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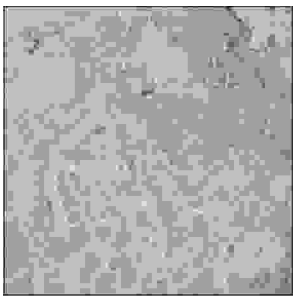
THYROID MALIGNANCY;
MANAGEMENT UPDATE



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ABSTRACT... urolog@brain.net.pk. **Objectives:** (1). Audit of our one year experience of management of thyroid carcinoma in accordance with latest approved guidelines. (2) To point-out high risks of malignancy in population with thyroid diseases. **Design:** Prospective study. **Setting:** Surgical Unit-IV of DHQ Hospital Faisalabad with cooperation of Department of Pathology, Punjab Medical Collage, Faisalabad. **Period:** From 2000– 2001. **Patients & method.** All patients irrespective of age and sex with suspicious of thyroid malignancy were included in this study . Out of total 56 patients of thyroid diseases 13 cases were proved thyroid carcinoma on histopathology. **Results:** Carcinoma of thyroid was found more common in females. Papillary carcinoma was found in early age group. Follicular carcinoma was found in younger age group. All patients with anaplastic carcinoma were above, the age of 50 years. Total thyroidectomy was found the treatment of choice for the management of carcinoma thyroid. Modified neck dissection was done in selected cases. We offered lobectomy for one patient with young age with 1.5cm lesion in one lobe. Most patients were placed on TSH suppression thyroxine therapy. Postoperative follow– up was done for one year. The most important prognostic factor was age of patient, size, type and extent of tumor. Another important factor was the treatment of the disease offered to the patient. **Conclusions:** Screening programme at least in goitrous areas should be done to detect malignancy at early stage and then early management should be offered in hope of good survival and least morbidity.

Key words: Solitary Thyroid Nodule (STN), Fine needle aspiration cytology (FANAC), Thyroid Nodular gorite (MNG).

INTRODUCTION

The history of thyroid diseases is as old as history of mankind. The prevalence of malignancy of thyroid in some studies has been estimated upto 5.33%[1]. Its incidence is more common in females but incidence before puberty and after menopause is equal in both sexes.

Factors responsible for thyroid carcinoma are difficult to know in every case. Most common is the radiation

exposure in childhood, in the dwellers of endemic goitrous areas, in the long– standing cases of Hashimoto 's thyroiditis, and in multi nodular goiter, in addition to genetic factors[2].

Rarely metastatic lesions from carcinoma of lungs, oesophagus, breast, malignant melanoma and renal tumors are reported in the thyroid[3]. If patients who bears a thyroid tumors has a history of malignancy of the said organs the possibility of metastatic disease should be taken under consideration.

We are living in endemic areas of thyroid diseases. The cases are presented as solitary thyroid nodule (STN), multi-nodular goiter, Grave's disease, hypothyroidism and sometimes with advanced malignancy. Most of the thyroid malignancy present with solitary thyroid nodule (STN). The major concern related to the potential risk of malignancy in solitary thyroid nodule that ranges from 5-20%, this figure is up-to 50% in very young and very old patients[4]. Malignant potential of nodule in men is about three times that of woman n comparable age group.

Risk is also more in solid lesions on USG and in cold nodules on scanning especially cold nodule of Grave's disease and with a history of multiple endocrine neoplasias[5] .

Patients with Graves disease who develop a nodule may have higher risk of malignancy. There has been suggested an increased aggressiveness of papillary thyroid cancer in patients with Graves disease. Risk of malignancy in hot nodules varies from 1% to 9%[6].

