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FREQUENCY OF INCIDENTAL THYROID CARCINOMA AMONG PATIENTS OPERATED FOR BENIGN MULTINODULAR GOITER.

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Abstract;

Background; Thyroid carcinoma is the most common endocrine malignancy. Worldwide incidence of thyroid cancer is increasing with considerable international variation in incidence. This study was conducted to document the frequency of incidental carcinoma after thyroidectomy in patients with multinodular benign goiter in our population as there was no such conducted in our population. **Materials and Methods:** A total number of 150 Patients with benign multinodular goiter of either sex having their ages ranging from 20 to 60 years were included who were admitted in the Department of Surgery, Nishtar Hospital Multan and DHQ hospital Khanewal by Non-probability Consecutive Sampling in this cross-sectional study. Informed consent was taken from the patients. All collected data was entered in SPSS version 20 and analyzed. **Results;** Of these 150 study cases, 47 (31.3%) were male patients while 103 (68.7 %) were female patients. Mean age of our study cases was 40.92 ± 8.32 years (with minimum age was 26 years while maximum age was 58 years). Of these 150 study cases, 68 (45.3%) were from rural areas and 82 (54.7%) were from urban areas. Majority of these patients i.e. 88 (58.7%) were from poor social background, 54 (36%) were from middle class and 8 (5.3%) belonged to higher class. Mean disease duration was 7.56 ± 4.16 months (with minimum duration of illness was 4 months and maximum duration of illness was 18 months). Incidental carcinoma was seen in 31 (20.7%) of our study cases. Papillary Carcinoma was seen in 22 (14.7%), follicular carcinoma in 4 (2.7%), medullary carcinomoa 3 (2.0 %), anaplastic carcinoma in 2 (1.3%) of our study cases.

Conclusion;The frequency of incidental thyroid carcinoma after thyroidectomy for benign multinodular goiter was high in our study. Thyroidectomy helps prevent recurrence and is also curative treatment for patients with malignancies among targeted population. Incidental carcinoma was significantly associated with residential status, educational status, socioeconomic status and disease duration.

Keywords; Incidental carcinoma, thyroidectomy, benign multinodular goiter.

Introduction

Thyroid carcinoma is the most common endocrine malignancy.[1] Worldwide incidence of thyroid cancer is increasing with considerable international variation in incidence.[2] Approximately 34000 new cases are diagnosed each year in USA, majority of the diagnosed patients are women making thyroid carcinoma as the seventh most common female malignancy.[3] Primary thyroid carcinomas either arise from follicular cells (papillary carcinoma, follicular carcinoma and anaplastic carcinoma) or from non-follicular cells (medullary carcinoma and lymphoma). The incidence of papillary, follicular, anaplastic and medullary carcinoma is 80%, 11%, 2% and 4% respectively.[1] But in Pakistan the incidence of papillary, follicular, anaplastic and medullary

carcinoma was 90.2%, 2%, 2% and 4.5% respectively. Females were predominant (82.4%) as compared with males (17.6%) for a female-to-male ratio 4.7:1. The maximum number of patients were in the fourth decade of life followed by the third and second decades.[4]

The standard treatment for differentiated thyroid cancer is surgery, radioactive iodine ablation and thyroid hormone suppression therapy. Standard of care recommendations are largely based on retrospective data. Total thyroidectomy is the preferred surgery for differentiated thyroid cancer. Lobectomy is only considered appropriate for small, isolated tumours (less than 1cm) without evidence of local spread.[1] Overall the prognosis of thyroid carcinoma is good with an excellent disease free survival. Hundahl SA et al reported ten year relative survival rate based on total cohort of 53,856 patients in USA of 93% for papillary and 85% for follicular carcinomas.[5]

