

Thyroid Fine-Needle Aspiration Indications and Technique

Subcommittee members

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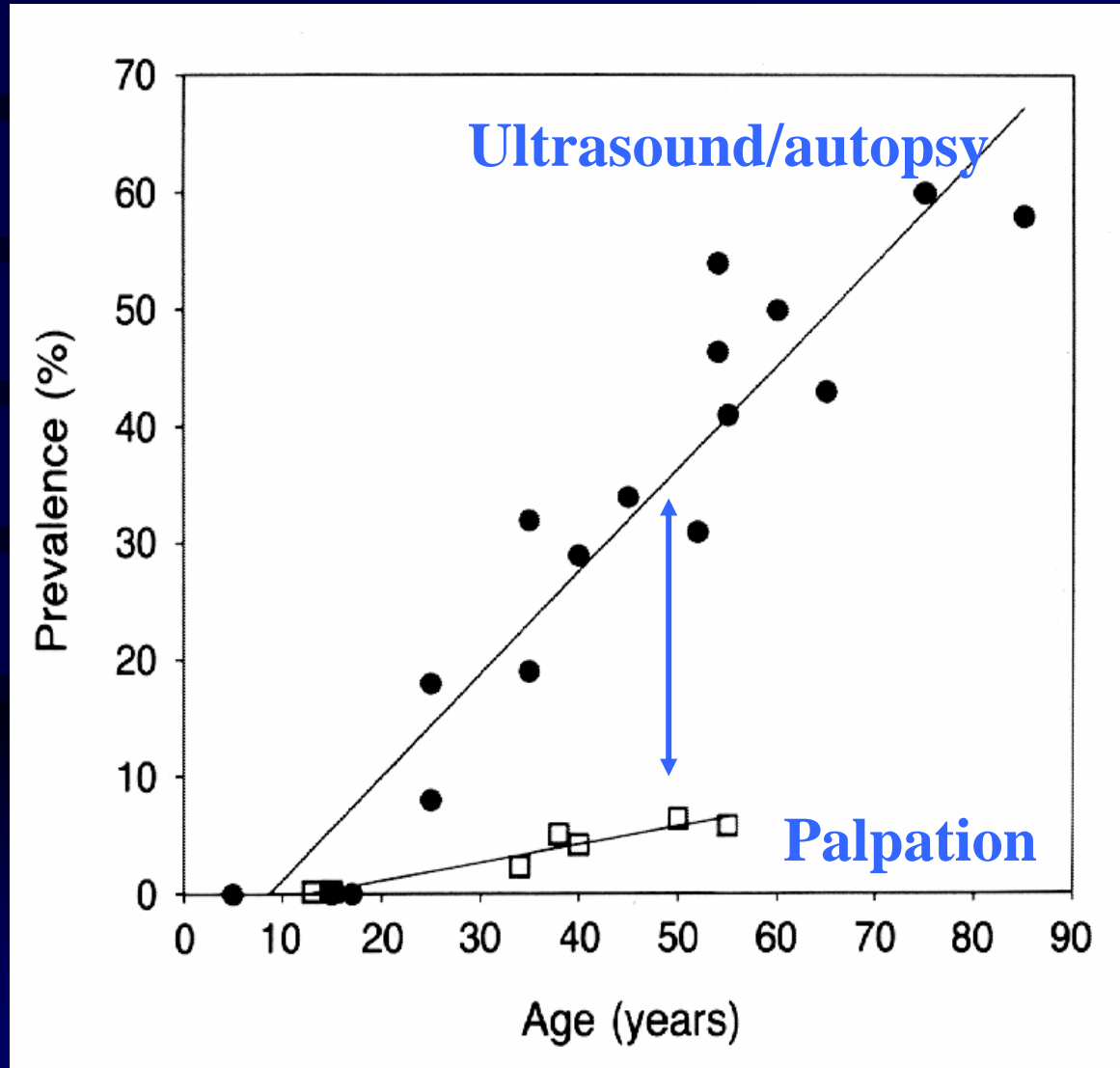
Thyroid FNA Indication

- Clinical Thyroid Nodule (s) > 1 cm?
- Hypo-functioning (cold)
- History
 - Age & Sex
 - Neck Irradiation
 - Family History of Cancer
 - Growth Pattern

Thyroid Nodules

- Clinically apparent nodules affect 4-7% of US population.
- More common in women and up to 95% are benign.

