Original Article

The Coexistence Of Neoplastic And Non-neoplastic Lesions In Thyroid

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ABSTRACT

ABSTRACT- Goitrous thyroid lesion is postulated as precursor lesion to thyroid cancer. Thyroid cancer is the most frequently diagnosed endocrine malignancy and enlarged thyroid gland due to goitre is worldwide problem. The association of autoimmune thyroiditis including Hashimoto’s thyroiditis with thyroid neoplasms has often been reported. In the present five year retrospective study, coexistence of neoplastic lesions of thyroid among goitrous thyroid lesions and among autoimmune thyroiditis were studied. In our study one case of Follicular adenoma (1.12%), three cases of papillary carcinoma (3.36%), one case of follicular carcinoma (1.12%) and one case of medullary carcinoma (1.12%) were associated with multinodular goitre. A single case of follicular adenoma and Hurthle cell adenoma and single case of Hurthle cell carcinoma (33.33% each) were associated with chronic lymphocytic thyroiditis. Two cases of follicular adenoma (25%) were associated with Hashimoto’s thyroiditis.

Introduction

The world health organisation (WHO) estimated that at least 1.6 billion people are at risk of iodine deficient disorder. Among these, 655 million are affected by goitre, 27% of whom are in Southeast Asia followed by western pacific countries1. Goitrous thyroid is believed to be precursor to the development of thyroid carcinoma2. It has been estimated that the world wide prevalence of goitre among general population is about 4-7% and incidence of malignancy in goitrous thyroid is approximately 10%/3. Iodine deficiency is known to produce thyroid hyperplasia, adenoma formation and ultimately malignancy in experimental animals4.

The association of autoimmune thyroiditis including Hashimoto thyroiditis with thyroid neoplasms has often been reported. Hurthle cell neoplasms are also known to arise in a background of thyroiditis5. Papillary carcinoma is the most common malignant tumour of the thyroid gland accounting for 85% of all thyroid cancers6.

Materials and methods

This 5 year retrospective study was conducted in the tertiary care centre, department of pathology from September 2008 to 2013. For this study the permission was granted by ethical committee. Histopathologically diagnosed cases of non neoplastic lesions including goitre and thyroiditis. (Hashimoto’s and lymphocytic) and cases of neoplastic lesions of thyroid associated with above non neoplastic lesions were included in this study. All sections were routinely processed and stained with hematoxylin and eosin.

Result

In this 5 year retrospective study, total 100 cases were histologically diagnosed as non neoplastic lesions of which multinodular goitre in 89 cases, chronic lymphocytic thyroiditis in 3 cases and Hashimoto’s thyroiditis 8 cases were diagnosed. (Table no.1) Among 89 cases of multinodular goitre one case in 42 years female was associated with follicular adenoma (1.12%). Grossly there was a nodular lesion, 2.5cm in diameter. (Fig. 1)

Microscopically encapsulated tumour showed follicles with scanty colloid. Follicular epithelial cells showed benign features of nuclei. Capsular and vascular invasion by the tumour cells were absent. (Fig. 2)

A single case of medullary carcinoma was found in a 27 years old female patient Grossly, solitary nodule measuring 3.8 cm in diameter was present. Tumour was firm in consistency, pale gray to tan in colour, microscopically composed of polygonal to spindle cells. Amyloid deposits were seen in the stroma. Adjacent thyroid tissue showed changes of colloid goitre. (Fig. 3)

Three cases showed coexistence of papillary carcinoma (3.36%). Histology revealed tumour cells with ground glass nuclei, nuclear overlapping and nuclear grooving. All were females with age 32, 38 and 46 years. (Fig. 4 & 5)

One case of follicular carcinoma (1.12%) in 66 year old female was found in multinodular goitre. Grossly single well circumscribed nodule of 4 cm in diameter, gray tan in colour was noted. Microscopically, uniform cells arranged in follicles are seen. The nuclear features of typical papillary carcinoma were absent. Tumour cells showed capsular invasion. Adjacent thyroid tissue in these four cases showed changes of goitre i.e. follicles of varying sizes filled with colloid and stroma showed secondary changes like haemorrhage’s, fibrosis etc. Overall percentage of malignancy in multinodular goitre was 6.72%.
A single case of each follicular adenoma, Hurthle cell adenoma and Hurthle cell carcinoma were associated with chronic lymphocytic thyroiditis (33.33% each). Grossly the lesion of follicular adenoma showed solitary encapsulated lesion 2.5 cm in diameter. Microscopically, Hurthle cell adenoma showed follicles lined by cells having brightly eosinophilic cytoplasm i.e. oxyphil or Hurthle cell change. In a case of Hurthle cell carcinoma a single nodule of 3.5 cm was noted. Microscopically tumour cells had granular eosinophilic cytoplasm i.e. Hurthle cell change. Capsular and vascular invasion was present.

Among 8 cases of Hashimoto's thyroiditis two cases were associated with Follicular adenoma(25%). (Fig.6)

Adjacent tissue outside the capsule show lymphoid follicles with prominent germinal centre in the stroma and lining epithelium of follicles showed oncocytic change. Both cases were 35 and 38 year female patients.