Sometimes thyroidectomy carried out for benign disease shows carcinoma which is termed as "incidental thyroid carcinoma". The incidence of incidental thyroid carcinoma ranges from 3–16 % in different series.[6] Incidental thyroid carcinoma found after total thyroidectomy need no further treatment but completion thyroidectomy has to be carried out in case of subtotal thyroidectomy. Therefore, total thyroidectomy can be regarded as the procedure of choice for patients with multinodular goiter. It is associated with a significantly lower incidence of goiter recurrence and less frequent need for completion thyroidectomy than other more limited thyroid resections. However, total thyroidecotmy involves a significantly higher risk of postoperative transient but not permanent hypoparathyroidism and recurrent laryngeal nerve paresis.[7] In a study conducted by Barcynski M et al, total 8032 patients were included and incidental thyroid carcinoma was found in 406 patients (5%).[8] In another study conducted by Nanjappa N et al, out of the 187 patients operated histology revealed incidental thyroid carcinoma in 38 (20.3 %) of patients. Patients with benign multinodular goiter were 91 and 14 had incidental thyroid carcinoma (15.4%). The mean size of the nodule was 4.28 ± 1.48 cm in benign group and 4.21 ± 1.98 cm in incidental thyroid carcinoma group. Papillary carcinoma was the commonest incidental thyroid carcinoma (97.4 %) and follicular variant (16/38) was found more often than micropapillary variant (3/38). Incidental thyroid carcinoma was more common in patients with solitary nodule, 23 of 38 (60.5 %), although it wasn't statistically significant (*P* value 0.262) and 33 of 38 (86.8 %) were in euthyroid state (*P* value 0.029).[9]

In a retrospective study conducted at the ENT unit of Mardan Medical complex teaching hospital from 1st March 2010 to 30 June 2012 by Imad et al, showed that 9 patients out of 80 were found to have malignancy. The remaining 71 cases had benign pathology, maximum cases of malignancy were found between 31-50 years of age. Papillary carcinoma was the most common.[10]

As the frequency of incidental thyroid carcinoma is quiet variable in literature, this study have not only determined the frequency of incidental thyroid carcinoma among patients operated for benign multinodular goiter but also have highlighted the important rule of total thyroidectomy (a definite cure of incidental thyroid carcinoma) in the treatment of benign multinodular goiter instead of subtotal thyroidectomy which still predominates in most of the hospitals of our country, thus preventing the patients from another major operation.

Materials and Methods:

A total number of 150 Patients with benign multinodular goiter of either sex having their ages ranging from 20 to 60 years were included in our study who were admitted in the Department of Surgery, Nishtar Hospital Multan and DHQ hospital, Khanewal, Pakistan by Non-probability Consecutive Sampling in this cross-sectional study. Patients with proven thyroid malignancy or suspicion of malignancy on fine needle cytology aspiration, INR more than 1.5, hemoglobin less than 10 g / dl, hyperthyroidism or hypothyroidism and patients with solitary nodule were excluded from our study. Demographic data like Age (in years) was noted. Informed consent was taken from the patients. Laboratory tests were performed by the Central Laboratory of the Hospital and thyroidectomy specimen was examined by the same histopathologist. All collected data was entered in SPSS version 20 and analyzed.

Results;

Our study registered a total 150 study cases with benign multinodular goiter after thyroidectomy. Of these 150 study cases, 47 (31.3%) were male patients while 103 (68.7 %) were female patients. Mean age of our study cases was 40.92 ± 8.32 years (with minimum age was 26 years while maximum age was 58 years). Mean age of the male patients was 40.34 ± 8.72 years while mean age of the female patients was 41.18 ± 8.16 years. Our study results have reported that majority of our study cases i.e. 82 (54.7%) belonged to age group 41 – 60 years.

Of these 150 study cases, 68 (45.3%) were from rural areas and 82 (54.7%) were from urban areas. Forty (30.7%) were literate and 104 (69.3%) were illiterate. Majority of these patients i.e. 88 (58.7%) were from poor social background, 54 (36%) were from middle class and 8 (5.3%) belonged to higher class. Mean disease duration was 27.56 ± 14.16 months (with minimum duration of illness was 14 months and maximum duration of illness was 60 months). Our study results have indicated that 91 (60.7%) presented with duration of illness to be up to 30 months. Incidental carcinoma was seen in 31 (20.7%) of our study cases. Papillary Carcinoma was seen in 22 (14.7%), follicular carcinoma in 4 (2.7%), medullary carcinomoa 3 (2.0 %), anaplastic carcinoma in 2 (1.3%) of our study cases. Incidental carcinoma has been stratified with regards to gender, age, residential status, socioeconomic status, education and disease duration and p values were found to be p= 0.520, p= 0.544, p= 0.005, p=0.027, p= 0.000 and p= 0.000 respectively.