Prevalence of Thyroid Nodules



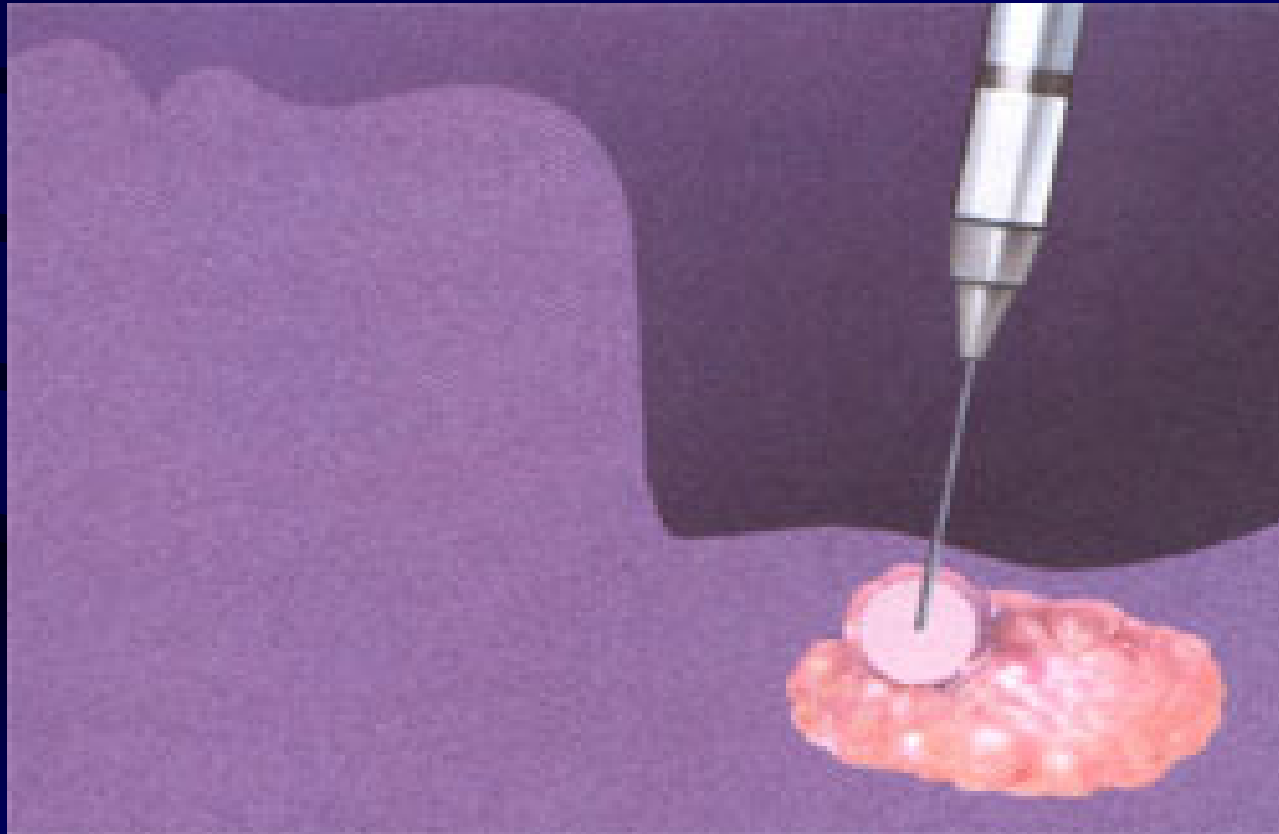
History and physical examination
lack the sensitivity and
specificity sufficient for
diagnosing thyroid cancer

Sutton's
Law of
Medicine

"BECAUSE THAT'S WHERE
THE MONEY IS."



Go for the “Nodule”