Malignancy is just as common in patients with a multinodular goiter as patients wit a patients with a solitary nodule, we support the increasing use of fine-needle aspiration cytology. Malignant change
are suspected[7]and investigated if there is ;

1. Rapid enlargement of one of the nodules of MING.

2. Adjacent lymph node enlargement .

3. Recurrent laryngeal nerve palsy.

A family history of thyroid cancer or pheochrmomocytoma should suggest Medullary Thyroid Carcinoma in setting of MEN 2A or 2B, MEN may present with diarrhea as a principle symptom.

Ultrasonography is helpful in identifying number of nodules, nature of the nodules (solid - cystic), echo-genicity, echo structure, shape and intrinsic calcification. Intrinsic calcification is significant predictor of malignancy particularly if it has snowstorm appearance on sonography[7]. Our main criteria of diagnosis of thyroid carcinoma was history, clinical examination, and preoperative FNAC. FNAN of STN has proved to be one of the key diagnostic procedures and provides single most precise method of differentiating the benign (majority) from malignancy nodules (majority). FNANC should be employed routinely as first line investigation in patient with STN and it also helps in planning surgery[8].

A trained cytologist is the prerequisite for success of FNAC. Conservative management may be appropriate when malignancy can reasonably be excluded.

Careful close observation should be routine in these cases. Cysts more than 4cm in size, those having cystic and solid component and those reoccur after three aspirations should be excised. Since these conditions are more likely to be associated with malignancies[9].

Thyroid hormone studies (T3, T4 and TSH) were done as base- line investigation and to rule out sub- clinical hyperthyroidism.

The initial management of all follicular carcinomas and of papillary carcinomas > 1.5 cm was total thyroidectomy followed by radioiodine ablation. Most patients were managed postoperatively with doses of thyroid hormone sufficient to suppress plasma levels of thyroid stimulating hormone. Recurrences can occur many years after initial therapy and follow - up should be lifelong[10].

The undifferentiated tumors was managed by local

resection, post - operative radiation and chemotherapy in consultation with the oncologist.

After confirmation of malignancy on histopathology, we did not start the replacement therapy with thyroxine for a month. After one month the patients were subjected to thyroid scan for residual thyroid tissue followed by its ablation with I^{131} before starting the TSH suppression therapy.

Certain high risk factors were found to help in sorting- out malignancy pre-operatively. These were used to plan the further management of such cases.

AIM AND OBJECTIVES

1. Audit of our one-year experience of management of thyroid carcinoma in accordance with latest approved guidelines.

2. To point out high-risk determinants of malignancy in a population with thyroid diseases.

MATERIAL AND METHOD

This study was carried out in SU-IV of D.H.Q. Hospital with co-operation of department of pathology, Punjab Medical College Faisalabad for one year. The study included all the 56 patients admitted in this unit for surgical management of thyroid carcinoma. After taking a complete history and clinical examination, the investigation were planned according to protocol peroforma.

All patient were operated in euthyroid condition under general anesthesia. Subtotal or near total thyroidectomy was the procedure of choice in most of the cases, specimens were sent for histopathology.

RESULTS

Age: Maximum incidence (46%) of malignancy was between 30-40 years. 15.5% (n=2) of patients presented in twenties, 46% (n=6) in thirties, 23% (n=3) in forties and 15.5% (n=2) in fifties year & above (Table-I).

Table-I. Age distribution

Age	No. of cases	%age	Remarks
21-30 years	2	15.5%	Both females of papillary carcinoma
31-40 years	6	46%	
41-50 years	3	23%	1- Anaplastic
51 & above	2	15.5%	1- Anaplastic

Sex

In our study the incidence of malignancy is high in females. 38.5% (n=5) of patients were males and 61.5% (n=8) were females (Table-II)

Table-II. Sex distribution

Sex	No. of cases	%age
Male	5	38.5%
Female	8	61.5%
Total	13	-

PATHOLOGY

According to the histopathology , 30.5% (n=4) of cases were of papillary carcinoma and 38.5% (n=5) of follicular carcinoma. Mixed papillary and follicular carcinoma were 15.5% (n=2) and another 15.5% (n=2) were anaplastic. (Table- III) 50% of papillary cases had already metastasized to the regional lymph nodes (cervical) and 20% of the follicular carcinomas also involved the cervical lymph nodes and distant metastasis to cranium as well. One of the mixed variety cases presented with cranial metastasis and retrospectively found to be a retrosternal thyroid tumour (Table-III).