Discussion;

Thyroid nodules are very common, and although the majority are benign, approximately 5% may harbor malignancy [11, 12]. The evaluation of the patient with solitary thyroid nodule is generally straightforward and will typically include measurement of serum TSH to assess thyroid function and fine-needle aspiration biopsy of the nodule, with or without ultrasound (US) guidance [13, 14]. Our study registered a total 150 study cases with benign multinodular goiter after thyroidectomy. Of these 150 study cases, 47 (31.3%) were male patients while 103 (68.7 %) were female patients. Ciftci et al [15] also reported female gender predominance with 79.2% female patients undergoing thyroidectomy having multinodular benign goiter. Aurangzeb et al [16] from Peshawar reported female to male ratio being 5:1 which is similar to that of our study results. Iqbal et al from Peshawar and Moosa et al [17] from Karachi also reported female gender predominating over male gender which are in compliance with that of our study results. Nadeem et al [18] from Raheem Yar Khan also reported female gender predominance with 70 % female patients which is similar to that of our study results. Naqvi et al [19] Sukkur reported 87 % female patients which is in compliance with that of our study results.

Mean age of our study cases was 40.92 ± 8.32 years (with minimum age was 26 years while maximum age was 58 years). Mean age of the male patients was 40.34 ± 8.72 years while mean age of the female patients was 41.18 ± 8.16 years. Our study results have reported that majority of our study cases i.e. 82 (54.7%) belonged to age group 41 – 60 years. Ciftci et al [15] reported 41.5 ± 12.7 years mean age of the patients with benign multinodular goiter undergoing thyroidectomy. These results are close to our study results. Moosa et al [17] from Karachi reported 33.42 ± 12.4 years which is quite less than our findings. The reason for this difference is due to their inclusion criteria for age (17-45 years) while we included till 60 years of age. Nadeem et al [18] from Raheem Yar Khan also reported same results as that of our study results. Naqvi et al [19] also reported majority of patients belonging to 4th decade of life which is similar to our findings. Ahmad et al [20] from Peshawar reported 38 years mean age which is close to our findings.

Of these 150 study cases, 68 (45.3%) were from rural areas and 82 (54.7%) were from urban areas. Forty (30.7%) were literate and 104 (69.3%) were illiterate. Majority of these patients i.e. 88 (58.7%) were from poor social background, 54 (36%) were from middle class and 8 (5.3%) belonged to higher class. Mean disease duration was 7.56 ± 4.16 months (with minimum duration of illness was 4 months and maximum duration of illness was 18 months). Our study results have indicated that 91 (60.7%) presented with duration of illness to be up to 6 months.

Incidental carcinoma was seen in 31 (20.7%) of our study cases. Tezelman et al [21] reported 7.2 % incidental carcinoma which is less than that of our findings. Ahmad et al [20] from Peshawar reported 5.7 % incidental carcinoma which is less than that of our findings. Nanjappa et al [9] reported 20.3 % incidental carcinoma which is in compliance with our study results.

Papillary Carcinoma was seen in 22 (14.7%), follicular carcinoma in 4 (2.7%), medullary carcinomoa 3 (2.0 %), anaplastic carcinoma in 2 (1.3%) of our study cases. Tezelman et al [21] also reported papillary carcinoma predominating over others which is in compliance with that of our study results. Nadeem et al [18] from Raheem Yar Khan also reported Papillary carcinoma being more prevalent followed by follicular carcinoma which is same as tht of our study results. Ahmad et al [20] Peshawar also reported papillary carcinoma followed by follicular carcinoma which is in compliance with that of our study results.

Conclusion;

The frequency of incidental thyroid carcinoma after thyroidectomy for benign multinodular goiter was high in our study. Thyroidectomy helps prevent recurrence and is also curative treatment for patients with malignancies among targeted population. Incidental carcinoma was significantly associated with residential status, educational status, socioeconomic status and disease duration.