Initial Diagnostic Evaluation of Patients with Thyroid Nodules

FIRST STEP

TSH

Not Indicated

Radionuclide scans

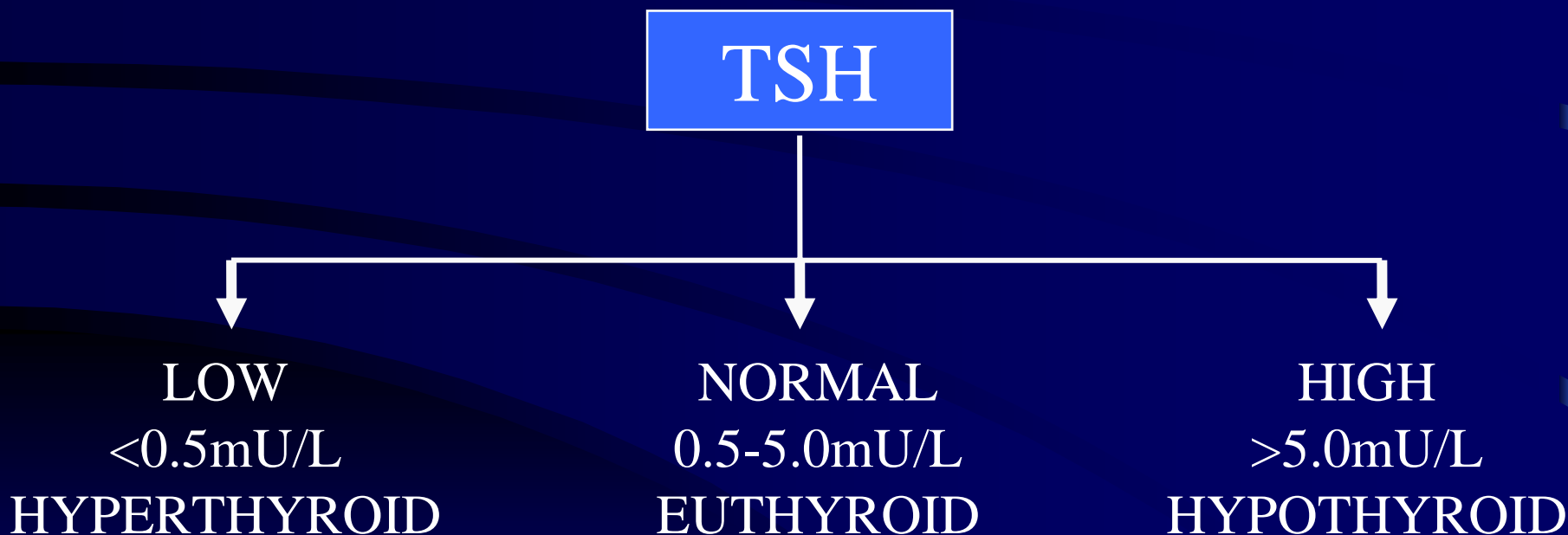
CT or MRI

Antithyroid antibodies

T4, free T4, T3



TSH assay is the optimal screening test in ambulatory healthy patients

