

**Original article****Incidence of malignancy in non toxic multi-nodular goiter an institutional experience****A.G. Soomro*, A.R. Surahio, S.A. Ali, A.A. Dahri, A.J. Siddiqui***Department of Surgery, Liaquat University of Medical & Health Sciences Jamshoro, Sindh, Pakistan.*

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ARTICLE INFO

Article history,

Received 10 February 2014

Accepted 14 February 2014

Available 30 March 2014

Keywords,

Multinodular goiter

Incidence

Thyroid malignancy

ABSTRACT

The objective of the study is to determine the incidence of malignancy in non toxic multinodular goiter patients who underwent thyroid surgery in our institution. This is a prospective study carried out in the Department of general surgery, Liaquat University of Medical & Health Sciences Hospital Jamshoro, from January 2011 to December 2011. A total no. of 95 cases with clinical diagnosis as non toxic Multinodular goiter who underwent subtotal thyroidectomy were included in the study. Their biopsy specimen were sent to our university laboratory. The biopsy reports were collected in a week time and results were recorded. All the data was recorded on predesigned Performa. Out of 95 patients 7 (7.37%) patients were diagnosed as having malignancy on biopsy reports. Females (6 patients) were affected more commonly than male patients. Papillary carcinoma is the more commonest variant seen in 5 (71.4%) patients, follicular carcinoma in 1(14.3%) patient while Medullary carcinoma is also reported in 1(14.3%) patient. We conclude that the risk of malignancy in non toxic Multinodular Goiter is not to be under estimated, and a dominant nodule in Multinodular Goiter should be valued for thyroid cancer .

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1. Introduction

Thyroid malignancies are a heterogeneous group of tumors which show considerable variability in biological behavior, histological appearances and response to therapy. Thyroid cancer is uncommon and represents only 1% of all malignancies (Thomas, 2004, Qureshi et al., 2006). Among all endocrine gland incidence of thyroid malignancy is 25 to 40 cases per million populations per year. However reported incidence from various parts of world is between 0.9% to 13% (Thomas, 2004, Hanks et al., 2004). Well differentiated thyroid carcinoma includes papillary, follicular and Hurthle cell are the commonest variant. Medullary thyroid carcinoma arising from parafollicular cells shows 6% incidence of thyroid cancers with MEN type 2A and 2B associates in 20-30% of cases. Aggressive Anaplastic carcinoma represents only 1% of the thyroid cancer (Hanks et al., 2004).

Thyroid carcinoma although relatively rare but is responsible of high mortality and is the most frequent malignancy among all the endocrine glands in the body. It is most commonly presents as a solitary nodule or dominant nodule in multinodular enlargement. In our country incidence of thyroid cancer is only 1.2%. A range of 7.5% to 13% has been reported in multinodular goiter (McCall et al., 1986, Lopez, Lopez et al., 1997). However statistically there is no significant differences between incidence of thyroid cancer in patients with a solitary nodule or with multinodular goiter (Giuffrida and Gharib 1995). Clinical presentation of thyroid malignancy is uncommon with a reported incidence of 0.5% to 10% globally (DeGroot and Jameson, 2003). It present with 0.5% in male and 1.5% in female cancers globally (Sherman SI) The objective of this study was to determine the incidence of thyroid carcinoma in non toxic multinodular goiter in patients undergoing thyroid surgery in our tertiary care hospital.

2. Materials and methods

This is a prospective study carried out on non toxic multinodular goiter patients in the Department of general surgery, Liaquat University of Medical & Health Sciences Hospital Jamshoro, from January 2011 to December 2011. Total 95 cases who under went sub total thyroidectomy with clinical diagnosis of non toxic multinodular goiter were included in the study. Toxic Multinodular goiter, childrens and recurrent thyroid nodules were excluded. All the data was recorded on predesigned Performa. Histopathological reports were received and recorded.

3. Results

Out of 95 patients, Males were 10 (10.5%) and females 85 (89.5%) with the mean age of 36.24. On histopathologically 7 (7.37%) patients were diagnosed as having malignancy. Females (6 patients) were affected more commonly than male. Among them, papillary carcinoma is the more common reported in 5 (71.4%) patients, follicular carcinoma in 1(14.3%) patient and Medullary carcinoma in 1(14.3%) patient. See Table- 1, 2 & 3.

Table 1
Tissue histopathology with age & sex presentation

Gender	No	%	Mean	Sd Deviation
Female	85	89.5	36.45	10.181
Male	10	10.5	34.5	12.981
Total	95	100	36.24	10.446

Table 3
Age Distribution.

