

THE INCIDENCE OF MALIGNANCY IN MULTINODULAR GOITER.

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ABSTRACT

INTRODUCTION: Thyroid cancer is the rare one but it the most frequently occurring malignancy among all endocrine glands carcinomas. It can present as solitary nodule and a dominant nodule in multinodular goiter (MNG). In Pakistan, its incidence is 1.2% cases of all neoplastic lesions and studies have summed up that 57% to 89% of carcinomas are papillary type. In globe, its incidence varies from 7.5% to 13%. There is a minor statistical difference seen in incidence of multi nodular and solitary nodular goiter. **OBJECTIVE OF STUDY:** The objective of this study was to detect the prevalence of thyroid neoplasm in multinodular goiter. **STUDY DESIGN:** Cross sectional study. **PLACE AND DURATION OF STUDY:** At Surgical Unit-II PMC Hospital Nawabshah. Duration was from January 2020 to December 2020. **PATIENTS AND METHODS:** All the patients with diagnosis of MNG were admitted through OPD and emergency department. Clinical History and thorough clinical examination of neck was done. All biochemical investigations were done Fine Needle Aspiration Cytology (FNAC) was obtained. Thyroid Profile was done in all patients and thyroid scan were done wherever deemed necessary. Surgery was done and specimen was sent for histopathology to diagnose Carcinoma. **RESULTS:** Total 92 patients with diagnosed as MNG were included in the study. Female patients were 60(65%) and male patients were 32 (35%). On Fine needle Aspiration Cytology (FNAC), 31(34%) patients had malignant cells and 61(66%) had benign cells. After surgeries performed, histopathologies of specimen of patients were done. Of them papillary carcinoma was reported in 26(28.2%) patients, 3(3.2%) were diagnosed as medullary, 2 (2.1%) as follicular and no case of anaplastic was found in our study. Colloid goiter was found among 41(44.5%) patients and 20(21.7%) patients had follicular adenoma. **CONCLUSION:** In short, it is concluded that the prevalence of thyroid carcinoma in MNG is higher that is 34%.

KEYWORDS: Multinodular, Colloid, Follicular, Adenoma.

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INTRODUCTION

Malignancy is the common cause of death in many countries of the globe. Although thyroid malignancy is detected rarely in the globe, it is the carcinoma with increased frequency among all endocrine gland related carcinomas. It presents into both forms either solitary nodule or multi nodular goiter (MNG).¹ In Pakistan; its incidence is 1.2% cases only among all types of malignancies. The studies have reported that 57% to 89% of all thyroid carcinomas are papillary type. Its incidence in the world is seen to be from 7.5% to 13%. Still more but minor statistical differences are seen in incidence of multi nodular and solitary nodular goiter.² The common risk factors for the development of thyroid malignancy are exposure to ionizing radiation, Multinodular goiter, iodine deficient bodies, thyroid adenoma, MNG and increased pathologic diagnosis of clinically unimportant thyroid carcinomas. These are considered to cause the rise of thyroid carcinoma incidence throughout world for last six decades. Multinodularity does not indicate the benign condition only but malignancy is also seen among patients suffering from MNG.³ Annual incidence is estimated to be increased from 0.5 to 10:100,000 people in whole world population. This

figure can be enhanced if the cases of occult carcinoma are also counted. Occult carcinoma is non-evident neoplasia associated with cervical lymph nodal disease or accidentally detected disease in thyroid that has been removed for pathology or during an autopsy.⁴ Histologically, MNG is simply defined as a thyroid gland enlargement with follicles which grossly varies morphologically and functionally. It takes years to develop. It describes thyroid gland with multiple areas of nodularity. It is endemic in many regions of world where iodine deficiency is detected in the soil. Different other factors are also involved in the development of MNG.^{5,6} MNG is the most common thyroid gland disorder affecting 500 to 600 million people in world. In India, 54 million people suffer from Goiter and the number at risk is about 167 million. It is said to be endemic if it affects 10% of entire population. Non endemic goiter is common in old age patients particularly in women.⁷ In published reports, the incidence of carcinoma in MNG is recorded to from 7% to 17% in world. The prevalence of Incidental thyroid cancer in MNG is reported to be –10%. Recent studies have shown this prevalence increased ranging from 8.6% to 22%.⁸ However, the detection of incidental thyroid carcinomas on autopsy is also increasing with increase from 6% in 2003 to 20% in 2012. The

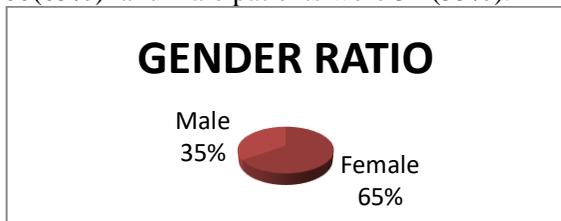
statistics has increased because of detection of higher detection of thyroid nodules in autopsy series of 50%.^{9,10} The rationale of our study is to detect frequency of Thyroid carcinomas among patients of MNG so that early diagnosis and treatment be done to prevent patient from complications of Malignancy.

PATIENTS AND METHODS

This is a cross sectional study conducted at Surgical Unit II PMC Hospital Nawabshah for a period of one year from January 2020 to December 2020. All the patients were admitted through OPD and emergency department. Clinical History and thorough clinical examination of neck was done.. Regional Lymph nodes were also examined. General physical examination was also done. Eye signs were also examined. Patient was prepared for surgery. Cardiac and anesthesia fitness was taken after routine blood investigations, viral markers, thyroid profile and scan where it was supposed to be necessary. Ultrasound of neck was also done. Doppler ultrasound of neck in those patients with malignancy on FNAC in order to see the vascularity. Systemic examination was also done. Making the patient euthyroid, patients were planned for Surgery according to diagnosis. Surgery was done and specimen was sent for histopathology to confirm the results to find out the prevalence of carcinoma in MNG. .