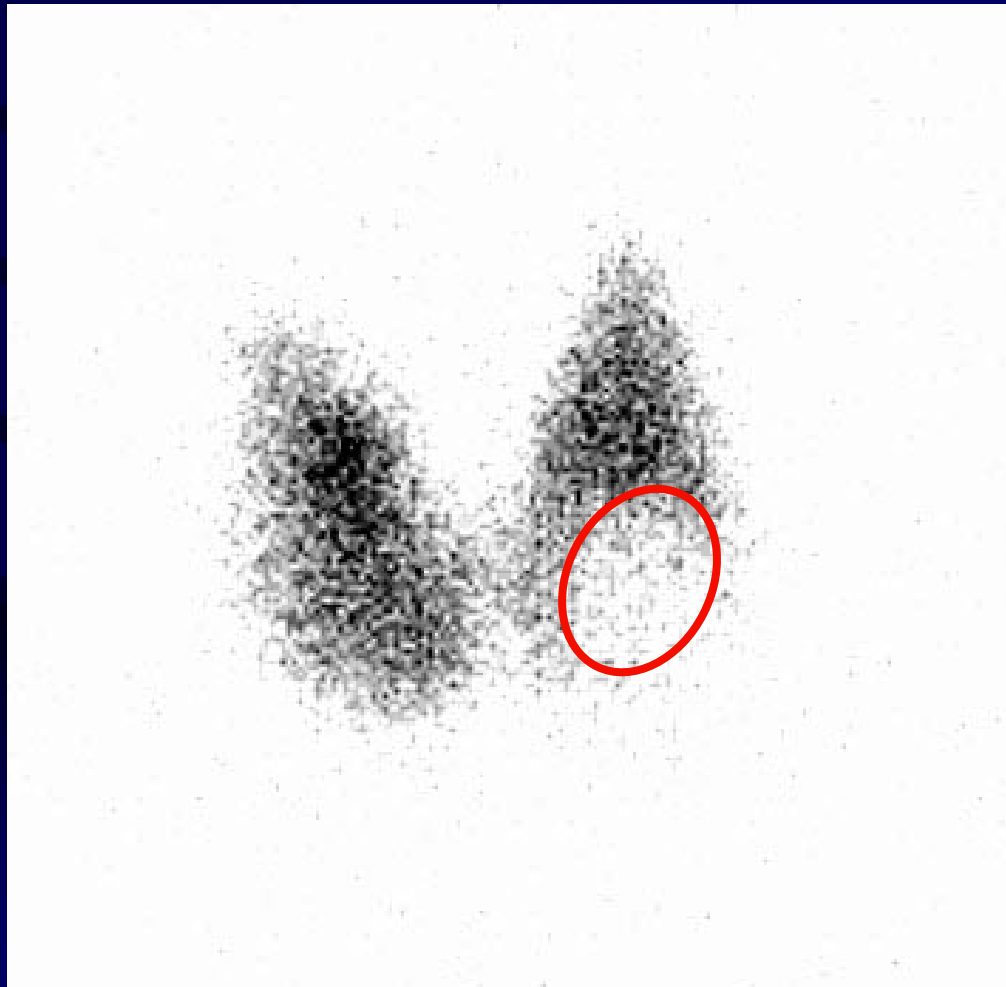


Hyperfunctioning “hot” left nodule

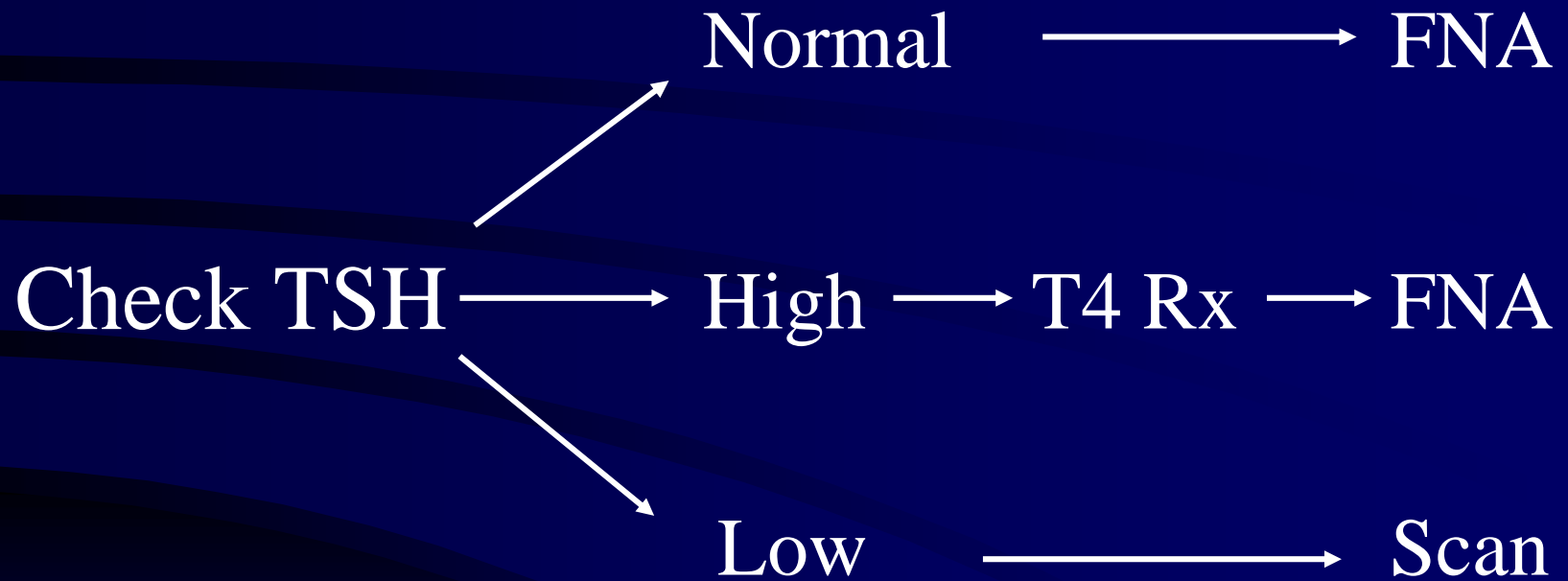


These “hot” nodules
do not need to be aspirated

95% of nodules are
hypofunctioning “cold”

