



## THYROID NODULES

### WHAT IS THE STUDY ABOUT?

There is debate about the management of patients who have a thyroid nodule that yields indeterminate follicular cytology on fine-needle aspiration biopsy (FNAB). One of the options is to perform a frozen section diagnosis (FSD) at the time of thyroid lobectomy, which might spare an unnecessary second operation in the 20% of patients with malignant nodules. This study analyzed the option of FSD in this situation.

**THE FULL ARTICLE TITLE:** Peng Y, Wang HH. A meta-analysis of comparing fine-needle aspiration and frozen section for evaluating thyroid nodules. *Diagn Cytopathol.*2008;36:916-920. <http://www.ncbi.nlm.nih.gov/pubmed/18855886?dopt=Citation>

### WHAT IS KNOWN ABOUT THE PROBLEM BEING STUDIED?

There is debate about the management of patients who have a thyroid nodule that yields indeterminate follicular cytology on fine-needle aspiration biopsy (FNAB). Among the options is frozen section diagnosis (FSD) at the time of thyroid lobectomy, which might spare an unnecessary second operation in the 20% of patients with malignant nodules that have indeterminate FNAB cytology.

### WHAT WAS THE AIM OF THE STUDY?

The aim of this study was to perform a meta-analysis of the literature related to this problem using FNAB and FSD.

### WHO WAS STUDIED?

Patients who underwent thyroid FNAB or FSD, some of whom had indeterminate cytology on FNAB examination.

### HOW WAS THE STUDY DONE?

This is an analysis of the medical literature. A PubMed search was performed to identify articles in English published from January 1982 to April 2007 that permitted comparisons of the diagnostic accuracy of FNAB and FSD specimens in the same study. The literature search yielded 62 publications, 52 of which met the study criteria.

### WHAT WERE THE RESULTS OF THE STUDY?

The meta-analysis failed to demonstrate superiority of FNAB over FSD. Although FSD appears to have a higher specificity (99%) and positive predictive value than FNAB, its low sensitivity of FSD (21%) significantly limits its applicability in practice.

### HOW DOES THIS COMPARE WITH OTHER STUDIES?

There are no other meta-analyses of this problem.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Frozen section diagnosis of follicular thyroid nodules may have higher specificity and positive predictive value than fine-needle aspiration biopsy, but FSD is not sensitive enough in most hospitals to use the test for routine clinical use. There also is a major difference in the accuracy of FSD among hospitals and pathologists, mainly owing to the frequency with which the test is run in each hospital.

### ABBREVIATIONS & DEFINITIONS

**FSD** is frozen section diagnosis At the time of surgery a pathologist can perform a rapid analysis of tissue that the surgeon has removed, which has literally been frozen to prepare for a microscopic examination by a pathologist. It can make a major difference in the extent of surgery performed during the operation. For example this could be the difference between lobectomy and total thyroidectomy at the first operation.

**Sensitivity** This is the percent of thyroid cancers that are accurately identified by a test (true positive).

**Specificity** This the percent of thyroid cancers that are correctly identified as a negative test which is identified as such (true negative).

**Positive Predictive Value** The percent that have the disease when the test is positive

**Negative Predictive Value** The percent that do not have the disease when the test is negative