

Adrenal Nodules

- The adrenal glands are like “top hats” on the kidneys, their job is to produce different kinds of steroid hormones, especially cortisol & adrenaline.
 - These hormones are **necessary for life** because they regulate stress responses that control blood pressure and how our cells use glucose.
- Because we do so many CAT scans for other reasons, we often find nodules in glands “by accident” and these are called incidentalomas.
- What happens if we find an incidentaloma in the adrenal gland?
 - The first thing is to determine if that nodule is making any hormones. We will check a combination of blood tests and 24 hour collections of urine.
 - If any of the initial screening tests are positive, we will have to follow up with confirmatory tests, which may test blood, saliva or 24 hour collections of urine.
 - Sometimes we have to do “dynamic tests” which might involve using a “stimulation” and measuring the hormone responses.
 - The second thing is to determine if the nodule looks benign or looks worrisome.
 - The first CAT scan can tell us the density of the nodule by measuring Hounsfield Units. If the nodule measures less than 10 HU, the odds are almost 100% that it’s benign.
 - If the Hounsfield measurement is more than 10 or the nodule looks irregular or larger than expected, we have to follow up with a specialized CAT scan with contrast dye.
 - If all the hormone tests are normal and the nodule looks benign, we don’t have to do anything else.
 - If the hormone tests are normal and the nodule looks “a little funny” but not clearly worrisome, we would plan to do more CAT scans in the future to make sure that nodule doesn’t change.
- What if the nodule looks worrisome? What kinds of things are we worrying about?
 - Pheochromocytoma: 4-7% of all incidentalomas; this is a tumor that produces adrenaline, and it needs to be treated with surgical removal.
 - Adrenal carcinoma: the odds of having this tumor are literally 1 in a million. Because it is so rare this should be managed at a large academic center experienced in this disease.
 - Metastatic disease from other cancers: we usually know this from the initial CAT scan and the patient’s history because these kinds of nodules have a very particular appearance.
- Should we biopsy the nodule if it looks worrisome?
 - No.
 - If we are worried about cancer, the biopsy cannot give us a diagnosis, and there is a risk of that biopsy “seeding” cancer cells outside of the adrenal glands.

Having trouble paying for medications? Try **GoodRx.com** for discounts or we can help you enroll at **universaldrugstore.com** to obtain certain medications from Canada. Also check with the **drug manufacturer** to see if they offer any assistance programs/coupons.

- If we are worried about pheochromocytoma, a biopsy procedure could cause a hormone crisis.
- How are hormonally active nodules treated?
 - Surgical removal of the nodule or adrenal gland is usually the first line treatment.
 - Depending on which hormone(s) the nodule produces, the patient's preference and his/her candidacy for surgery there are some medical treatments available.

Resources

- Columbia Adrenal Center:
<http://columbiasurgery.org/conditions-and-treatments/adrenal-incidentoma>
- Endocrine Surgeons: <http://endocrinediseases.org/adrenal/incidentoma.shtml>
- Mayo Clinic www.mayoclinic.com
 - Benign adrenal tumors
 - Adrenal cancer
 - Pheochromocytoma

Having trouble paying for medications? Try **GoodRx.com** for discounts or we can help you enroll at **universaldrugstore.com** to obtain certain medications from Canada. Also check with the **drug manufacturer** to see if they offer any assistance programs/coupons.