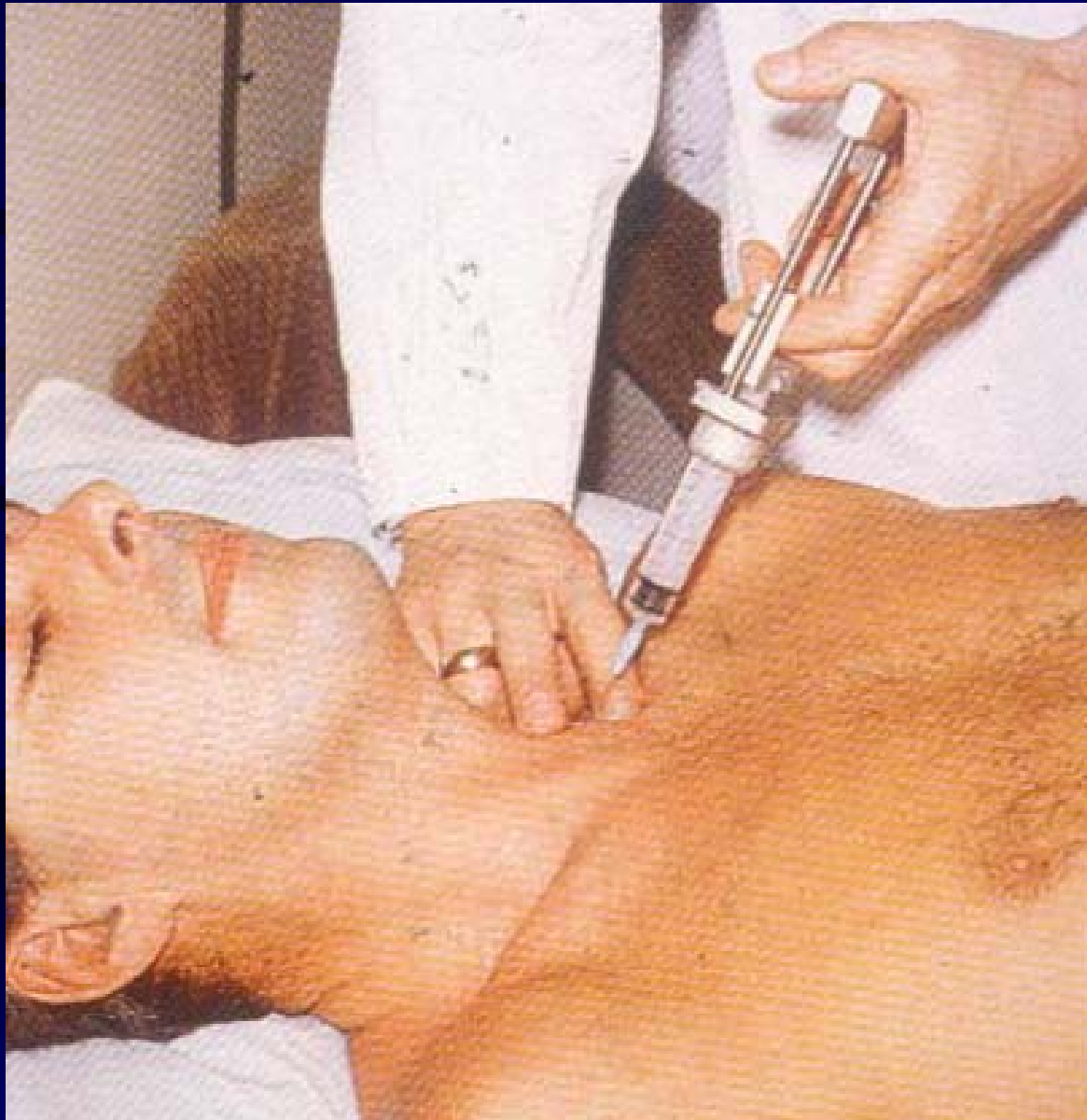


Road to FNA



Thyroid FNA Technique

- Manual
- Guided
 - Ultrasound
 - Other Imaging Modalities



Thyroid Needle Biopsy

- Fine Needle Aspiration (FNA)
 - 23-25 gauge needle
- Large Needle Biopsy (LNB)
 - 16-18 gauge needle
- Core Needle Biopsy (CNB)
 - 14 gauge needle

Recommended Thyroid FNA Technique

- **Maximum 3 punctures/nodule**
 - Use of thin 25 gauge (0.5 mm) needle
 - No local anesthesia

*ALL PATIENTS SHOULD HAVE AN
ULTRASOUND
EITHER BEFORE OR AFTER FNA*



What is the role of ultrasound in the evaluation and management of thyroid nodules?



Ultrasound Use in Nodular Thyroid Disease

- Multinodular consistency on exam
- Hashimoto's thyroiditis
- Difficult neck exam
- Surveillance in patients with known nodules or thyroid cancer
 - Growth in nodule with previous benign FNA cytology
 - F/u of thyroid cancer to evaluate lymph nodes



a) Are we truly feeling a nodule?

Of patients with one palpable nodule, 16% will have NO nodules found on ultrasound

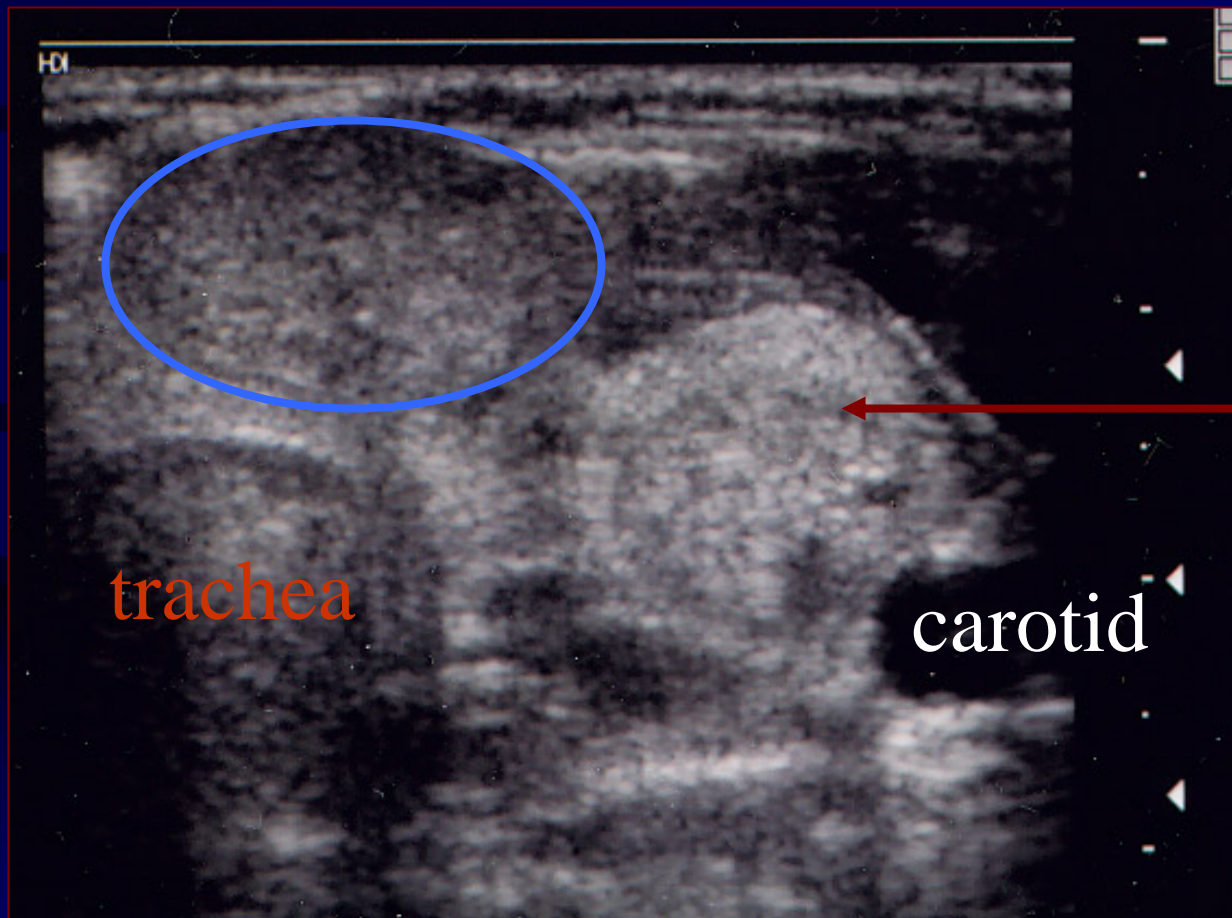
b) Is the nodule solitary?

