



A Clinico Pathological Study Of Thyroid Swellings

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Abstract

Background : Thyroid swelling is the most common swelling among the endocrine disorder. It can affect any age group. USG neck will help to diagnose the solid and cystic lesions. The treatment is surgical excision. FNAC is a good diagnostic tool to minimize the incidence of thyroidectomy. FNAC is cost effective, reliable and OPD procedure. Final diagnosis can only be made by HPE postoperatively.

Aim Of This Study : To find out the relative occurrence of various pathological conditions presenting as midline thyroid swellings and clinicopathological and radiological examination of the thyroid swellings.

Methods : A prospective, observational, single hospital base study done On sixty five patients who underwent thyroid surgeries for various thyroid disorders.at the Department of General Surgery, Government Medical College, Chengalpattu, Tamil Nadu, India in the year 2021 were included in the study. Patient including name, age, sex, address, presenting complaints, duration of thyroid swelling, general examination, local examination stating site, size and other characteristics of thyroid swellings were retrieved from records and noted in a prescribed proforma. Patients were subjected to clinical palpation, mobility during swallowing was assessed, lymph node examination, thyroid profile, ultrasound of thyroid and FNAC were done.

Results : The common symptom was swelling. Some had pain. Some had mild pressure effects. One secondary toxicosis patient had her symptom under control due to medications. Thyroid function test is within normal in majority of patient that's called euthyroid. Patient was planned for surgery after normalise of thyroid function. According to ultrasound of thyroid gland 8 patients suggested neoplastic pathology, one patient shows suspicious of malignancy, 2 patients shows thyroid nodules. Sensitivity is the ability of a test to correctly classify an individual as diseased. Sensitivity = true positive (a)/ true positive (a) + false negative (c) Our study show: Sensitivity: 88.9%. Specificity the ability of a test to correctly identify people without the disease. Specificity = true negative (d)/ true negative (d) + false positive (b) Our study show: Specificity: 98.0%. Nodular goitre and colloid goitre with cystic degeneration is most common finding. 7 patients show feature of thyroiditis, 3 patients show feature of cystic collection.

Conclusion : Clinical presentation of thyroid pathology varied swelling of anterior aspect of neck, pain and compressive symptom like stridor and dysphagia. Patients presented with thyroid swelling is predominantly females, The commonest clinical presentation is multinodular goitre is about 53% and ultrasonography scoring is TIRAD- 2 and TIRAD- 3 which was consistent with nodular hyperplasia of thyroid in histopathology. Second commonest clinical presentation is colloid goitre (31%) and ultrasonography score is TIRAD - 2 and TIRAD - 3 which was consistent with colloid goitre with degenerative change in histopathology finding. On the basis of ultrasonography TIRAD4 and TIRAD 5 are about 13.4% and these findings consistent with Neoplastic thyroid swelling in histopathology. On the basis of ultrasonography of thyroid to detect the malignancy sensitivity is

88.9% and specificity is 98%. Malignant pathology of thyroid consist papillary carcinoma (6.7%), follicular carcinoma (3.4%) anaplastic carcinoma 1.6%.

Keywords: Goitre, Iodine deficiency, TIRAD score, Thyroid malignancy

Introduction

The normal thyroid gland is impalpable. The term goiter (Latin, guttur = the throat) is used to describe generalised enlargement of the thyroid gland. It is a ductless gland. Biosynthetic defects, iodine deficiency, autoimmune disease, and nodular diseases can each lead to goiter, though by different mechanisms. Graves' disease and Hashimoto's thyroiditis are also associated with goiter. In addition various forms of thyroid cancer are relatively common and amenable to detection by physical examination. Unique features of thyroid cancer are [1] Thyroid nodules are readily palpable, allowing early detection and biopsy by FNA; [2] iodine radioisotopes can be used to diagnose (^{123}I) and treat (^{131}I) differentiated thyroid cancer, reflecting the unique uptake of this anion by the thyroid gland; and (3) serum markers allow the detection of residual or recurrent disease, including the use of Tg levels for PTC and FTC and calcitonin for medullary thyroid cancer (MTC). [3] Differentiated tumors, such as papillary thyroid cancer (PTC) or follicular thyroid cancer (FTC), are often curable, and the prognosis is good for patients identified with early-stage disease. [4] Because the management of goiter depends on the etiology, the detection of thyroid enlargement on physical examination should prompt further evaluation to identify its cause. [5] More sensitive methods of detection, such as CT, thyroid ultrasound, and pathologic studies, reveal thyroid nodules in >20% of glands. Most authorities still rely on physical examination to detect thyroid nodules, reserving ultrasound for monitoring nodule size or as an aid in thyroid biopsy. [6] Otherwise, FNA biopsy should be the first step in the evaluation of a thyroid nodule. FNA has good sensitivity and specificity [7]. The technique is particularly good for detecting PTC. The distinction of benign and malignant follicular lesions is often not possible using cytology alone. In this study, much emphasis is placed on the clinical presentation of thyroid

swellings and the role of pathological investigations in the management of thyroid swellings. [8,9,10]

