



Clinical Presentation of Carcinoma of Thyroid and Its Treatment Options

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Authors' contributions

This work was carried out in collaboration among all authors. Authors AAL and GAK designed the study, wrote the protocol and wrote the first draft of manuscript. Authors AAS and AM managed the analyses of the study. Authors TAB and AGD managed the literature searches and contribution in manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Objective: To determine the clinical presentation of carcinoma of thyroid and its treatment modalities at tertiary care Hospital.

Study Design: Prospective observational study.

Place and Duration: This study was conducted in Liaquat university of Medical and health sciences Jamshoro/Hyderabad, Pakistan, during two years from July 2017 to June 2020.

Patients and Methods: All the patients with age range between 20 to 80 years having swelling in front of neck according to clinical examination with hard inconsistency along with change of voice lymphadenopathy, difficulty in swallowing and breathing, patients diagnosis with malignancy according to FNAC and CT, and either of gender were included. FNAC was done in each patient except toxic goiter, diffuse goiter and multinodular goiter with dominant nodules. Patients those were diagnosed with stage I and II, underwent surgical treatment and remaining were referred to oncology department for new adjuvant therapy and then surgeries were done if possible. All the data was recorded in study proforma and data analysis was done by using SPSS data analysis software version 20.

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Results: Out of all cases of suspicious of carcinoma thyroid, 70% were females.

Neck swelling was in all of the cases, followed by pain, cervical lymphadenopathy, recurrent laryngeal nerve palsy with change of voice, swallowing difficulty, cyanosis and pathological fracture. According to tumor staging, most of the cases were found with benign tumor, followed by 5 cases with stage I, three cases with stage II, three patients presented with stage IV and one was seen with secondary's from malignant melanoma. Most of the cases 70.0% underwent subtotal and near total thyroidectomies Eight patients were initially operated having stage I and II of malignancy and remaining 7 patients of stage III and IV were referring to oncology department for further management.

Conclusion: In the conclusion of this study the neck swelling was the commonest clinical presentation. Surgical decision making and the operative planning is one of the new challenges. Mostly patients underwent subtotal and near total thyroidectomies having benign presentation and patients those had stage I and II of malignancy were initially operated, while patients of stage III and IV including secondary were referred to oncology.

Keywords: Carcinoma thyroid; clinical presentation; treatment.

1. INTRODUCTION

Thyroid carcinoma considered as commonest endocrine disorder thought out the world and its prevalence and incidence has increased over the past few decades worldwide [1]. Enlargement of thyroid gland may be physiological, infective, inflammatory, simple, toxic, benign or malignant. Carcinoma nodules is commonly seen high in the epidemic goiter and several mutations can may cause to nodular goiter and the papillary carcinoma of thyroid [2]. Certain female hormones and reproductive factors may play role for formation of thyroid swelling in females, including genetic causes, autoimmune thyroid disease, iodine deficiency and it can occurs in those patients who exposed to toxic chemicals and radiations [3]. Among different types of thyroid carcinoma, papillary carcinoma is very common malignant lesion around 90.2%, including medullary carcinoma (4.5%), follicular carcinoma (2%), undifferentiated (2%), while mixed medullary and papillary carcinoma and poorly differentiated carcinoma (0.7%) [4]. In majority of the cases, thyroid carcinoma clinically present as fixed hard lump or without lump (Occult carcinoma with cervical lymphadenopathy) paralysis of recurrent laryngeal nerve, change in voice, stridor, Respiratory difficulty dyspnea, dysphagia, hemoptysis, cyanosis, Diarrhea, pathological fractures, loss of appetite [5-7] Medullary carcinoma of thyroid is a part of multiple endocrine neoplasia syndrome, so other feature can be exclude. Prognosis of patient of thyroid carcinoma depend on type of tumor, Tumor Nodes metastases (TNM) age, sex size ,metastases ,node, extra thyroid, histological grade and complete excision. Management