Age group	No. of patient	Male	Female	Male, Female
20-30	41 (43.1%)	06	35	1,5.8
31-40	27(28.4%)	01	26	1,26
41-50	20 (21.1%)	02	18	1,9
51-60	07 (7.3%)	01	06	1,6
Total cases	95	10	85	1,8.5

4. Discussion

Thyroid carcinoma usually presented as a lump in the neck which clinically may be solitary or Multinodular. Thyroid carcinoma can presents as solitary nodule or dominant nodule in a Multinodular. Thyroid nodule should be viewed with the suspicion if it of recent origin, firm, fixed irregular in shape and increasing in size rapidly.

Multinodular goiter is the very commonest indication for Thyroidectomy in endemic iodine deficient regions. Pre-operative evaluation for thyroid cancer by means of fine needle aspiration biopsy is difficult in Multinodular goiter owing to the presence of multiple nodules and thyroid cancer is frequently an unexpected post operative finding.10Traditionally, patients with Multinodular goiter have been considered at lower risk of malignancy than those with solitary nodule. However, the literature review has shown that the incidence of malignant tumors in patients with solitary nodule does not differ much from those with Multinodular goiter (McCall et al., 1986, Hossein, 1997).

Most of the patients with of thyroid cancer in Pakistan presented as multinodular goiter as compared to solitary thyroid nodules. A higher percentage of these patients have distant metastasis at the time of presentation, thereby reducing the chances of favorable out come (Larijani et al., 2005)

Thyroid carcinoma is the leading cause of death among endocrine cancers after carcinoma of the ovary (Hanks et al., 2004; Wu et al., 2000).

Over all females have higher incidence of carcinoma thyroid (Hanks et al., 2004; Williams, 2003) the tumors are rare in children and increase in frequency with increasing age.

Study conducted by Benzarti et al in Tunis found 9.5% incidence of malignancy (Benzarti, 2002) Similarly another study conducted at Sarajevo showed 8% incidence of malignancy (Alagic-Smailbegovic et al., 2005). A 12.2% incidence of malignancy in Multinodular goiter was reported from France by Prades et al (2002).

In our study over all incidence of malignancy in Multinodular goiter was 7.5%. Papillary cell carcinoma 71.5% is the more common variant other is Follicular 14.3% and Medullary 14.3% carcinoma. As compared with other studies we reports a low incidence of thyroid carcinoma.

An other local study reports an overall incidence of 11% malignancy (Memon et al., 2010).

Mofti et al reports a very high incidence of thyroid malignancies (29%) in a study of 158 patients.(Mofti, A.B et al;1991)

The studies from Riyadh also reported a similar high incidence of thyroid malignancy ranging from 21% to 29% (Mofti et al., 1991;Kona and AL-Mohareb, 1988). The incidence of malignancy as compared to Saudi Arabia was low in our study.

In our study, age range of the patients with multinodular goiter was between 20 to 60 years, with mean age of 36.24years. The peak age group was 2nd to 4th decades of life, which is comparable to results mentioned in other literature (Memon et al., 2010, Waqar and Ali, 2006). However, Rugiu MG et al showed age range from 35 to

Table 2
Gender distribution.

S, No	Type of malignancy	No, of patients	Age years	Male	Female
1	Papillary Carcinoma	05 (71.5%)	30 to 50	01	04
2	Follicular Carcinoma	01 (14.3%)	35	00	01
3	Medullary Carcinoma	01 (14.3%)	22	00	01
4	Anaplastic Carcinoma	00	--	--	--

85 years with a mean age of 64 years and L M Zuberi et al showed peak age range from 30 to 60 years (Zuberi et al., 2004; Rugiu and Piemonte, 2009).

As in our study malignancy predominantly occurred in females so hormonal influence may be considered to be the etiological factor for malignant changes in goiter (Sakoda and Horn-Ross, 2002).

We think that the incidence of malignancy in non toxic multinodular goiter is fairly common in our country, particularly with the prolonged history of goiter and huge goiter. Females are more prone to malignancy than Males probable due to hormonal influences.

5. Conclusion

We conclude that the risk of malignancy in non toxic Multinodular Goiter has not to be under estimated, and that a dominant nodule in Multinodular Goiter should be valued for thyroid cancers .We also suggest that every specimen of MNG should be send for histopathology for a better management and 5 years survival of incidental finding of thyroid malignancies.

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