A palpable solitary nodule is part of a multinodular thyroid gland on US in ~50% of patients. The size of the other nodules is usually <1.0 cm in the majority but 10-15% of patients will have a second nonpalpable nodule of >1.0cm

Brander 1992, Tan 1995, Marqusee 2000



Palpable left nodule, Nonpalpable isthmus nodule



Specimen Preparation



– Smears

- Concentration direct (two) smears/puncture
- On-site evaluation
- Concentration processing remaining material

– Liquid Base Techniques

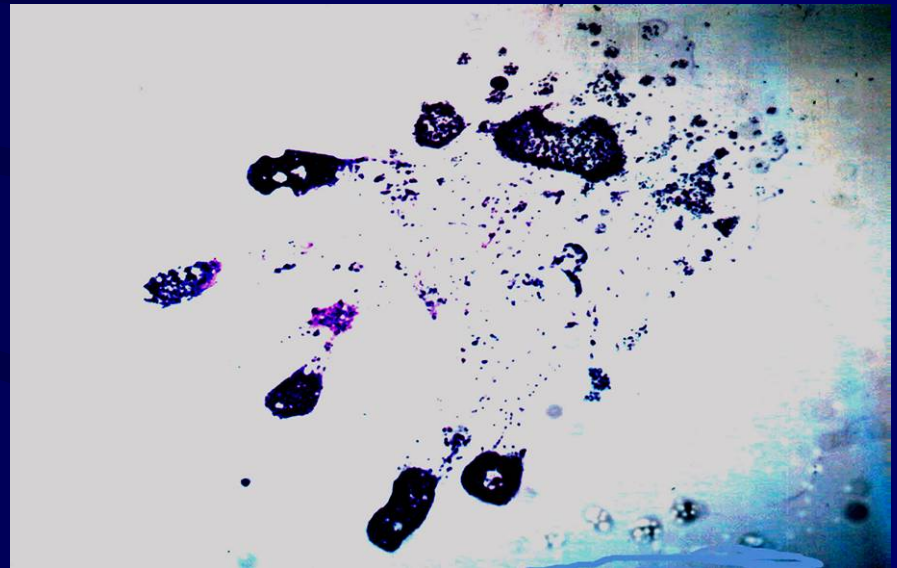
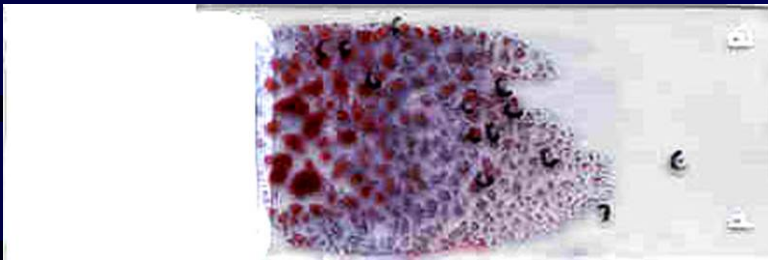
- ThinPrep
- Surepath



