

Fine needle aspiration cytology in diffuse or multinodular goitre compared with solitary thyroid nodules

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BMJ 1993;307:240

Thyroid enlargement affects around 15% of the population¹ but thyroid cancer is rare,² so the challenge is to identify the few patients with neoplastic disease. Clinical features are unhelpful,³ but the likelihood of malignancy is reportedly higher in solitary thyroid nodules than in diffuse or multinodular goitre.⁴ Fine needle aspiration cytology is the investigation of choice in solitary nodules,⁵ but its role in diffuse or multinodular goitre is unclear. We compared the results of fine needle aspiration cytology in patients with goitre and solitary nodules and related the final cytological or histological diagnosis to findings on examination.

Patients, methods, and results

A total of 461 euthyroid patients presenting with thyroid enlargement were studied prospectively, after classification by JAF or MCS as cases of solitary thyroid nodule or diffuse or multinodular goitre. All had fine needle aspiration cytology performed at the first clinic visit (aspirates from several sites (mean three) were obtained in those with goitre), and aspiration was repeated (in 33%) if the first specimen was inadequate (n=45) or if symptoms changed during a minimum follow up of two years (n=105).

Suspicious or malignant cytological features prompted surgery in 67 cases, a further 55 patients with satisfactory cytological appearances proceeding to partial thyroidectomy for upper airways obstruction or cosmetic reasons. All reports of malignant cytological findings (n=14) were confirmed histologically (two follicular, four papillary, two medullary carcinomas; six lymphomas or anaplastic tumours). Of patients with cytological appearances suspicious but not diagnostic of neoplasia (n=53), six had malignancy (two follicular and four papillary carcinomas) and 22 benign follicular adenomas. Twenty five patients with a suspicious cytological picture had simple colloid goitres. Six neoplasms (three follicular adenomas, three papillary carcinomas) which were not identified in the first adequate aspirate were diagnosed during follow up; review showed the false negative finding to reflect sampling error. Only four patients had clinical features suspicious of malignancy (fixed or rapidly enlarging lesions). All had solitary nodules, and malignancy was confirmed in each case.

Comparison of outcome in terms of final cytological or histological diagnosis in patients with solitary nodules and diffuse or multinodular goitre (table) indicated similar rates of neoplasia (benign or malig-

Comparison of final diagnosis in patients with solitary nodules and diffuse or multinodular goitre

Clinical diagnosis	Rate of malignancy	Rate of neoplasia (benign + malignant)
Solitary nodule (n=321)	5.9% (n=19)	12.5% (n=40)
Diffuse goitre (n=68)	4.4% (n=3)	7.4% (n=5)
Multinodular goitre (n=72)	1.4% (n=1)	4.2% (n=3)

nant) in those with solitary nodules and diffuse goitre. Rates of neoplasia were less in multinodular goitre, only one malignant tumour being diagnosed.

Comment

The overall accuracy of fine needle aspiration cytology in predicting neoplasia in our clinic accords with that in other centres.^{4,5} Only a quarter of the series had thyroidectomy (two patients with lymphoma had only open biopsy), so that further false negative cases may emerge. However, all patients were followed up for at least two years to allow repeat cytology prompted by further thyroid growth or symptoms.

In this series the rate of neoplasia (benign plus malignant) was 12.5% (40/321 cases) in patients with solitary thyroid nodules, which is similar to the rate (10%) reported elsewhere.^{4,5} Interestingly, a comparable rate of neoplasia was evident in patients judged to have a diffuse goitre, which conflicts with reports that neoplasia is uncommon in patients with diffuse thyroid enlargement.⁴ Furthermore, we also identified a few benign or malignant tumours in patients with multinodular goitre, in which neoplasia is also reportedly rare.⁴

The discrepancy between the prevalence of goitre in the general population detected by screening¹ and the low rate of malignancy in the general population² indicates that malignant disease is absent in most patients in the community with thyroid enlargement. In the selected group presenting to a hospital clinic because of an increase in thyroid size, however, the absence of suspicious clinical features in most patients with malignancy and comparison of the rate of malignancy in those with solitary nodules and diffuse or multinodular goitre indicate that fine needle aspiration cytology should be performed in all.

We thank Dr Scott Sanders for expert interpretation of some of the cytological specimens.

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(Accepted 21 May 1993)