Solitary Thyroid Nodule – Experience In A District Hospital

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Summary: Cases of solitary thyroid nodule operated in a district hospital were analysed retrospectively. The incidence of malignancy in this study was found to be quite low (6.6%). The policy adopted in selecting cases for surgery and its therapeutic implications are discussed.

Introduction

Management of solitary thyroid nodule (STN) still remains uncertain despite the many sophisticated investigations which are presently available.[1,2] The problem is aggravated by the fact, that in the literature, the quoted incidence of malignancy in STN varies depending on the basis of selection of cases for surgery, population studied, goitrogenicity of the region and the investigations used.[1,2] This report is a retrospective analysis of cases of STN operated in a Malaysian district hospital where investigations like ultrasound and radioactive scan are difficult to obtain. These observations are compared with other centres using different diagnostic aids and policies in managing cases of STN.

Material and Methods

The term 'Solitary thyroid nodule' as used here means 'clinically localised enlargement of thyroid gland without obvious increase in size of rest of thyroid. The clinicopathological features of 75 cases of STN operated over a period of three years were analysed. Only cases without features of malignancy and toxicity (clinically and biochemically) were included. Period of follow up ranged from three years to three months.

Among the cases analysed in the first year, only those nodules with obvious clinical features of a cyst were subjected to needle aspiration. For the past two years all cases of STN were subjected to fine needle aspiration, regardless of the consistency. If fluid was drawn, its colour was noted and sent for cytology. Patients in whom the nodule disappeared completely after aspiration, were followed to detect recurrence. If the cyst contained bloody fluid, or sizeable residual swelling persisted after aspiration or if no fluid was aspirated, surgery was advocated.

In a few female patients with small, ill defined nodule of long duration without any suspicion of malignancy, suppressive thyroxine therapy was tried. Patients with no significant reduction in size after 3–4 months of thyroxine, were advised surgery. Four of the 75 cases in this study belonged to the last category.

Results

Clinical Features

Of the 75 patient, 72 were females and three males. Thirty-three of the patients were Malays, 27 Indians and 15 were Chinese. The right lobe was involved in 44, left in 24 and mainly isthmus in seven. The isthmus nodules were extending to one or other lobe except in one case. Forty-three patients belonged to the 21 – 40 year age group while 25 were in the 41 – 60 age group. The duration of the nodule was less than one year in 16, between 1 – 2 years in 26, 2 – 5 years in 17 and more than 5 years in 16. This indicates the time the nodule was noted by the patient and may not reflect the true duration.

Most patients presented with asymptomatic thyroid nodule. Eight complained of discomfort on swallowing and in one the nodule was extending retrosternally. In all other cases the dysphagia could not be accounted for either by size, rapidity of growth or by pathology result. Three patients complained of toxic symptoms but clinical examination, Wayne's index serum thyroxine and triiodothyronine were normal. The size of the nodule was variable ranging from two cms. in diameter to 10 x 8 cms but had no correlation with symptoms, duration or pathology.

Indications for surgery

The commonest indication was the clinician's inability to exclude malignancy (39 cases). Residual swelling after aspiration was the indication in 14 cases. Ten cases were multinodular at operation (13.3%). Hemithyroidectomy was done in all cases of single nodules at operation. In only one case where the nodule was confined to isthmus, isthmectomy (with sufficient margin around the nodule) was performed.

Pathology

Histopathology revealed five cases of Carcinoma (4 papillary and one follicular), 17 of adenoma and 53 cases of nodular hyperplasia (including the 10 cases which were multinodular at operation). Two of the five patients with carcinoma were males. The duration of malignant nodules showed wide range, from 10 months to three years. Three of the malignant nodules were solid on palpation, while two showed mixed solid and cystic consistency.

Discussion

Comparison of the results with observations from other parts of the world revealed some similarities as well as some differences. The reports from Chandigarh (India),[1] Melbourne,[2] Assam (India),[3] Liverpool,[4] and Mayo clinic[5] have been used for comparison.

The Taiping series showed a very high female incidence (F:M 24:1). High female incidence but at a lower ratio has been noted in the Chandigarh (6:1),[1] Melbourne (5:1)[2] and Assam (3:2)[3] series. The reason for these variations is not known. Nodules in males are more often malignant. Two out of three male patients in Taiping (66%) and two out of 17 (12%) in Melbourne had malignant nodules.[2]

The high frequency of involvement of the right lobe has been noted in other reports.[1,2,3,4] The age incidence is found to differ in the various studies used for comparison. In the Assam series[3] the highest incidence was in the 10–20 age group, in Melbourne[2] between 40–50 years, while in Chandigarh[1] the highest incidence corresponds to the Taiping series. The reason for these differences is not clear.

In many series, a number of clinically solitary nodules turned out to be multinodular goitre at operation.[3] The incidence of 12.3% in Assam,[3] and 16.1% in Chandigarh are comparable to the Taiping series, the diagnosis of STN being purely on clinical grounds in all these reports. Ultrasonogram and Radioactive scan can reduce but will not eliminate this diagnostic error.[4]

Incidence of malignancy ranging from 1% to 33% have been quoted in various reports.[2,3] The differences are partly due to endemicity of goitre in some regions and also due to the different policies adopted in selecting cases of STN for surgery.[1,2] In Chandigarh[1] and Assam[3] where all cases of clinically STN were subjected to surgery, the incidence of malignancy was 6.8% and 6.7% respectively. In Liverpool where radioactive scan and ultrasound were used with cytological examination of aspirated fluid in cystic nodules, the malignancy incidence was 10% out of the operated thyroid nodules.[4] From Melbourne cancer incidence of 6% was reported from a ten year review of cases of STN, almost all of which were operated[2] and it was suggested that using ultrasound, $Tc^{99}M$ scan and fine needle aspiration biopsy (FNAB), surgery could have been avoided in 32% of these patients.[2] In Mayo clinic using clinical assessment and radioactive scan, neoplasia was detected in 14% of operated STN while addition of FNAB for case selection increased the neoplasia incidence to 29%.[5] Recent reports on STN from the Asian region could not be obtained.

The above data indicate that the policy adopted in Taiping in selecting cases of STN for surgery leads to a number of unnecessary operations, on benign leisons. For better case selection FNAB cytology would be useful, in the Malaysian district hospital set up. Use of FNAB had resulted in decreasing the frequency of operations for STN by 16% in Mayo clinic[5] and 25% in Aberdeen[6] and the bed occupancy of thyroid cases had decreased considerably.[5,6]

Conclusions

Clinical methods including age, consistency, size and duration of solitary nodules are unreliable in predicting malignancy. Detection rate of malignancy with the policy adopted above (Taiping) is low and hence better selection method of cases of STN for surgery in district hospitals is needed.

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