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Original Research Article

Prevalence and pattern of thyroid malignancy in thyroid nodule in Aseer Central Hospital in KSA

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ABSTRACT

Background: Thyroid nodules are common in the general population, especially in women. Non palpable nodules are often found when patients undergo diagnostic imaging such as ultrasonography and computed tomography of the chest and neck. This retrospective study to assess the Prevalence of thyroid malignancy in thyroid nodule related to gender, age, and pathology, in Aseer Central Hospital KSA.
Methods: During a 5-year period (2011–2016), the medical records of 319 patients with thyroid nodules were collected from the department of pathology at Aseer Central Hospital KSA. The cases were reviewed for data on gender, age, and the pathological result. All patients underwent hemi or total thyroidectomy. Comparisons between genders, age groups, and tissue origins were performed. All statistical tests were performed with SPSS software.
Results: Over a period of 5 years, a total of 319 patients: male 17.2% and female 82.8% Underwent for hemi or total thyroidectomy. The age of presentation was ranging from 14 to 80 years. Among the 319 cases of thyroid nodules 73.7% were benign nodules and 26.3% malignant nodules. Papillary thyroid carcinoma in 72.6%, follicular thyroid carcinoma 10.6%, Hurthle cell carcinoma 4.8%, anaplastic carcinoma 4.8%, thyroid lymphoma 4.8% and medullary thyroid carcinoma in 2.4%.
Conclusions: Thyroid nodule is a common clinical problem and the proportion of such nodules that prove to be malignant is not small, investigations are of immense help to corroborate with the clinical and morphological finding. Papillary thyroid carcinoma most common malignant thyroid carcinoma followed by follicular thyroid carcinoma, hurthel cell carcinoma, anaplastic thyroid carcinoma, lymphoma and finally medullary thyroid Carcinoma. No significant different between male and female as risk factors for malignancy.

Keywords: Thyroid nodules, Thyroid carcinoma, Prevalence

INTRODUCTION

Thyroid nodules are common in the general population, especially in women.[1] Non palpable nodules are often found when patients undergo diagnostic imaging such as ultrasonography and computed tomography of the chest and neck.[2] Thyroid nodules can be palpated in 4% to 7% of adults.[3] However, they are found incidentally in up to 40% of patients who undergo ultrasonography of the neck.[4] Some studies estimate that 20% to 76% of the population has at least one thyroid nodule.[5] Factors associated with increased risk of thyroid cancer include history of radiation to the head or neck, especially in childhood.[6] The rate of malignancy for a palpable nodule in a previously irradiated thyroid is 20% to 50%.[7]

Objectives

This retrospective study to assess the Prevalence of thyroid malignancy in thyroid nodule related to gender, age, and pathology, in Aseer Central Hospital KSA.

METHODS

During a 5-year period (2011–2016), the medical records of 319 patients with thyroid nodules were collected from the department of pathology at Aseer Central Hospital, KSA. The cases were reviewed for data on gender, age, and the pathological result. All patients underwent hemi or total thyroidectomy. Comparisons between genders, age groups, and tissue origins were performed. Age group subdivided to less than 10 years, 10 to 20, 21 to 40, 41 to 60, and more than 61 years. All statistical tests were performed with SPSS software.

RESULTS

Over a period of 5 years, a total of 319 patients thyroid nodules, underwent for hemi or total thyroidectomy.

Age distribution of the patients

The age of presentation in thyroid nodules range from 14 to 80 years. The most common age at presentation was in thyroid nodules from 21 to 40 years 51.8% (Table 1). The most common age at presentation in PTC from 21 to 40 years 29 cases 47.5%, in follicular thyroid carcinoma (FTC) most of cases from 21 to 40 and 41 to 60 years, in Hurthle cell carcinoma most of cases from 41 to 60 years 3 cases 75%, in medullary thyroid carcinoma (MTC) all cases from 21 to 40 years, in anaplastic thyroid carcinoma most of cases more than 61 years cases 75% and in lymphoma 4 cases all from 41 to 60 years (Table 2).

