.60%, in U.S.A as 9.40% and it is 13.40% in California, in Korea it is 36.670%, in Poland as 14.80% and in Finland as 27.350%. The rate of occurrence of Thyroid Incidentalomas discovered in this research work was a little bit high than the most regions with iodine sufficiency. In this

research work, the average age of the patients with Thyroid Incidentalomas was 48.0 ± 14.80 years and with no thyroid nodule was 39.250 ± 14.80 years which is not comparable to the research work conducted by Taheri in Iran. The rate of the occurrence of Thyroid Incidentalomas increases with the increase of the age, our research also observed this factor (Graph-1) (Table-I)

Research works of past suggested that rate of occurrence of Thyroid Incidentalomas is high in the females. Barbara in the year of 1982 stated 7.90% males and 20.60% females in United States of America were present with asymptomatic Thyroid Nodules. We can suggest that iodine deficiency in the past could be most important reason for high rate of occurrence of Thyroid Incidentalomas in both sex. In this current research work, the rate of occurrence of nodule shorter than one centimeter was 57.0% and nodule above than one centimeter was 38.0% and only 5.0% persons were present with nodules higher and smaller than one centimeter. These results are very much similar to the findings of Mohammadi. But in his research work, Brander stated the rate of occurrence of 70.0% for the nodule lesser than one centimeters. In this research work, Thyroid Nodules were similarly common in the patients of various ethnicities (Table-1). Most probably, there are two causes behind this reason. First, among Muslims, there are some religious hindrances on the use of seafood. Secondly, there is very easy access to the seafood causing to rise its utilization in our public because of the coastal location.

CONCLUSION:

We discovered the much high rate of occurrence of Thyroid Incidentalomas as compared to the other states which are iodine sufficient. Contrary to many other research works, Thyroid Incidentalomas is equally common in the both genders this can be because of the iodine deficient status of the region. There is a requirement of more research works to support the consolidation of the findings of this research work to identify the exact status of Thyroid Incidentalomas.

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