

ORIGINAL ARTICLE

Presentation and Management of Malignant Tumors of Thyroid Gland in ESW Mayo Hospital, Lahore

TM GAUHAR, A AFZAL, HA MAQBOOL, A AZIM, A AZIM, KM AZIM

For Correspondence: Dr Tooba Mahmud Gauhar, Senior Registrar, East Surgical Ward, Mayo Hospital, Lahore. Email: angel.july17@gmail.com, Tel no: 0333-4369461

ABSTRACT

Objective: To review the cases of malignant tumors of thyroid gland in respect to their presentations, histological types and its management.

Materials and Methods: A total of 194 cases of malignant tumors of thyroid gland operated from 2006 to 2013 in East Surgical ward, Mayo hospital, Lahore are reviewed. The distribution of histological types, presenting symptoms and outcome of treatment are discussed.

Results: Out of 194 cases, 71.1% were females and 28.9% were males. 88.6% were euthyroid, 9.2% were hypothyroid and 2% were hyperthyroid. 40.2% presented with a solitary nodule, 58.5% with multinodular goiter and 31.9% with goiter along with cervical lymphadenopathy. 3.6% had hoarseness and fixed unilateral vocal cords. 87.6% were primary tumors and 12.3% were recurrent tumors. 64.3% were Papillary carcinoma, 30.3% were Follicular carcinoma, 3.7% were anaplastic carcinoma and 3.2% were medullary carcinoma. 31.4% underwent lobectomy and isthmusectomy followed by completion thyroidectomy, 27.8% had total thyroidectomy, 29.3% had total thyroidectomy and unilateral block neck dissection, 5.1% had total thyroidectomy and bilateral block neck dissection, 2% had subtotal thyroidectomy, 0.05% had isthmusectomy, 1.03% had Sistrunk's operation followed by total thyroidectomy and 0.05% had suprahyoid neck dissection.

Conclusion: Female preponderance was found in our study in carcinoma thyroid. Papillary carcinoma was the commonest cancer type found followed by Follicular carcinoma. Both commonest types of cancers if treated in time and adequately can result in good patient's survival.

INTRODUCTION

Malignant tumors of thyroid gland account for 1% of all malignancies and six/million of all cancer deaths.^{1,2,3}

Thyroid cancer is a malignant neoplasm arising from follicular or parafollicular thyroid cells.⁴ In United States it accounts for less than 1% of all malignancies but is the commonest endocrine malignancy.^{5,6} It is three times more common in females than in males. The incidence of this disease peaks during third and fourth decades of life.⁷ Commonest presentation of a malignant thyroid tumor is a painless neck swelling. It may also present with voice change, difficulty in breathing and swallowing, enlarged nodes in the neck and pain in the neck. Differentiated tumors (papillary/follicular) are highly treatable and usually curable. Poorly differentiated tumors (medullary/anaplastic) are much less common, more aggressive, metastasize early and have a poorer prognosis.⁸

Papillary cancer represents 80% of all thyroid cancers. Follicular carcinoma is the second most common thyroid malignancy and is present in 10% cases, medullary thyroid carcinoma is 5-10% and

anaplastic carcinoma is 1-2%.⁵ Primary lymphomas and sarcomas are rare.⁶ Papillary follicular and anaplastic carcinomas arise from follicular cells and medullary from parafollicular cells of thyroid.⁴ Radiation exposure increases the risk of papillary thyroid carcinoma and iodine deficiency increases the risk of all carcinomas.⁸ In Pakistan thyroid cancer is responsible for 1.2% cases of all malignant tumors with papillary carcinoma constituting 57-89% of all thyroid malignancies. Female to male ratio in this part of the World is 2.5 to 4:1.⁹

MATERIALS & METHODS

A retrospective chart review was conducted of all the patients who underwent thyroid surgery for malignant disease and for those patients whose biopsy came out to be malignant between 2006 to 2013.

The data on postoperative follow up care was scanty and thus was not included in final analysis. SPSS 15 was used to analyze the data.