Common On-site Cytosmears

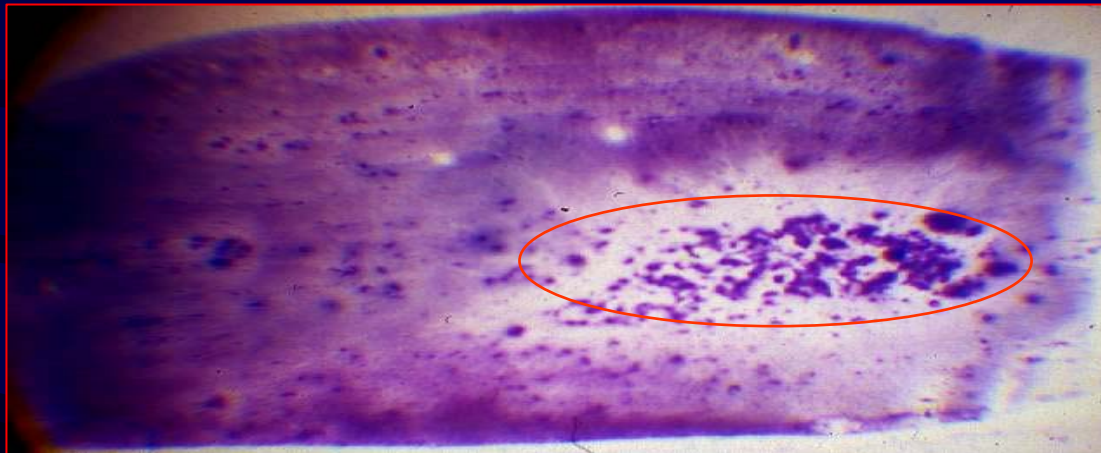
- **Direct smear**
 - Thin and thick
 - Butterfly
 - Cobblestone
 - Splatter
- **Concentration smear**
(Recommended)

Types of Cytosmears

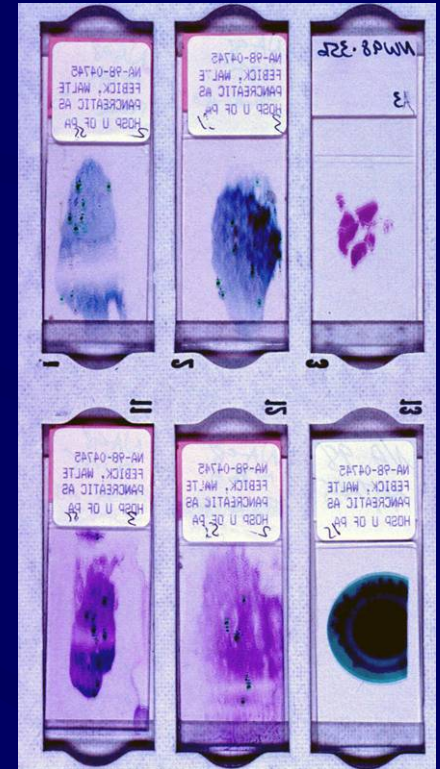
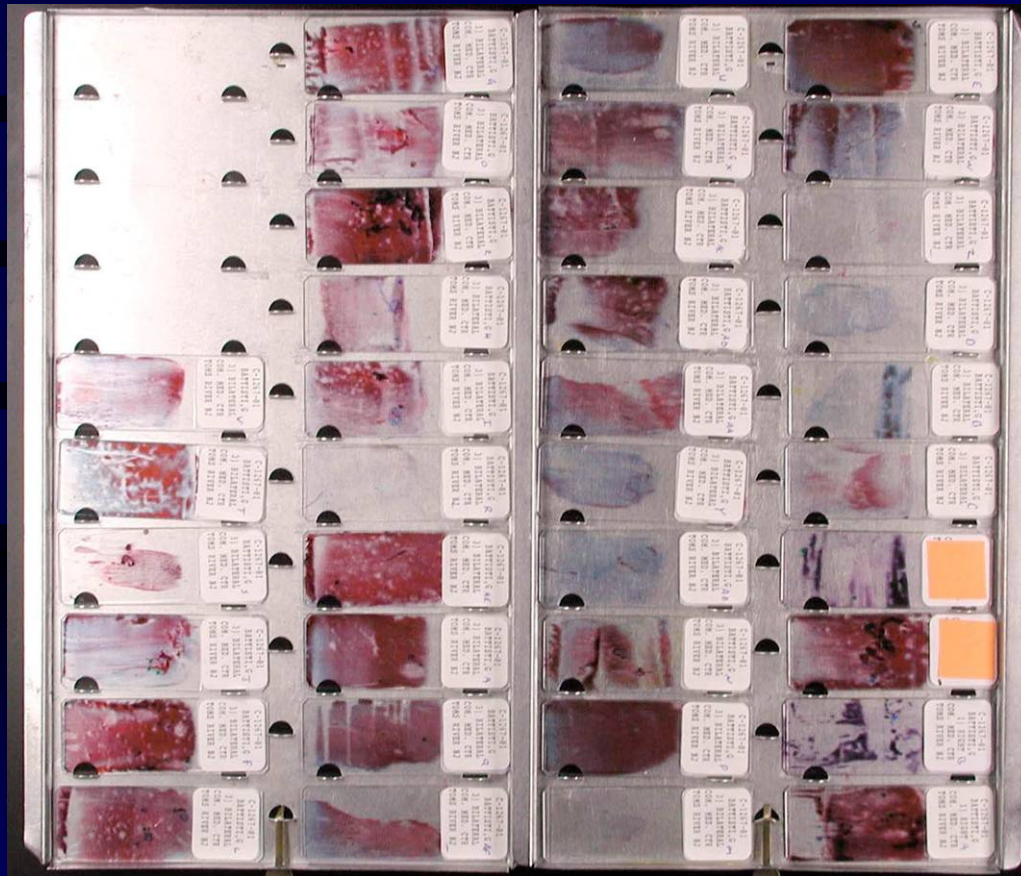


Types of Cytosmears

Concentration Smear



Problems: Cytopreparations



IODIZED SALT



HELP KEEP YOUR FAMILY
GOITER FREE!