RESULTS

Total 92 patients with diagnosed as MNG were included in the study. Female patients were 60(65%) and male patients were 32 (35%).

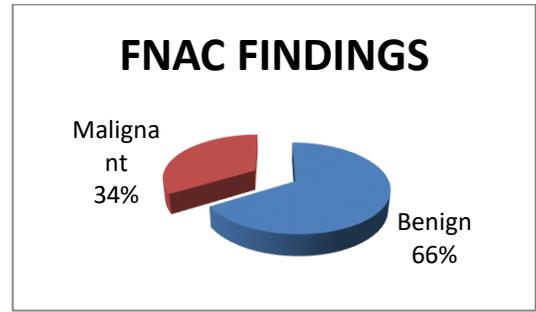


Age difference was also noted. The age of patients was between 22-70 years. 10(10.8%) patients were of age between 22-35 years. 12(13%) aged from 36-45 years. 44(47%) patients age was of 46-57 years. 32(37.4%) patients age was from 58-70 years.

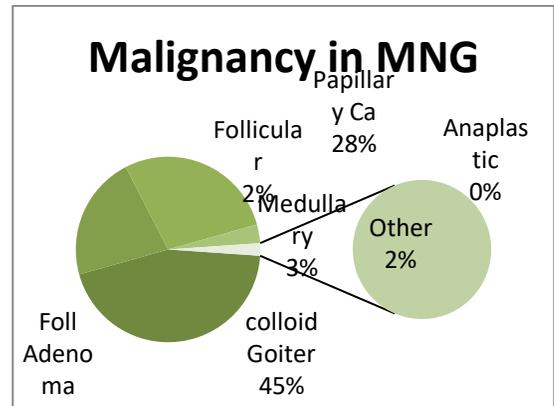
Table No 1. Age Difference in patients of Multinodular Goiter.

S NO	AGE IN YEARS	NO OF PATIENTS	PERCENTAGE
1	22-35	10	10.8%
2	36-45	12	13%
3	46-57	44	47%
4	58-70	32	37.4%

On Fine needle Aspiration Cytology (FNAC), 31(34%) patients had malignant cells and 61(66%) had benign cells.



After surgeries performed, histopathologies of specimen of patients were done. Of them papillary carcinoma was reported in 26(28.2%) patients, 3(3.2%) were diagnosed as medullary, 2 (2.1%) as follicular and no nay case of anaplastic was found in our study. Colloid goiter was found among 41(44.5%) patients and 20(21.7%) patients had follicular adenoma.



DISCUSSION

Multi nodular goiter (MNG) is still pandemic in areas of iodine deficiency. In Pakistan, it is responsible for 1.2% cases of all neoplastic lesions. It commonly affects women more as compared to men. Male female ratio in this area is between 2.5 to 4:1 Most of the nodules are diagnosed as benign but possibility of carcinoma cannot be ruled out.¹¹ In a study done in Karachi, the incidence of malignancy was 14.9%. In USA, it was 5.8%, Libya 9.75 and in South Africa 5.4%. The studies of Riyadh showed high incidence from 21%-29%. In one study, papillary carcinoma was more frequent 71.4% than follicular variant. Other studies have reported the incidence of papillary carcinoma in MNG to be 60%.¹²

In a study, majority of patients affected were aged between 40-49 years and the ratio was 39.2%. in our study, the patients were of age between 22-70 years and majority of patients age was 47-57 years and the ratio was 47%.¹³

Incidence of benign is most likely higher than malignant. Matar et al in study conducted in Al-Kindi Teaching Hospital concluded the incidence 21.7% for benign conditions and 8.7% for malignant ones. In a study, FNAC revealed 21.7% MNG patients had malignant cells whereas 78.3% had benign conditions. In our study, the patients diagnosed as benign on FNAC were 66% and malignant one were 34%. In one study, histopathological diagnosis was 40.8% had colloid goiter. 37.5% had follicular adenoma.¹⁴ 17.5% had papillary carcinoma and 16% had follicular carcinoma. This study summary is very similar to study done by Al Salamah et al in Saudi Arabia. The results of study done by Kaliszewaki et al in

Poland among 2306 patients with MNG are little bit different. The incidence of thyroid carcinoma in this study was 2.12%. The difference in results could be due to discrepancy in associated risk factors and life style between communities. In a study conducted in AL-Hilla Surgical Hospital with goiter, the incidence of Thyroid carcinoma in MNG was 8.8%. The findings of study of Pellegriti et al in Italy are different. This study has shown increased incidence of Thyroid malignancy due to multiple reasons. Scopa Study in Greece reported 4-17% incidence of thyroid cancer in MNG and papillary carcinoma was 80% of all thyroid carcinomas. In our study, majority of histopathological diagnosis were papillary carcinomas of 28.2%. 3.2% were medullary, 2.1% as follicular and no case of anaplastic was found in our study. Colloid goiter was found among 44.5% patients and 20 (21.7%) patients had follicular adenoma.¹⁵

CONCLUSION

It is concluded that prevalence of Thyroid carcinoma in Multi nodular goiter is higher than is 34%.

DATA AVAILABILITY: data will be available on request.

ETHICS APPROVAL: The ERC gave ethical review approval.

CONSENT TO PARTICIPATE: written and verbal consent was taken from subjects and next of kin.

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CONFLICT OF INTEREST: No competing interest declared.

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