RESULTS

194 patients of thyroid cancer (28.9% males and 71.1% females, **Fig 1**) were treated in East

Surgical Ward, one of the four surgical units of Mayo Hospital, Lahore. Mayo Hospital Lahore is a tertiary care center, a main referral hospital of Lahore and its suburbs. Case records of all patients were reviewed and all relevant information was entered into a Performa. In our study 24 cases were recurrent and 170 were primary tumors. The mean age of presentation for females was 39.7 years (SD=15.38) and for males it was 47.6 years (SD=16.6)

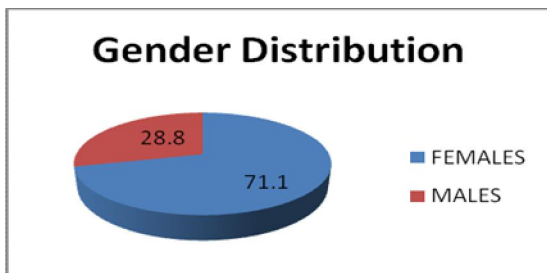


Figure 1: Showing gender distribution

AGE & SEX DISTRIBUTION:

The mean ages of 56 males and 138 females were 47.6 years and 39.7 years respectively. The mean ages for papillary, follicular, medullary carcinomas and anaplastic carcinoma were 39.2 years, 43.37 years, 41.83 years and 56.28 years respectively. Majority of the patients were in 3rd and 4th decades. The youngest being 13 years and oldest being 83.

PRESENTING SYMPTOMS & SIGNS:

170 patients presented as a primary disease and 24 presented as recurrent case. 5 presented as lateral neck mass with no visible goiter. 86 patients presented clinically with a solitary thyroid nodule, 54 patients presented with cervical lymphadenopathy along with goiter. 13 presented with systemic metastasis, 2 presented with metastasis in thyroglossal cyst, 2 with metastatic deposits in maxilla, 2 with skull metastasis and 2 with vertebral metastasis. One patient presented with thyroid swelling, bilateral cervical lymphadenopathy, thyrotoxicosis, marfanoid facies, neuromas of lip and tongue, and pheochromocytoma, diagnosed as MEN 2b. In 8 patients pressure symptoms were recorded. These symptoms consisted of difficulty in breathing or swallowing. 8 Patients had hoarseness of voice.

INVESTIGATIONS

141 Patients had an isotope scan and 77 showed a decreased uptake or a cold nodule and 1

showed hot nodule. X-ray thoracic inlet showed deviation of trachea in 15 patients, compression of trachea in 9 and both in 7 patients. TFTs were performed on all patients. 172 showed euthyroid status and 18 hypothyroid and 4 hyperthyroid at the time of presentation.

All patients had preoperative FNAC. Majority were Papillary Carcinoma. Many FNACs were inconclusive which explains major operation being Lobectomy and Isthmusectomy followed by completion thyroidectomy. 7 cases on IDL showed unilateral cord paralysis and rest showed normal movement of both cords.

DISTRIBUTION OF HISTOLOGICAL TYPES

The commonest histological types were papillary carcinoma constituting 62.3% of all the malignant thyroid tumors. Out of these papillary carcinomas 8% (n=15) were follicular variant of papillary carcinoma. Second commonest was follicular carcinoma that constituted of 30.3% of all malignant thyroid carcinomas. 3.7% (n=7) were anaplastic carcinoma. 3.2% (n=6) patient presented to us with medullary carcinoma. within these cases we had few rare cases like 1 patient with mixed papillary and follicular picture, 1 case with Men 2b syndrome, along with raised calcitonin and CEA levels and pheochromocytoma, 2 cases with recurrent medullary carcinoma, 1 case with Pendred syndrome who had total thyroidectomy for Papillary carcinoma but 15 years later presented with poorly differentiated carcinoma with squamous differentiation and 1 case had Lymphoma. (Fig 2)

