Thyroid Cancers amongst Goiter population in a Nigerian tertiary hospital: Surgical and Radiographic perspective

Rahman G A, Abdulkadir A Y, Braimoh K T, Inikori ARK.

Department of Surgery, Department of Radiology, University of Ilorin Teaching Hospital, Ilorin, Kwara State, Nigeria

Introduction

Thyroid cancers amongst goiter population in our Teaching Hospital from 1999 to 2006 were evaluated. Only thyroidectomy patients who had histological reports of the removed specimens and pre-surgery plain radiographs that include frontal neck, lateral neck,
Thoracic inlet and frontal chest examinations in our centre were included in the study. Patients not operated because of distant metastases and local invasion were noted in our analyses. Evaluation was with respect to preoperative diagnosis, findings on roentgenography, operative procedure done and histological diagnosis. Data was analysed using SPSS 11.0 software.

Results

One hundred and sixty patients with goiter (81.5% female and 18.5% males) had surgical operation and histological diagnoses. Majority of who were in their 4th and 5th decade at presentation (Fig 1). Preoperative diagnoses were simple multinodular goiter, toxic goiter and malignant goitre in 74%, 20% and 6% respectively. Post-operative histology confirmed 8.1% (13/160) as TC. Consideration for the two patients with local invasion and distant metastasis at presentation who were inoperable but had histological confirmation gave an overall occurrence of malignancy of 9.3% (15/162). Both patients had skull metastasis (Fig. 2). Majority of our patients with TC presented between 5th and 6th decades of life. The histological sub-types of TC and its relations to sex and age is as shown in table I. There was no significant difference between genders within groups with respect to occurrence of malignancy (2/24, 8.3% in males; 11/136, 8.1% in females) as shown in table II.

Neck and thoracic inlet radiographic findings in patients with TC were soft tissue swelling in all, retrosternal extension of mass in 46%, normal cervical lordosis in 46%, cervical spine straightening in 54% and calcifications with predominance of mixed (diffused or scattered) and cloudy variants in 30% (Fig. 3). No patient with malignancy had kyphosis or scoliosis.

Ten patients with preoperative diagnosis of malignant goitre had total thyroidectomy and one had ‘near’ total thyroidectomy. Two patients diagnosed as simple multinodular goitre preoperatively were histologically confirmed to be malignant. One of these patients had subtotal thyroidectomy while the other patient had total lobectomy on one side and partial lobectomy of the other side (Table III). All patients who had total thyroidectomy had postoperative l-thyroxine replacement therapy while patients who had subtotal thyroidectomy were given l-thyroxine to suppress TSH production.
Discussion

The commoner occurrence of TC in the 5th and 6th decade with predominance of the follicular type and 9.3% incidence of TC we recorded in this study were similar to the findings of Olurin et al. and Adeniji et al. However, in contrast to their reports, we did not find significant statistical sex difference in the incidence of TC.

It has been postulated that populations with low dietary iodine intake have higher proportion of follicular and anaplastic carcinomas, this may explain our findings of predominantly follicular TC in this our study from goiters endemic zone.

Since the presentation of TC can be non-specific or symptomless, the affected individual may not suspect it leading to delayed diagnosis or diagnosis made at the time of distant metastases especially in the follicular TC type. Two of our patients (1.3%) had distant bone metastases at presentation.

Thyroid calcification can occur in both benign and malignant goiters and is more common in multinodular than solitary thyroid nodules. Although calcifications in goiter do not necessarily suggest benignity or malignancy of the thyroid mass, the incidence was as high as 30% amongst patients with TC in this study. Thyroid calcification rate is reported to rise steadily with duration of thyroid swelling varying from 4% under one year to 100% in patients with goitre with duration exceeding 15 years. According to Komolafe report, the longer the duration of goiter, the higher the chances of occurrence of haemorrhage, tissue necrosis or epithelial degeneration predisposing to dystrophic calcifications. Although Komolafe study did not relate calcification in goiters to TC our study showed most calcifications TC to be of mixed and cloudy types. Where calcifications were discrete in TC, they were commonly diffused or scattered.

Majority of patients with goitre in Nigeria as in this study have thyroidectomy performed for simple multinodular goitre mainly for cosmetic reasons. Some however, present with compression symptoms or hyperthyroidism.

The main stay treatment for TC is thyroidectomy and was offered to all our patients except two due to local and regional metastases. Oncologists agree that surgery for thyroid carcinoma has no alternative. It is only the extent of surgery that is controversial. The extent of primary surgery should be dictated by stage of disease and prognostic factors. The aim of surgery in thyroid carcinoma is to eradicate all tumour foci, cure the most number of patients, reduce recurrence and mortality rate, and provide good quality of life. The advantages of total and ‘near’ total thyroidectomy offered to nearly all patients in this study are: lower recurrence rate, better survival, increased sensitivity of thyroglobulin as tumor marker, decreased indications for radio-iodine ablation, low complications rate when performed by experienced surgeon. ‘Near’ total thyroidectomy removes the affected lobe, isthmus and almost the entire opposite lobe except small amount of thyroid tissue. While in total thyroidectomy the whole thyroid gland, including pyramid lobe, is removed. L-thyroxine suppression is indicated in all patients with differentiate thyroid cancer even if less radical surgery is performed. After thyroidectomy all the patients had L-thyroxine either as replacement therapy or TSH suppression therapy.

Conclusion

Carcinomatous goiters are not uncommon in Nigeria with an occurrence of 9.3% in goiter population and predominance of follicular variant. Aside evidence of bony destruction, TC should be suspected in goiters with diffused or scattered calcifications. Surgery remains the main stay of treatment but late presentation can be a challenge in the management of these patients.
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