Methods : A prospective, observational, single hospital base study done On sixty five who underwent thyroid surgeries for various thyroid disorders at the Department of General Surgery, Government Medical College, Chengalpattu, Tamil Nadu, India in the year 2021 were included in the study. Patient including name, age, sex, address, presenting complaints, duration of thyroid swelling, general examination, local examination stating site, size and other characteristics of thyroid swellings were retrieved from records and noted in a prescribed proforma. Patients were subjected to clinical palpation, mobility during swallowing was assessed, lymph node examination, thyroid profile, ultrasound of thyroid and FNAC were done. Inclusion criteria :Patients who had come with thyroid swelling in Hamidia Hospital, Bhopal. Patients who has been given consent for the study. Exclusion criteria :Pregnant females. Patients who did not given consent for the study. When patient admitted with complain of thyroid swelling after detail history and examination of thyroid ordered routine blood investigation, thyroid function test, ultrasound of anterior part of neck, fine needle aspiration cytology. For preoperative workup of patient with thyroid swelling indirect laryngoscopy done for assessment of normal anatomy and function of vocal cord and informed consent taken by patient and attender about the risk of operation and post-operative complication. Patients who having symptom of hypothyroidism or hyperthyroidism and deranged thyroid function test first treated for the symptom or make patient in euthyroid state than we have to planned any surgical interventions. Recommendations regarding the initial management of thyroid cancer include those relating to screening for thyroid cancer, staging and risk assessment, surgical management, radioiodine remnant ablation and therapy, and thyrotropin suppression therapy using levo-thyroxine

Results

The average age of the patient is 36.65 years. The average age of female patient is 36.24 years. The average age of male patient is 43.2 years. The minimum age is 7 years. The maximum age is 70 years. The common symptom was swelling. Some had pain. Some had mild pressure effects. One secondary toxicosis patient had her symptom under control due to medications. No patient presented with neck nodes

or secondary metastasis. Patients with a suspicious (indeterminate) cytodiagnosis have specimens showing hypercellularity and a pattern suggestive of follicular- or Hurthle- cell neoplasms or atypical features suggestive of, but not diagnostic for, malignancy. Patients with a malignant cytodiagnosis have cytologic findings indicating the presence of malignant cells consistent with primary or metastatic thyroid carcinoma.

Table :1 Distribution according to age group of participants

Age group	Frequency	Percentage
20-29	10	15.4
30-39	22	33.8
40-49	13	20
50-59	15	23.1
60-69	2	3.1
70-79	3	4.6
Total	65	100

Table :2 USG abdomen findings

USG	Frequency	Percentage
DG	5	7.8
MNG	42	64.6
MNG WITH NODULE	1	1.5
SNT	16	24.6
THYROIDITIS	1	1.5
Total	65	100

TABLE :3 FNAC

FNAC	Frequency	Percentage
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COLLOID GOITRE	38	63.3
Cyst	1	1.5
Follicular neoplasm	15	23
HASHIMOTO	5	7.7
LT	6	9.2
Total	65	100

TABLE :4 HPE

HPE	Frequency	Percentage
Adenoma with LT	1	1.5
FOLLICULAR CA	3	4.6
Hashimotos	8	12.3
Hashimotos with micro papillary	1	1.5
Hashimotos with PAPILLARY CA	1	1.5
LT	2	3.1
Medullary Carcinoma Thyroid	1	1.5
Nodular Colloid Goitre	36	55.3
Nodular Colloid Goitre with micropapillary Ca	1	1.5
PAPILLARY CA	11	16.9
Total	65	100

Table 5 SNT

SNT	Frequency	Percentage
No	51	78.5

Yes	14	21.5
Total	65	100

Table ; 6Malignancy

Malignancy	Frequency	Percentage
No	47	72.3
Yes	18	27.7
Total	65	100

Table :7FNAC Neoplasia

FNAC Neoplasia	Frequency	Percentage
No	50	77
Yes	15	23
Total	65	100

Table ;8Association between SNT and malignancy

SNT	Malignancy		Total
	Yes N (%)	No N (%)	
Yes	11 (61.1)	3 (6.4)	14
No	7 (38.9)	44 (93.6)	51
Total	18	47	65

Table ;9association Between Fnac Neoplasia And Malignancy

	Malignancy	
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	Yes	No	
FNAC Neoplasia	N (%)	N (%)	Total
Yes	9 (50)	2 (4.3)	11
No	9 (50)	45 (95.7)	54
Total	18	47	65

