32 year old woman with subclinical hyperthyroidism

Kathryn Becker, MD
<table>
<thead>
<tr>
<th>Set</th>
<th>Time</th>
<th>Thyroid cpm</th>
<th>Patient bkg cpm</th>
<th>Corrected Dose (cpm)</th>
<th>Hours</th>
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Graves Disease
Nuclear medicine thyroid uptake scan with iodine-123 demonstrates homogeneous symmetric uptake of radiotracer.

No hot or cold nodules are present.
Radioactive iodine uptake is increased at 4 and 24 hours

NORMAL:
4 hours: 5-15%
24 hours: 10-30%

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Graves Disease

Background
• Autoimmune disorder caused by antibodies to the TSH receptors on follicular cells of the thyroid
• Lab findings: TSH suppressed, elevated thyroid hormone, positive thyroid receptor antibodies
• More common in women
• Often presents in middle age

Treatment
• I-131 therapy unless pregnant, breastfeeding, or severe Graves ophthalmopathy
• Antithyroid medications and thyroidectomy are alternatives to I-131
Graves Disease

Thyroid scintigraphy
- Thyroid is usually enlarged
- Diffuse homogeneous fairly symmetrically increased radioactive iodine uptake at 4 and 24 hours

Ultrasound findings of Graves disease
- Heterogeneous echotexture
- Hyperechoic
- Increased vascularity (thyroid inferno pattern)
Graves Disease

Differential diagnosis for increased uptake on nuclear medicine thyroid scan

- Toxic multinodular goiter: hot nodules with background suppressed thyroid activity
- Toxic autonomous nodule: hyperthyroidism due to hyperfunctioning nodule
- Marine-Lenhart syndrome (nodular Graves disease): variant of Graves disease with cold nodules
- Silent thyroiditis during recovery phase: diffusely increased activity, has to be distinguished from Graves disease by clinical information
References