SURGERY PERFORMED

Spectrum of surgery performed varied according to the need of individual case. Concerning the prognostic factors, assessing the characteristics of anatomy, in each case, clinical finding, degree of expertise, surgeon can

tailor the operation that can have the best results with lowest morbidity (Table-IV).

Table-III. Pathology				
Type of carcinoma	**No. of cases**	**%age**	**Lymph node + status**	**Distant metastasis**
Follicular carcinoma	5	38.5%	1	1-case to cranium
Papillary carcinoma	4	30.5%	2	-
Mixed pattern papillary follicular	2	15.5%	-	1- case to cranium
Anaplastic	2	15.5%	-	-

Table-IV. Surgery performed		
Extent of surgery	**No. Of cases**	**Remarks**
Lobectomy plus isthumusectomy	1	Young girl recent married with 1.5 cm lesion
Near total thyroidectomy	3	-
Total thyroidectomy plus temporary tracheostomy	1	-
Total thyroidectomy plus unilateral lymph node dissection	3	-
Thyroidectomy through mediastenotomy and excision of cranial metastasis	1	-
Total thyroidectomy and laryngectomy	1	Anaplastic lesion involving larynx in a 60- year male
Tracheostomy and local excision	1	Anaplastic lesion. Salvage measure.
Total thyroidectomy	2	-

POST-OPERATIVE THERAPY

Only in two cases we needed long-term replacement therapy of calcium possibly because of direct or ischemic injury to the parathyroid gland. Temporary ischemic injury to the gland mostly recovered in period of 4 months. (Table-V). In most of the instance the parathyroid gland was identified.

I^{131} was given in seven cases to ablate the residual thyroid tissues and external beam radiation was used in one case of anaplastic carcinoma (Table V).

Thyroid was used in eleven cases in order to keep the TSH level low to avoid growth stimulation. Patients with anaplastic carcinoma were not put on thyroxine (Table-V).

Table-V. Post-operative therapy		
Therapy	**No. Of cases**	**Remarks**
Thyroxin	11	-
I^{131}	07	-
Calcium supplements & alpha Leo tables even after 4 months.	02	-
External beam radiation	01	Anaplastic Lesion.

POST- OPERATIVE COMPLICATION

There was no operative mortality. A single injury to recurrent laryngeal never proved on IDL, was observed in a case having locally infiltrating lesion. (Table-VI). Permanent hypoparathyroidism observed in two cases. (Table-VI).

Table-VI. Post-operative complications

Complication	No. of cases.	Remarks
Haemorrhage	01	-
Wound infection	02	-
Unilateral recurrent laryngeal never injury (Left).	01	Large locally infiltrating lesion. Proved on IDL.
Temporary horseness of voice.	05	IDL not done. It may be due to laryngeal edema or nueropraxia
Temporary hypoparathyroidism.	03	-
Hypoparathyroidism requiring treatment even after 4 months.	02	-

Follow-up six months to one year

76.5% patients are surgery at the moment without any problem (Table- VII). There was only one operative mortality in a patient with advanced anaplastic carcinoma (Table-VII).

Table-VII. Follow-up

Condition	No. of cases	Remarks
Asymptomatic	10	-
Surviving with sever dyspnea	01	2nd case of anaplastic carcinoma in which thyroidectomy and laryngectomy done.
Non-disease mortality	01	Died of cardiogenic shock while waiting for 2nd operation for cranial metastasis.
Disease mortality	01	Anaplastic carcJinoma in which tracheostomy wJas also done.