Discussion

Management of thyroid enlargement most depends on FNAC and ultrasound finding, whether it is benign or malignant. Benign condition such as goiter are mainly managed by medical and surgical treatment depends upon extent of enlargement, compressive symptom and for cosmetic purpose. [11]Mostly malignant condition was treated by surgical removal of thyroid gland. In our present study 93.2% cases sought medical advice because of neck swelling and 19.7% swellings were with associated pain, difficulty in swallowing in 12.9%, difficulty in breathing in 10.10%, change of voice 3.3% and pain associated with fever 6.7%. The pathologic lesions of the thyroid gland are manifested by varied morphologies. [12]Despite many lesions, it is convenient to consider them as divided into two major types: those that show a diffuse pattern and those that produce nodules. Diffuse thyroid lesions are associated with conditions affecting the entire gland, such as hyperplasia and thyroiditis. The term thyroid nodule is referred to a clinically or radiologically discernable lesion within the thyroid gland. [13]Thyroid nodules are detected clinically in 4-7% in the general population and found incidentally on ultrasonography in 19 – 67 %. The majority of thyroid nodules are asymptomatic, but 5% of all palpable thyroid nodules are malignant [3]. Although thyroid function tests, scintigraphy, and ultrasound were routinely used to diagnose thyroid nodules, they could not discriminate between benign and malignant lesions[14] The frozen section has served well in the past in intraoperative diagnosis of thyroid cancer and determination of the extent of thyroidectomy. [15]However, the emergence of increasingly accurate and cheap methods of pre-and

intraoperative fine needle aspiration biopsy (FNAB) has raised questions about the routine use of frozen sections as an intraoperative diagnostic tool Moreover, the refinement in imaging, combined with the preoperative availability of fine-needle aspiration cytology (FNAC), has enhanced the ability of surgeons to plan procedures more appropriately. Knowledge in the field of thyroid pathology has been snowballing in recent years.[16] Immunohistochemically, many markers have been documented in normal thyroid follicular cells, most expressed in well-differentiated tumours. [17]These markers have been evaluated in normal tissues, benign and malignant tumours, hoping to find significantly different values among these groups that could be explored diagnostically. On HPE, 46 patients (86.8%) had benign, and seven patients (13.2%) had malignant pathology.[18] Colloid goitre was the most common benign pathology reported (33 patients, 62.3%). A study of 203 patients with nodular thyroid disease reported 76.4% patients with benign and 23.6% with malignant pathology .The colloid goitre is the commonest among the benign thyroid nodules .In the current study also, the colloid goitre was commonest, followed by the follicular adenoma. [19] In our study, six cases (11.3%) were papillary carcinoma out of seven malignant cases, and only one was follicular carcinoma (1.9%). This result correlates with the fact the papillary carcinoma is the most common variety of thyroid malignancies Immunohistochemistry with TTF-1, Thyroglobulin and CK-7 was done per IHC protocol in the seven malignant thyroid cases. All the six papillary carcinomas and one follicular carcinoma showed immunoreactivity of tumour cells to TTF 1, CK 7 and Thyroglobulin.[20] Papillary carcinomas showed

strong diffuse nuclear positivity to TTF 1 in 83.3% (5/6) cases, weak focal nuclear positivity to TTF 1 in 16.7% (1/6), strong diffuse cytoplasmic positivity to CK 7 in 100 % (6/6) cases, strong diffuse cytoplasmic positivity to Thyroglobulin in 83.3% (5/6) cases, weak focal cytoplasmic positivity to Thyroglobulin in 16.7% (1/6). Follicular carcinoma showed strong diffuse nuclear positivity to TTF 1, weak focal cytoplasmic positivity to CK 7 and weak focal cytoplasmic positivity to Thyroglobulin.[21,22,23]

Conclusion

Clinical presentation of thyroid pathology varied swelling of anterior aspect of neck, pain and compressive symptom like stridor and dysphagia. Patients presented with thyroid swelling is predominantly females, out of sixty patients there are 50 female and 10 male patients. Most of the childhood thyroid swelling managed conservatively. The average age of female patients is 35.6 and average male patients is 37.2 years. The commonest clinical presentation is multinodular goitre is about 53% and ultrasonography scoring is TIRAD- 2 and TIRAD- 3 which was consistent with nodular hyperplasia of thyroid in histopathology. Second commonest clinical presentation is colloid goitre (31%) and ultrasonography score is TIRAD - 2 and TIRAD - 3 which was consistent with colloid goitre with degenerative change in histopathology finding. On the basis of ultrasonography TIRAD4 and TIRAD 5 are about 13.4% and these findings consistent with Neoplastic thyroid swelling in histopathology. On the basis of ultrasonography of thyroid to detect the malignancy sensitivity is 88.9% and specificity is 98%. Malignant pathology of thyroid consist papillary carcinoma (6.7%), follicular carcinoma (3.4%) anaplastic carcinoma 1.6%.

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