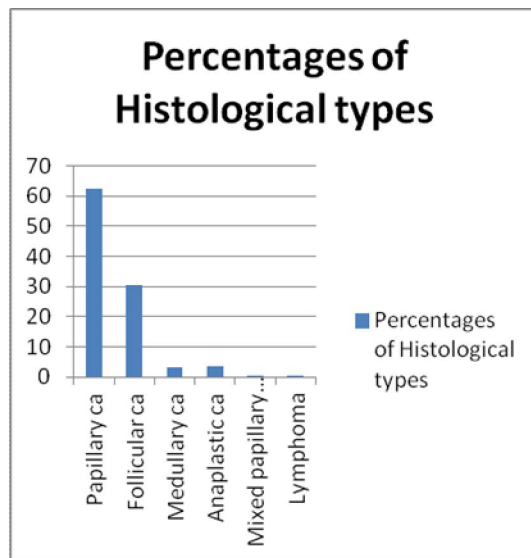


Figure 2: Percentages of histological types

TREATMENT

The management of patient was according to preoperative clinical examination and FNAC reports. Treatment was not uniform because of lack of proper FNAC. 61 patients underwent lobectomy and isthmectomy followed by a completion thyroidectomy, 4 had STT, 54 underwent total thyroidectomy, 67 underwent total thyroidectomy and unilateral block neck dissection, 11 underwent total thyroidectomy and bilateral block neck dissection, 2 underwent sistrunk operation followed by total thyroidectomy, 1 case with recurrence underwent suprahyoid block neck dissection and 3 Patients in the series did not undergo surgery on account of irresectability. (Fig 3)

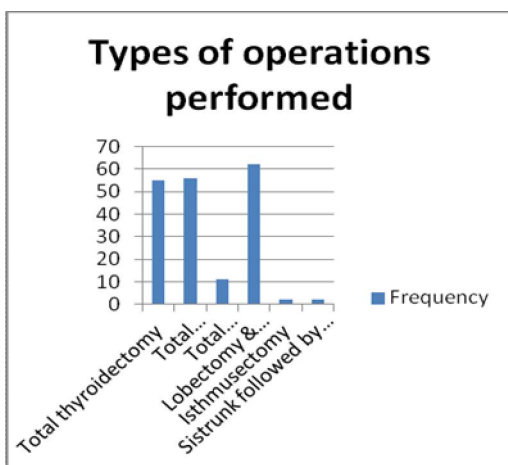


Figure 3: Types of operations performed

The patient with lymphoma was sent for chemotherapy. All patients with DTC received 131 I ablation. After ablation all were prescribed lifelong thyroxin therapy. 6 patients had tracheostomy at primary operation and 2 had tracheostomy in postoperative period in the ward.



DISCUSSION

Thyroid carcinoma is one of the fastest growing cancers World Wide. It is 2.9 times more common in females than in males. It is the 7th most common malignancy in females. The gender disparity in thyroid carcinoma is also specific to histological subtype of thyroid carcinoma.¹⁰ Generally thyroid carcinomas are divided broadly into differentiated thyroid carcinomas i.e Papillary and follicular carcinomas, and other being Medullary carcinoma and Anaplastic carcinoma. Differentiated thyroid carcinomas are more common in females.¹⁰ The more aggressive types of cancer, anaplastic and medullary thyroid carcinoma have same incidence in both sex.

The differentiated thyroid carcinoma mostly presents as a uninodular or and multinodular disease. The incidence of carcinoma in MNG is reported to be 9.5% in a study by Khan et al , and 7.6% in a study by Memon et al and 12.3% in solitary nodule by Somro et al.^{11,12,13} While the rate of malignancy in thyroid nodule detected at a medical screening center was 7-15%.¹⁴

In our study the male to female ratio was 1:2.5 while in a study by Zuberi et al it was 1:2.6 and by Merchant it was 1:2.2.^{9,15}

In our study papillary carcinoma (62.3%) was the commonest tumor which is comparable to International literature and previous reported case series in Pakistan as well.^{9,16,17, 18} The usual female to male ratio of PTC is 2.5 : 1 and the mean age at presentation is 30 to 40 years.¹ In our study this ratio was 2.5:1.

