**Topic:** REPEATED FINE NEEDLE ASPIRATIONS OF THE THYROID

**Title:** Value of repeated Fine Needle Aspirations of the thyroid: an analysis of over ten thousand FNAs.

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**Reference:** Thyroid 17: 1061-1066, 2007

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**SUMMARY**

**Objective:** Fine needle aspiration (FNA) has been accepted as the diagnostic method of choice in the initial evaluation of thyroid nodules. However, the value of repeated FNAs in the long-term follow-up of lesions initially diagnosed as benign is being questioned. Do the findings on initial FNA really spare patients thyroidectomy or do they only postpone it? The purpose of the present study is the attempt of these authors to answer this question.

**Design:** Retrospective review of cytology reports of patients who underwent thyroidal FNAs at Washington Hospital Center from January 1998 through April 2006. All statistical analyses were done using the statistical package Splus.

**Main Outcome:** Patients who had thyroid nodules diagnosed as benign on FNA performed at our institution had a 90% probability of a benign diagnosis (with 95% confidence interval [0.87, 0.92]), when they underwent surgery. When the benign cytologic diagnosis was confirmed on a repeat aspiration, this probability increased to 98% (with 95% confidence interval [0.94, 1.0]).

**Conclusion:** Repeated thyroidal FNAs yielding benign diagnoses are nearly always accurate (98%), and therefore the patients can be followed safely without undergoing surgery, unless an unfavorable clinical change occurs.

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**COMMENT**

FNA is the most valuable single test to assess the nature of a thyroid nodule, at least when it is performed properly and interpreted by an experienced cytologist. When the initial FNA is cytologically interpretable, a classical – but controversial – issue is whether such FNA should be reprogrammed at a later date in the follow-up of patients with a thyroid nodule. Obviously, if the initial FNA yielded an unsatisfactory specimen or if the diagnosis was “inconclusive”, FNA should be repeated. Alternatively, if the initial FNA yielded a cytological diagnosis of “suspicion of a tumor”, the issue of repeated FNA is simplified because the patient will usually be operated shortly thereafter.

Yolanda Oertel is among the thyroid cytopathologists who has one of the world’s largest personal experience with FNA cytology. In this study, the authors reviewed the results of FNA procedures performed in ~9,000 patients, between 1998 and 2006. The first interesting result was that 99% of the samples obtained were satisfactory for cytological analysis at the initial FNA procedure. This result exemplifies the important – and well-known – notion that the quality of FNA procedures depends on the competence and experience of a homogeneous team performing both the material-sampling step...
as well as the cytologic-reading step. The second interesting result concerns these patients who were operated and in whom the initial FNA cytology was "benign". Five hundred and seventy patients (out of 6,317 with a benign FNA cytology) underwent thyroid surgery. Among them, 512 had a final benign tissue diagnosis, among which they included 73 microcarcinomas and 37 cases of 'true' carcinomas. These results hence confirm that with an adequate cytologic diagnosis of benignity, the probability of having a histologically benign nodule is ~90%. The third interesting result concerns the repeat FNAs. A total of 1,537 patients with an initial FNA giving a satisfactory aspirate had repeat FNAs (between 1-5 procedures) 3 months to 6 years later. Altogether, the initial FNA diagnosis was confirmed in the repeat FNA in over 90% of the cases. Finally, the authors calculated that the probability of having a benign nodule at surgery was 98% in those patients in whom 3 FNAs were benign (initial FNA + 2 yearly repeats).

Although present results yield indications for a better stratification of the use of 'repeat' FNAs, they need to be interpreted with some caution, as the experience with FNA cytology is largely operator-dependent.

(Daniel Glinoer, M.D.; Ph.D.)

See Table below

<table>
<thead>
<tr>
<th>Repeat FNA diagnosis</th>
<th>No. of patients</th>
<th>No. of repeats</th>
<th>No. of surgeries</th>
<th>Tissue diagnosis</th>
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<th>MC</th>
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aNn = non-neoplastic (adenomatoid nodule, thyroiditis, etc.); FA = follicular adenoma, including Hürthle cell adenoma; MC = papillary microcarcinoma.