carcinoma of thyroid depends on history, clinical presentation and examination, investigation and treatment [8]. Patient give history of either long standing of thyroid swelling with enlargement of cervical lymph node [9,10], change in voice or thyroid swelling with rapidly enlarged with pain due to hemorrhage. On clinical examination swelling is fixed, hard in consistency without carotid pulse (Berry's Sign Positive) investigations are Thyroid profile T3, T4, TSH level .TSH levels are often raised in carcinoma, simultaneous elevation of anti-thyroid antibodies, Ultrasound of neck (Doppler ultra sound of neck) Fine needle aspiration cytology (FNAC) detection of malignancy, Computed tomography (CT) Magnetic Resonance Image (MRI) Bone scan [11,12]. Finally thyroid carcinoma can be diagnosed on True cut biopsy or Frozen section biopsy including types and staging of the cancer are the essential prognostic parts of the cancer management. Best options of surgery in well differentiated carcinoma are chemotherapy, radiotherapy Radioactive iodine therapy (Radioiodine), Immunotherapy, and Hormone therapy in various carcinoma [12,13]. Thyroid cancer is commonest cancer mostly effecting the females during young age. Developments in diagnosis and sympathetic the pathophysiology have made the management most effective with good long-term outcomes. This study aimed to determine the clinical presentation of carcinoma of thyroid and its treatment options.

2. MATERIALS AND METHODS

This prospective study was carried out at surgical wards of Liaquat University of Medical and health sciences Jamshoro from July 2017 to June 2019. All the patients with age range between 20 to 60

years having swelling in front of neck according to clinical examination with hard inconsistency along with change of voice, lymphadenopathy, difficulty in swallowing and breathing, patients diagnosis with malignancy according to FNAC and CT, who were not fit for general anesthesia, toxic goiter, diffuse, patients presented with co-morbidities and not agree to participate in the study were excluded. After taking medical history and clinical examination, ultrasound, computed tomography and routine laboratory investigation including thyroid profile were done. FNAC was done in each patient except toxic goiter, diffuse goiter and multinodular goiter with dominant nodules. After scrubbing and draping the thyroid swelling with Pyodine, then specimens were taken by 10cc sterilized disposable syringes and immediately were sent to diagnostic laboratory with fixed formalin slides for histopathology. Tumor stages were defined according to recommendations of the American Joint Committee on Cancer as mentioned in a previous study [14,15]. Patients who were diagnosed with stage I and II, underwent surgical treatment and remaining were initially referred to oncology department for new adjuvant therapy and then surgeries were done if possible according fixation of tumor with larynx and involvement of bilateral carotid sheaths. All the data was recorded in study proforma and data analysis was done by using SPSS data analyses software version 20.

3. RESULTS

Out of 50 study participants (suspected for carcinoma thyroid), 35(70%) were female and 15 (30%) were male. Patient's age range was 18 to 80 years and mean age was 55.34 ± 12.49 years (Table 1).

Table 1. Gender distribution in of patients having suspicious for carcinoma of thyroid, n=50

Gender	No of Pts	%
Female	35	(70%)
Male	15	(30%)
Total	50	(100%)

As per clinical features swelling was seen in all of the cases, followed by pain in 5 patients, 6 patients were presented with cervical lymphadenopathy, 3 patients were presented with recurrent laryngeal nerve palsy with change of voice, 3 patients were presented with swallowing difficulty, 2 patients were presented with difficulty in breathing and cyanosis and one patient had pathological fracture (Table 2).

According tumor staging, most of the cases were found with benign tumor, followed by 5 cases were seen with stage I, three cases having stage II, three patients presented with stage IV and one was seen with secondary from malignant melanoma (stage IVC) (Table 3).

Table 2. Clinical presentation of patients having suspicious for carcinoma of thyroid n=50 (12-point font)

Clinical presentation (sign & symptoms)	No of patients	Total percentage
Swelling	50	100.0%
Pain	5	10.0%
Cervical lymphadenopathy	6	12%
Recurrent laryngeal nerve palsy with change of voice	3	6%
Difficulty in swallowing	3	6.0%
Difficulty in breathing & cyanosis	3	6%
Pathological fracture	2	4%
Diarrhea	1	2%

Table 3. Patients distribution according to tumor staging n = 50

TNM classification	No: of Patients
Stage I	5(10.0%)
Stage II	3(06.0%)
Stage III	3(06.0%)
Stage IV	3(06.0%)
Stage IVC	1(02.0%)
Benign	35(70.0%)
Total	50(100.0%)

According to the treatment eight patients (16.0%) were initially operated who were with stage I and II of malignancy and were sent to oncology according to management protocol. Out of all 35 (70.0%) patients having benign tumors, underwent subtotal and near total thyroidectomies and specimens were sent to diagnostic laboratory for histopathology. Remaining 7 patients of stage III and IV including secondary malignancy were referring to oncology department for further management Table 4.