The biological behavior of Papillary carcinoma is variable as it tends to metastasize to local lymph nodes. It may present denovo as a lateral aberrant thyroid or metastatic enlargement of local cervical lymph nodes with no visible or palpable thyroid swelling.¹⁷ Rarely in 5-10% cases it presents with systemic metastasis to lungs and bones. It could be unifocal or multifocal, has high incidence of extrathyroidal involvement.^{17, 18, 19} It may present as Classical Papillary carcinoma or follicular variant of Papillary carcinoma in 7% cases.

In our study the incidence of follicular carcinoma was much higher i.e. 30%. It was comparable to Pakistan study by Zubari who showed ratio of papillary to follicular carcinoma as 2:1.⁹ A western study reports it as 10% in Iodine sufficient areas and 25-40% of thyroid malignancies in Iodine deficient areas. FTC is not diagnosed on routine FNAB. Therefore case with

follicular adenoma undergoes lobectomy and isthmusectomy followed by completion thyroidectomy if malignancy is found.²⁰ FTC usually metastasizes to lungs, bones and less commonly to brain, liver and skin. Extrathyroidal involvement in this case is rare with however angioinvasion affects the prognosis significantly.^{20,21}

The initial treatment of differentiated thyroid carcinoma (DTC) should always be preceded by careful assessment of the neck to assess the status of lymph node chains. The initial treatment for DTC is total or near-total thyroidectomy.⁷ In case of carcinoma with regional nodes, neck dissection should be under taken. Surgery is usually followed by the administration of ¹³¹I, activities aimed at ablating any remnant thyroid tissue and potential microscopic residual tumour.^{7,21}

3.2% of our cases had Medullary carcinoma. One of these presented to us with MEN2b syndrome. MTC arises from Parafollicular or C cells that produce Calcitonin. The usual incidence of MTC is 5-10%. It may present as sporadically in 75% cases and hereditary disease in 25% cases as MEN 2a, MEN2b or Familial MTC.²² 80% of patients with MTC when diagnosed have invasive disease and 10% patients have frank metastasis.^{23,24} Sporadic MTC presents in 4th decade while Men 2a presents in a younger age group in 3rd decade. Men 2b presents in childhood usually recognized through Marfanoid habitus, neuromas or thyroid mass. It tends to spread within thyroid and then to regional nodes and later to lungs, liver and bones.²⁵ As MTC has a tendency for regional nodal involvement, a prophylactic central neck dissection is required at the time of total thyroidectomy for non palpable thyroid disease identified by screening. In our study we had 3.7% of cases with Anaplastic carcinoma. Anaplastic carcinoma is the most lethal and aggressive type of thyroid cancer arising from follicular cells. It accounts for only 1-2% of all thyroid tumors.²⁶ It shows a median survival of 4-12 months from the time of diagnosis.^{26,27} Anaplastic carcinoma can occur concurrently with well differentiated thyroid carcinoma.²⁶ Increased surgical resection of thyroid gland for different thyroid pathologies may contribute to decline in Anaplastic carcinoma by eliminating the transformation of well differentiated carcinoma to anaplastic carcinoma.²⁸ The diagnosis of Anaplastic carcinoma is made on clinical

examination and confirmed by FNAB with 90% accuracy. It usually presents as a rapidly growing, painful anterior neck mass that is firm and fixed to underlying structures.²⁹ Patients may present with dysphagia, dysphonia, hoarseness, stridor, dyspnea, neck pain and cervical lymphadenopathy and invasion of adjacent organs (trachea, vessels and muscles) or even with systemic metastasis.³⁰

³¹ The patients with ATC usually present at an advanced stage making curative resection not feasible. Main aim of management is palliation.²⁶ The results of these strategies are not very promising. Novel strategies are needed to improve the prognosis of one of the most aggressive human cancers.³¹

CONCLUSION

Female preponderance was found in our study in carcinoma thyroid. Papillary carcinoma was the commonest cancer type found followed by Follicular carcinoma. Total thyroidectomy is the treatment of choice followed by neck dissection if regional lymph node are involved. Both commonest types of cancers if treated in time and adequately can result in good patient's survival.

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