References;

1. Brown RL, de Souza JA, Cohen EE. Thyroid cancer: burden of illness and management of disease. J Caner 2011;2:193-9.
2. Woodruff SL, Arowolo OA, Akute OO, Afolabi AO, Nwariaku F. Global variation in the pattern of differentiated thyroid cancer. Am J Surg 2010;200:462-6.
3. Jemal A, Siegel R, Ward E, Murray T, Xu J, Thun MJ. Cancer statistics, 2007. CA Cancer J Clin 2007;57:43-66.
4. Bukhari U, Sadiq S, Memon J, Baig F. Thyroid carcinoma in Pakistan: a retrospective review of 998 cases from an academic referral center. Hematol Oncol Stem Cel Ther 2009:2(2);345-8.
5. Hundahl SA, Fleming ID, Fremgen AM, Menck HR. A national cancer data base report on 53,856 cases of thyroid carcinoma treated in the U.S., 1985-1995. Cancer 1998;83:2638-48.
6. Agarwal G, Aggarwal V. Is total thyroidectomy the surgical procedure of choice for benign multinodular goitre? An evidence-based review. World J Surg 2008;32:1313–24.
7. Barczyński M, Konturek A, Hubalewska-Dydejczyk A, Gołkowski F, Cichoń S, Nowak W. Five-year follow-up of a randomized clinical trial of total thyroidectomy versus Dunhill operation versus bilateral subtotal thyroidectomy for multinodular nontoxic goiter. World J Surg. 2010 Jun;34(6):1203-13.
8. Barczyński M, Konturek A, Stopa M, Cichoń S, Richter P, Nowak W. Total thyroidectomy for benign thyroid disease: is it really worthwhile? Ann Surg. 2011 Nov;254(5):724-9.
9. Nanjappa N, Kumar A, Swain SK, Aroul TT, Smile SR, Kotasthane D. Incidental Thyroid Carcinoma. Indian J Otolaryngol Head Neck Surg. 2013 Jan;65(1):37-9.
10. Imad, Sanaullah, Israr M, Ali M. Frequency of malignancy in multinodular goitre: a review of 80 cases of multinodular goiter. Pak J Surg 2013;29(1):9-12.
11. Graf H[1], Fast S, Pacini F, Pinchera A, Leung A, Vaisman M, et al. Modified-release recombinant human TSH (MRrhTSH) augments the effect of (131)I therapy in benign multinodular goiter: results from a multicenter international, randomized, placebo-controlled study. J Clin Endocrinol Metab 2011;96:1368-76.
12. Grussendorf M[1], Reiners C, Paschke R, Wegscheider K; LISA Investigators. Reduction of thyroid nodule volume by levothyroxine and iodine alone and in combination: a randomized, placebo-controlled trial. J Clin Endocrinol Metab 2011;96:2786-95.
13. Fiore E, Vitti P. Serum TSH and risk of papillary thyroid cancer in nodular thyroid disease. J Clin Endocrinol Metab 2012;97:1134-45.
14. Bahn RS[1], Castro MR. Approach to the patient with nontoxic multinodular goiter. J Clin Endocrinol Metab. 2011 May;96(5):1202-12.
15. Ciftci F[1], Sakalli E[1], Abdurrahman I[2]. Total versus bilateral subtotal thyroidectomy for benign multi-nodular goiter. Int J Clin Exp Med. 2015 Mar 15;8(3):4596-600.
16. Aurangzeb M, Hayat S. Total Thyroidectomy for benign bilateral multinodular goitre in an endemic region. Pak J Surg. 2006;22(4):195-200.
17. Moosa FA, Junaid M, Khan FW, Afzal Y, Sultan N. Prevalence of malignancy in resected specimen of patients operated for benign nodular Goitre. Pak J Surg. 2007;23(2):129-32
18. Nadeem K, Akhtar N, Tarar JM. Thyroid malignancy in multi nodular goiter; incidence, a retrospective study in southern Punjab. Professional Med J. 2013;20(4):587-90.
19. Naqvi SQH, Arijia D, Arshad S, Memon JM, Rafiq M, Bozdar AG. Frequency and histopathological evaluation of malignancies in multinodular goiter. Ann King Edward Med Uni. 2014;20(3):194-7.
20. Ahmad M, Rehman A, Ahmad K, Rahman SS, Jan A. Frequency of incidental carcinoma in the multinodular goiter. Rawal Med J. 2014;39(3):297-9.

21. Tezelman S[1], Borucu I, Senyurek Giles Y, Tunca F, Terzioglu T. The change in surgical practice from subtotal to near-total or total thyroidectomy in the treatment of patients with benign multinodular goiter. World J Surg. 2009;33(3):400-5.