DISCUSSION

Thyroid carcinoma is most frequent endocrine malignancy and represents 1% of all malignancy[11]. We studied 13 patients with malignant lesion out of 56 cases of thyroid surgery (23%) and it represents a high incident because referred cases from primary and secondary centers were included in it.

In our study the incidence of malignancy was high in female (Table-II) 1:6:1(F: M) other studies show that incident of papillary and follicular is approximately 2.5 fold excess in favour of female as compared to males[12,13,14].

In our study papillary carcinoma has been found in early age group, follicular carcinoma in younger patients and anaplastic carcinoma in elderly patients. All patients with anaplastic carcinoma were above 50 years of age (Table-I). This is accordance with international literature.

In one series papillary type carcinoma made up about two third and follicular carcinoma about 18%. Medullay

carcinoma less than 10% and anaplastic carcinoma makes up to 10-15% [15]. In another series, papillary carcinoma is 60% follicular carcinoma is 17% anaplastic carcinoma is 13% medullary carcinoma 6% and lymphoma is found to be 4%[16]. In an other series 82% cases of papillary carcinoma, 4.4% follicular type and 6.7% anaplastic and medullary thyroid[17].

In our series, we did not find any medullary carcinoma or lymphoma. Papillary carcinoma four cases (30.5%) and mixed papillary carcinoma 2 cases (15.5%). We included this mixed pattern in papillary carcinoma[15]so percentage of papillary carcinoma came up to 46%. Follicular carcinoma were five cases (38.5%) and anaplastic carcinoma were only two cases (15.5%) (Table-IV).

Modified neck dissection was done in three cases. Modified neck dissection at the time of initial operation decreases the need for repeated surgery and prevents the increasing of multiple operations for recurrence nodal disease[18].

Percentage damage to the parathyroid gland should approach 0.1% and same should be the rate of injury to the recurrent laryngeal never. In our study a single injury to the recurrent laryngeal never proved on IDL, was observed in a case having locally infiltrating lesion .Permanent hypoparathyroidism was observed in two cases.

The use of RAI (radio active iodine) ablation has been shown to be associated with reduced local recurrence of disease in high risk patients. The use of RAI ablation is well accepted in patients with incomplete resection of primary tumor, distant metastatic lesions, nodal metastatic, locally invasive tumors, large lesion, and follicular lesions with evidence of recurrence of carcinoma. We put our seven patients on rodioiodine postoperatively. Radio iodine is not indicate for anaplastic carcinoma, as they do not take it.

Special emphasis is paid to bone and brain metastasis as they tend to be less responsive to RAI, so external beam radiation or surgery may be helpful for palliation.

Patients with differentiated tumor are followed clinically with neck palpation, physical examination, chest X-ray and observation for thyroxicosis that may indicate functional metastasis. About six months after postoperative scan patient usually got an other I^{131} whole body scan. Patients with papillary should have at least two consecutively negative scans before they are considered in remission. They are followed after every six months for 3 years and then yearly for rest of life. Measurement of thyroglobin may be helpful in follow up but it dose not differentiate between residual tissue and metastatic lesion. Rising level of thyroglobin signifies recurrence or metastasis and it indicates the need for whole body scan with I^{131}.

CONCLUSIONS AND SUGGESTION

No.1: Confessing over the behaviour of malignancy limited resection (lobectomy and isthmusectomy) can be offered instead of total thyroidectomy to a selected number of patients which include very young patients, small tumor size up to 1.5cm, good educational status and security of regular follow up visits.

No.2: Mass communication should be there for goiterous patients and in the endemic goiterous areas for visiting the tertiary centers or at least secondary centers for screening purposes with available diagnostic tools.

No.3: All specimens of thyroid irrespective of clinical impression should be submitted for histopathology and feed back histology department should also be made regarding disparity of the results of the FNAC and histopathology of that specimen.

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SAYING IS ONE THING AND DOING IS ANOTHER

Monstaigne