4. DISCUSSION

Thyroid lesions are fairly common worldwide and are commonly encountered in clinical practice. In present study, majority of patients with thyroid carcinoma were females, i.e. 70% and patient's age range was 18 to 80 years. Similarly, study conducted by Behan RB et al. [16] mentioned that in their study majority of carcinoma were observed in female patients, i.e 63.80%. Another study conducted by Manzoor A et al. [17] demonstrated that patient's mean age was 47.13±8.8 years those having thyroid malignancy and females were in majority having thyroid malignancy with the female to male ratio of 10.5:1. However, Islam M et al. [18] reported that most of the cases were noted with age group of 21-40 years solitary thyroid nodule were frequently found in women as compared to males as male to female ratio 1: 2.11 (similar to this study – male/female = 1:2,3). On other hand Gupta A et al. [19] stated that the high incidence 51% of thyroid enlarged noted in the age group of 21-40 years with female gender predominance. However, Singh et al. [20] also found the mean age of 47 years with range of 12-80 years. On other hand Islam et al. [21] reported that the commonest age group was 21-40 years. The female gender predominance may be due to occurrence of the estrogen receptors in the thyroid tissues and there is also an age difference between our study. It seems that most of the researches cited above [18,19,21] are in accordance that 21-40 years is the prevalent age for thyroid carcinoma in females) and this may be due to sample selection criteria and geographical

variations. In this study as per clinical features the swelling was seen in all cases (100%) followed by pain, cervical lymphadenopathy, recurrent laryngeal nerve palsy with change of voice, swallowing difficulty, difficulty in breathing and cyanosis and one patient had pathological fracture. Similarly Chidambaram S et al. [22] reported that predominant clinical presentation was the swelling of thyroid which was seen in 95% of study cases followed by lymph nodal swelling with and without thyroid enlargement, hoarseness of voice, dysphagia and dyspnea. In the agreement Merchant D et al. [23] also demonstrated that the commonest presentation of study subjects was neck swelling/mass in 98% of the cases patients, followed by weight loss, cervical lymphadenopathy, dysphagia, dyspnea, superior vena caval syndrome, recent change of voice and stridor. According to these study findings Bhatti ZA et al. [24] reported that most of patients presented with the history of swelling in front of neck i.e. 98%, while dyspnea was found in 19% and dysphagia in 8.5%.

In this study, according tumor staging, most of the cases were found with benign tumor, followed by 5 cases were found with stage I (10%), three cases stage II (3%), three patients presented with stage IV (3%) and one was seen with secondary from malignant melanoma. Similarly Malterling RR et al. [25] mentioned that 62% patients had tumor stages I–II and 38% had tumor stages III–IV according to the TNM-classification. On other hand Palme CE et al. [26] stated that according to TNM classification most of the cases 71% had stage I, 12% had stage II, 12% had stage III and 5% had stage IV. Surgery is the main option of treatment for most of the benign and all of the malignant conditions of thyroid. Surgical extent is varies for the benign as well as the thyroid malignant disease. There are several options of the surgeries including lobectomy, hemithyroidectomy, subtotal thyroidectomy, near total thyroidectomy and total thyroidectomy. In this study, majority of patients having benign tumors, underwent subtotal and near total thyroidectomies and specimens were sent to diagnostic laboratory for histopathology.

Table 4. Patients distribution according to management modalities of patients (n=15)

Treatment procedure	Frequency (%)
Subtotal and near total thyroidectomies (benign)	35(70.0%)
Total thyroidectomy with standard dissection/node berry picking (stage I and II)	8(16.0%)
Referred to oncology due to stage III and IV	7(14.0%)

However, Sheik et al. [27] performed total thyroidectomies in study subjects and demonstrated that the total thyroidectomy is the safe surgical procedure with the advantages of less chances of the recurrence. On other hand Palme CE et al. [26] also performed total thyroidectomy in 38% patients and subtotal thyroidectomy in 62% patients on initial management.

5. CONCLUSION

In the conclusion of this study the neck swelling was the commonest clinical presentation. Surgical decision making and the operative planning is one of the new challenges. Mostly patients underwent subtotal and near total thyroidectomies having benign presentation and patients those had stage I and II of malignancy were initially operated, while patients of stage III and IV including secondary were referred to oncology. Multi-central large sample size studies are recommended with complete follow-up to measure the best treatment and its outcome.

CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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