Sex distribution of the patients

In total thyroid nodules 319 patients, 55 male 17.2% and 264 female 82.8%. In benign thyroid nodule male 17% and female 83%.In malignant thyroid nodules male 17.9% and female 82.1% (Table 2 and 3).

Table 1: Age distribution among the patients enrolled into study.

Age in years	Count	Percentage (%)
Less than 10	0	0.0
11 to 20	18	5.6
21 to 40	165	51.8
41 to 60	121	37.9
More than 61	15	4.7
Total	319	100

Table 2: The relation between each type of malignant thyroid nodules, age and sex.

Type of malignant thyroid nodules	21 to 40 years (%)	41 to 60 years (%)	More than 61 years (%)	Male (%)	Female (%)
Papillary	47.5	45.9	6.6	21.3	87.7
Follicular	44.4	44.4	11.2	11.1	88.9
Hurthle cell	0.0	75	25	0.0	100
Medullary	100	0.0	0.0	0.0	100
Anaplastic	0.0	25	75	0.0	100
Lymphoma	0.0	100	0.0	75	75

Table 3: Sex distribution in malignant thyroid nodules.

	Count	Percentage (%)
Male	15	17.9
Female	69	82.1
Total	48	100

Pathological distribution of thyroid nodules

Most of cases were benign nodule 73.7% and malignant nodules in 84 cases 26.3%. The most common benign nodules nodular hyperplasia 160 cases 50.2% in total thyroid nodules, and 68.1% in total benign nodule (Table 4). In malignant nodules Papillary thyroid carcinoma the most common nodules 61 cases 72.6%, then follicular thyroid carcinoma, Hurthles cell carcinoma, anaplastic carcinoma, thyroid lymphoma and finally medullary thyroid carcinoma (Table 5).

Table 4: Tissue diagnosis of patients with thyroid nodules.

	Count	Percentage (%)
Nodular hyperplasia	160	50.2
Hashimotos thyroditis	49	15.4
Follicular adenoma	26	8.2
Papillary thyroid carcinoma	61	19.2
Follicular thyroid carcinoma	9	2.8
Hurthle cell carcinoma	4	1.2
Medullary thyroid carcinoma	2	0.6
Anaplastic thyroid carcinoma	4	1.2
Lymphoma	4	1.2
Total	319	100

Table 5: The pattern of thyroid carcinoma among patients with thyroid nodules.

Type of thyroid carcinoma	Count	Percentage (%)
Papillary	61	72.6
Follicular	9	10.6
Hurthle cell	4	4.8
Medullary	2	2.4
Anaplastic	4	4.8
Lymphoma	4	4.8
Total	84	100

Table 6: Comparison between our study and other local and international study in pattern of thyroid malignancy.

	Our study (2017)	Ali ALamri study[15] (2012)	Safia Moussa et al[14] (2016)	Zulfiqar Ali et al[11] (2013)	Inayat Ullah et al[12] (2014)	Shrestha D, et al[9] (2014)	Arifa Manzoor et al[13] (2015)
Location	KSA	KSA	KSA	Pakistan	Pakistan	Nepal	Pakistan
Duration of study	5 years	--	--	5 years	2 years	3 years	3 years
No. of patient	319	143	175	94	100	100	289
F:M	4.6:1	4.29:1	--	2:1	--	--	10.5:1
Prevalence of ca in thyroid nodules	26.3%	--	8.6%	9.5%	15%	13%	8%
Papillary ca	72.6%	74%	64.3%	66.7%	66.6%	84.61%	73.9%
Follicular ca	10.7%	14%	10.7%	22.2%	25.6%	7.69%	13.04%
Hurthle cell ca	4.8%	7%	--	11.1%	--	--	8.69%
Medullary	2.4%	--	14.3%	--	6.66%	--	4.34%
Anaplastic ca	4.8%	5%	7.1%	--	--	7.69%	--
Lymphoma	4.8%	--	--	--	--	--	--
Others			3.6%				