In 1927, Morton introduced iodized salt to help prevent simple goiter. As significant as that was, if it were the only thing Morton had done for salt, it's not likely they would have stayed America's salt favorite for 56 years. No salt salts like Morton Salt salts.

When it rains it pours.



ourge

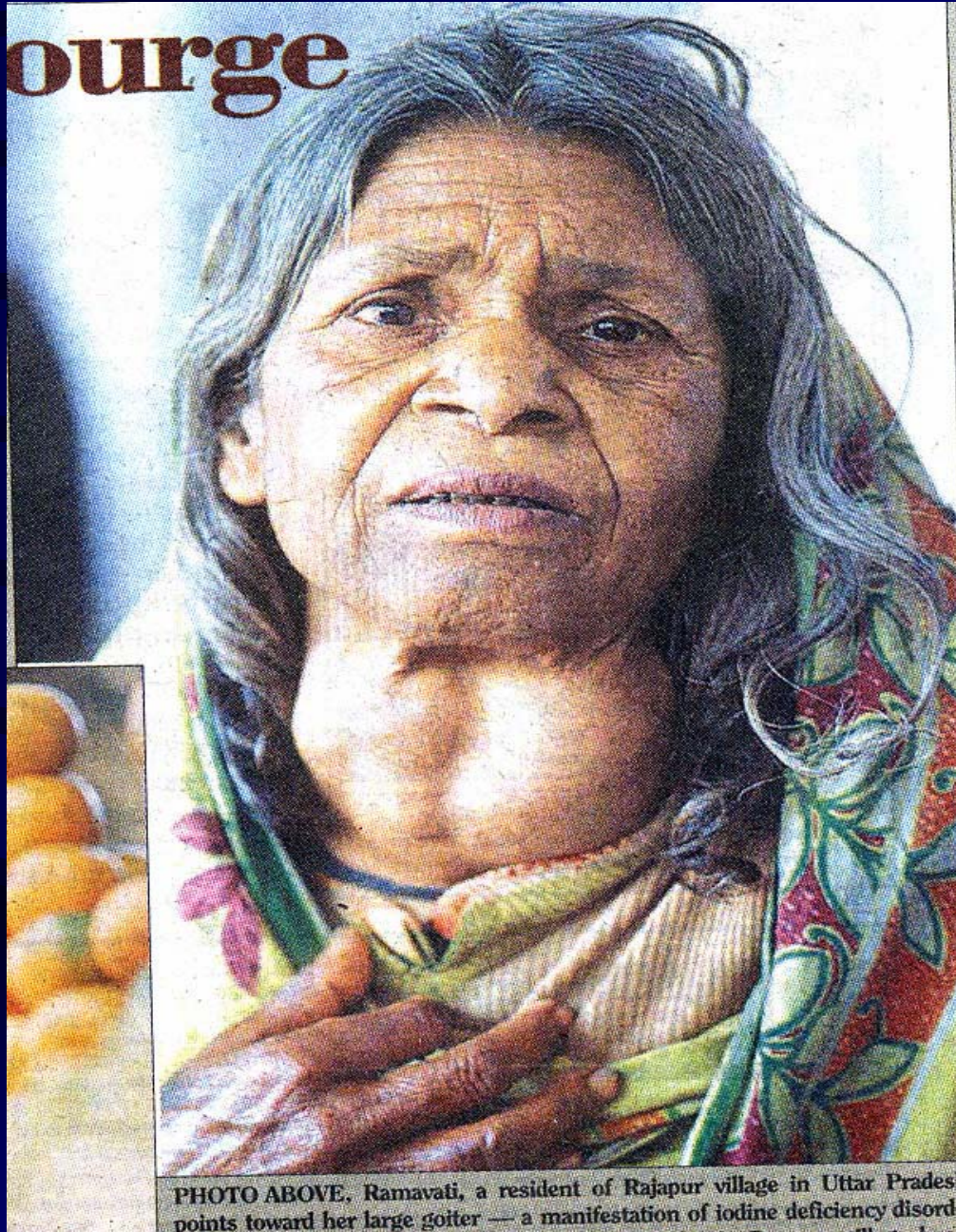


PHOTO ABOVE. Ramavati, a resident of Rajapur village in Uttar Pradesh points toward her large goiter — a manifestation of iodine deficiency disorder

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