Table No.1 Showing coexistence of nonneoplastic lesions with neoplastic lesions of thyroid.

<table>
<thead>
<tr>
<th>Nonneoplastic lesions</th>
<th>Associated Neoplastic lesions</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multinodular goitre (89 cases)</td>
<td>Hurthle cell adenoma</td>
<td>1</td>
<td>1.12%</td>
</tr>
<tr>
<td></td>
<td>Papillary carcinoma</td>
<td>3</td>
<td>3.36%</td>
</tr>
<tr>
<td></td>
<td>Follicular carcinoma</td>
<td>1</td>
<td>1.12%</td>
</tr>
<tr>
<td></td>
<td>Medullary carcinoma</td>
<td>1</td>
<td>1.12%</td>
</tr>
<tr>
<td>Chronic lymphocytic thyroiditis (3 cases)</td>
<td>Follicular adenoma</td>
<td>1</td>
<td>33.33%</td>
</tr>
<tr>
<td></td>
<td>Hurthle cell adenoma</td>
<td>1</td>
<td>33.33%</td>
</tr>
<tr>
<td></td>
<td>Hurthle cell carcinoma</td>
<td>1</td>
<td>33.33%</td>
</tr>
<tr>
<td>Hashimoto's thyroiditis (8 cases)</td>
<td>Follicular adenoma</td>
<td>2</td>
<td>25%</td>
</tr>
</tbody>
</table>
Discussion

Patients with goitre showed age range from 19 years to 70 years with maximum number of cases in 4th decade with female: male ratio as 8.7:1. These findings were correlated with studies of Khadilkar et al7 and Haq et al8. The significant association of multinodular goitre with carcinoma remains an unresolved issue9. The incidence of malignancy in multinodular goitre have been found to vary from 4-1710,11,12.

In the present study, among 89 cases of multinodular goitre, one case of follicular adenoma (1.12%), one case of follicular carcinoma (1.12%), one case of medullary carcinoma(1.12%) and 3 cases of papillary carcinoma(3.36%) were coexisted. In the study of Htwe TT et al the incidence of papillary carcinoma in goitrous lesion was 4%13. The most common variety of malignancy associated with multinodular goitre which was documented in the literature of Koh et al14 and Benzorti et al15 Moosa et al 16 and Pedamalal et al17 was papillary carcinoma. We found similar results.

One case of follicular carcinoma (1.12%) was found in multinodular goitre. This finding is correlated with study of Htwe TT elal13.

In a single case of medullary carcinoma IHC test was done and the tumour cells were positive for calcitonin and CEA. Stroma showed amyloid deposits. In multinodular goitre (89 cases) 6 cases showed coexistence of neoplastic lesions (6.72%). In a study of Moosa et al16 showed 3% of prevalence of malignancy in multinodular goitre. Hanumantappa et al18 in their study mentioned that thyroid nodule should be viewed with suspicion if it is seen as a dominant nodule in the multinodular goitre which is hard, irregular, fixed and rapidly increasing in size.

Total 4 cases of neoplastic lesions showed coexistence with chronic lymphocytic thyroiditis. A case of follicular adenoma in 38 years old female and hurthle cell adenoma in 45 year old male were microscopically associated with chronic lymphocytic thyroiditis. A single case of Hurthle cell carcinoma was 42 years old female. Histologically capsular and vascular invasion was seen. In the study of Tamhmi, prevalence of lymphocytic infiltrate which is indicative of autoimmune thyroiditis was seen in 58% cases of papillary carcinoma , 20% of follicular carcinoma and 14% of follicular adenoma19.

We found two cases of follicular adenoma (25%) in 40 year old and 38 year old female showing coexistence with Hashimoto thyroiditis. Similar observation was seen in study of Kollure al20.

In the study of Mc Knee RF et al21 histological analysis of 27 patients was carried out. Sixteen had neoplasm of which 4 cases were diagnosed as Follicular adenoma, 1 case of Follicular carcinoma, 4 cases of papillary carcinoma and 7 cases diagnosed as lymphoma. Assuming that neoplasia was not overlooked in the absence of histological examination. The overall incidence was 14% and that of malignant disease was 10%.

The association of autoimmune thyroiditis especially Hashimoto's thyroiditis with neoplasm has often been reported and detailed research has been carried out in this area. Most of the patients with Hashimoto's thyroiditis are associated with various neoplasms, follicular adenoma, follicular carcinoma, papillary carcinoma, medullary carcinoma, Hurthle cell adenoma, Hurthle cell carcinoma and lymphoma2. Hurthle cell neoplasm is an associated finding in various benign thyroid conditions, like Hashimoto thyroiditis, non-specific chronic thyroiditis and multinodular goitre2.

Conclusion

Multinodular goitre, lymphocytic thyroiditis and Hashimoto thyroiditis should periodically undergo careful clinical and laboratory examination. Screening programme should be done to detect malignancy at an early stage in patients with and early management should be offered in hope of good survival and least morbidity.

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