DISCUSSION

Thyroid carcinoma is the most common endocrine carcinoma, as it accounts for almost 90% of all endocrine malignancies.[6] Refeidi et al studied pattern of thyroid cancer in thyroid nodules in southwestern KSA it show 17.8% was malignant.[8] Shrestha et al studied the incidence of thyroid carcinoma in multinodular goiter in Nepal which show malignant thyroid lesion in 13%.[9] In our study the incidence of thyroid malignancy 26.3% in total thyroid nodules. Alzahrani et al studied thyroid cancer in Saudi Arabia at King Faisal hospital which show distribution of sex in thyroid malignancy 76.5% females and 23.5% males.[10] Shrestha et al studied the incidence of thyroid carcinoma in multinodular goiter in Nepal which show in distribution of sex in thyroid malignancy 72% males and 28% females.[9] In our study showing most cases of thyroid malignancy in female patient 82.1% and 17.9% in male patient. In our study the incidence of thyroid malignancy in male patient was 27.2%. No significant different between incidence of thyroid malignancy in female patient which 26.1% (in total thyroid nodule in female patient). Shrestha et al studied age distribution in presentation of thyroid nodules

and showed as 11-20 years 4%, 21-40 years 68%, 41-60 years 24% and more than 60 years 4%.[9] In our study: in papillary thyroid carcinoma most common age presentation from 21 to 40 year followed by age from 41 to 60 years 47.5% and 45.9% consecutively. In follicular Thyroid carcinoma most common age presentation from 21 to 40 year followed by age from 41 to 60 years 44.4% and 44.4% consecutively, in Hurthle cell carcinoma most common age presentation from 41 to 60 years 75%. In anaplastic thyroid carcinoma most common age presentation more than 60 years 75%. In lymphoma all cases presented from 41 to 60 years. And in medullary thyroid carcinoma all cases presented from 21 to 40 years. Regarding histopathological distribution of thyroid carcinoma, Ali et al study show papillary carcinoma 66.7%, follicular carcinoma 22.2% and anaplastic 11.1%.[11] In Ullah et al study papillary carcinoma 66.6%, follicular carcinoma 25.6% and medullary carcinoma 6.66%.[12] In Manzoor et al study papillary carcinoma 73.9%, follicular carcinoma 13.04%, Hurthle cell carcinoma 4.34% and medullary carcinoma 8.69%.[13] Shrestha et al studied papillary carcinoma 84.61%, follicular carcinoma 7.69% and anaplastic 7.69%.[9] Moussa et al studied the pattern of thyroid carcinoma among patients in King Khalid Hospital, Hail region, papillary carcinoma 64.3%, medullary 14.3%, follicular 10.7%, anaaplastic 7.1% and metastatic 3.6%.[14] ALamri studied the pattern of thyroid cancer in eastern province of Saudi Arabia which show papillary carcinoma 74%, follicular carcinoma 14%, Hurthle cell carcinoma 7%, and anaplastic carcinoma 5%.[15] In our study papillary carcinoma 72.6%, follicular carcinoma 10.6%, Hurthle cell carcinoma 4.8%, anaplastic carcinoma 4.8%, lymphoma 4.8% and medullary carcinoma 2.4% (Table 6).

CONCLUSION

Since the finding of a thyroid nodule is a common clinical problem and the proportion of such nodule that prove to be malignant is not small, investigations are of immense help to corroborate with the clinical and morphological finding, Fine needle aspiration and biopsy has been shown to establish a correct diagnosis in a substantial number of cases before resorting to surgery. Papillary thyroid carcinoma most common malignant thyroid carcinoma followed by follicular thyroid carcinoma, Hurthle cell carcinoma, anaplastic thyroid carcinoma, lymphoma and finally medullary thyroid carcinoma. No significant different between male and female as risk factors for malignancy.

Limitation

It is a retrospective cohort study based on quality of records keeping in hospital, also our study based only in one center.

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