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Study of Thyroid Nodule

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Abstract: A total of 50 cases of thyroid nodule were studied; 86% were females; 64% were between age 30 to 50 years. Besides neck swelling, 2 cases with weight loss had thyrotoxicity; 92% were enthyroid; 2 hypothyroid and 2 thyrotoxic. Ultra-sonography showed solitary nodule in 56%; mixed solid and cystic swelling in 26%. FNAC confirmed benign lesion on histology in 64% seventy percent, with unilateral disease had hemi-thyroidectomy: subtotal thyroidectomy was performed in 18% with bilateral disease; 2 cases with malignant disease had total thyroidectomy.

Introduction

Thyroid nodules present a challenge in their diagnosis, evaluation and management. The present armamentarium of investigations is packed with the latest technologies of Fine Needle Aspiration Cytology (FNAC), thyroid scan and ultrasonography (USG). But still only 90% accuracy in pre operative diagnosis can be reached. Moreover there are still many controversies in management part, mainly over the point of conservative management against thyroidectomy in benign and malignant lesions.

Hence this study was done with an aim to evaluate the reliabily and utility of different investigations in achieving a correct pre operative diagnosis of thyroid nodule and to derive an optimal management protocol for patients with solitary thyroid nodule.

Material and Methods

Fifity (50) patients with thyroid nodule who presented to our institute from 1999 to 2001 were included in this study. After taking a detailed history, all patients were subjected to a thorough clinical examination. Besides all routine hematological and radiological investigations, special investigations done included thyroid function test, F.N.A.C., USG and thyroid scan. Based on the findings of these investigations, patients were treated accordingly. Treatment modalities ranged from nodule excision of solitary thyroid nodule to total thyroidectomy for malignant lesions. The patients were subsequently followed up for recurrence and complications. The results were collected, tabulated and analysed.

Results and Discussion

Out of the total of 50 patients, 43 (86%) were female and the rest (14%) were male. This *female preponderance* has been mentioned in all standard text books and the female: male ratio of 6:1 was observed in this study.

The *age distribution* shows a maximum of 19 cases (38%) in the fourth decade of life, 14 cases (28%) in the 40 to 49 year age group and 11 cases (22%) in the 20 to 29 year age group. There were 4 cases (8%) in the sixth decade of life one case each in the second decade and in the above sixty year age groups.

Symptomatology shows, besides the obvious complaints of neck swelling in all cases, there was pain in the swelling in 3 cases and in 2 cases each. The patients with pain in the swelling had thyroiditis, whereas the patients with weight loss were thyrotoxic. The other neck swellings were enlarged lymph nodes in cases of malignancy.

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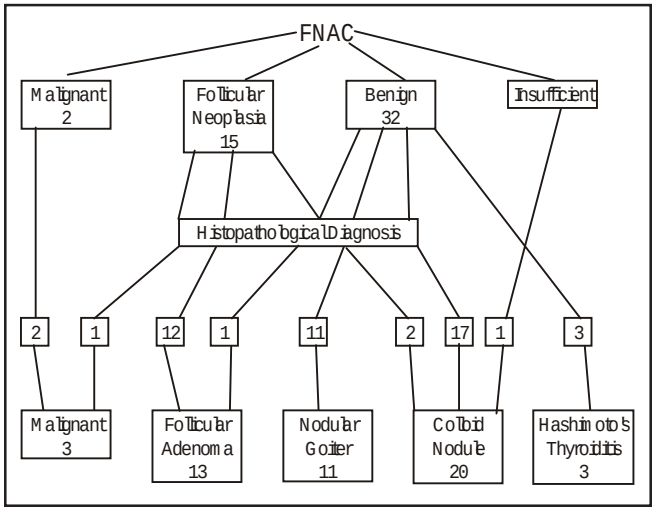
Thyroid function test revealed hypothyroidism in 2 (4%) cases and hyperthyroidism in 2 (4%) case. 46(92%) cases were euthyroid. That a great majority of thyroid nodules are euthyroid is well documented in text books and numerous contemporary studies.

Thyroid scan revealed solitary cold nodule in 28 cases (56%), multiple cold nodules in 10 cases (20%), solitary warm nodule in 10 cases (20%) and 2 cases (4%) of solitary hot nodule. Though thyroid scan is not of much diagnostic importance all the patients underwent this investigation for the purpose of this study. A study by Lowhagen et al[5] showed that though all cold nodules are not malignant, all malignant nodules are always cold. Thus a finding of cold nodule can be considered corroborative for malignancy.

USG of thyroid gland revealed solitary cold nodule in 28 cases (56%), single cystic lesion in 2 cases (4%) and mixed (solid and cystic) lesion in 13 cases (26%). 7 cases (14%) showed multiple solid lesions. 3 cases (6%) were of multiple mixed lesions. USG of thyroid is a very useful investigation as it gives an idea about the type of nodule, extent of lesion location of nodule, state of the remaining gland and surrouding vital structures. Also it can be used for guided FNAC.

FNAC showed benign lesion in 32 (64%) case and malignant lesion in 2 (4%) cases. In 15 (30%) cases no conclusive opinion could be given and in 1(2%) case the aspirated material turned out to be insufficient. The later 2 findings in this study can be attributed to human error. Thus even though FNAC has certain drawbacks like inability to differentiate between follicular adenoma and carcinoma it still is a very reiable and useful investigation.



Treatment Modalities	No. of Cases	percentage
First Stage		
ι Nodule excision	4	8
ι Hemithyroidectomy	35	70
ι Subtotal thyroidectomy	9	18
ι Near otal thyroidectmy	2	4
ι Modified neck dissection	1	2
ι Central Neck dissection	1	2
Second Stage		
ι Completion thyroidectomy	1	2
ι Neck Node Dissection	1	2

The findings of FNAC compared with the final histopathological diagnosis are shown in the flow chart.

Based on the examination and investigation findings, surgical treatment was done as shown in the table. In 4 cases (8%) only nodule excision was done. 35 cases (70%) with unilateral disease were treated with hemithyroidectomy. Subtotal thyroidectomy was done in 9 cases (18%) with bilateral disease. Near total thyroidectomy with berry picking was done in 2 cases (4%) with malignant lesions. In one of these patients, modified neck dissection was done as nodes for positive for metastasis on frozen section examination. In 1 case completion thyroidectomy and neck dissection had to be done as histopathological examination of surgical specimen revealed malignant lesion.

A shortest follow up of 3 months and the longest of 1 year could be achieved. 10 cases were lost to follow up immediately after discharge. there was incidence of recurrence in 1 case where only nodule excision was done. The other cases remained disease free for variable periods.

Conclusion

Though the series is too small to comment on comparative benefits of different surgical modalities, certain insights on diagnosis and management can be derived from the study.

A great majority of thyroid nodules are euthyroid and have benign origin. FNAC in proper hands is a very reliable tool in pre operative diagnosis of thyroid nodule with high sensitivity and specificity. Thyroid scan is not of much diagnostic, therapeutic or prognostic significance in thyroid nodule except in cases of toxic nodular goiter. Minimum surgery for thyroid lesions should be hemithyroidectomy as more conservative surgeries are prone to an unacceptably high incidence of recurrence.

Recommended Reading

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