

# THE UROLOGY GROUP

www.urologygroupvirginia.com

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1860 Town Center Drive • Suite 150/160 • Reston, VA 20190 • 703-480-0220  
19415 Deerfield Avenue • Suite 112 • Leesburg, VA 20176 • 703-724-1195  
224-D Cornwall Street, NW • Suite 400 • Leesburg, VA 20176 • 703-443-6733  
24430 Stone Springs Blvd • Ste 100B • Dulles • VA 20166

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Name \_\_\_\_\_ Date of birth \_\_\_\_\_ Today's date \_\_\_\_\_

## ADRENAL NODULE

The adrenal glands sit above the kidneys, one on each side of the body. They make several hormones important for normal body function. An adrenal nodule is a growth in the adrenal gland. Adrenal nodules are not uncommon. By 70 years of age, up to 7% of people have a nodule in the adrenal gland.

Most of these nodules do not cause any harm and can be left alone. However, about 10% of the time, the nodule can make too much hormone and cause problems in the body. If the nodule is over 1 cm, blood work is recommended to see if the nodule is making excess hormones.

Imaging studies such as CT or MRI are recommended at 6, 12 and 24 months after the nodule is first seen.

Nodules less than 3 cm that do not make extra hormones are not likely to make extra hormones on repeat testing. However, 20% of nodules larger than 3 cm can show excess hormone production on repeat testing. Therefore, some experts recommend blood work every year for three to four years for nodules larger than 3 cm.

Very rarely, the nodule can be cancerous. Removal is recommended for nodules over 6 cm, or over 4 cm in young, healthy patients.

## Questions

History of high blood pressure? \_\_\_\_\_ What medications you do take for it? \_\_\_\_\_

History of high blood sugar? \_\_\_\_\_ Diabetes? \_\_\_\_\_ Medications for diabetes? \_\_\_\_\_

Do you have a history of cancer? \_\_\_\_\_ What kind? \_\_\_\_\_

When were you diagnosed? \_\_\_\_\_ How was it treated? \_\_\_\_\_

Do you get episodes of (circle those that apply): tremor headache sweating heart  
pounding palpitations anxiety

History of endocrine disorder in the family (Multiple Endocrine Neoplasia type 2, von Hippel-Lindau syndrome, neurofibromatosis type 1)? \_\_\_\_\_

Nothing to eat or drink after midnight the night before blood work.  
Blood work to be drawn before 9:30 am.

BLOOD WORK (all drawn same morning)  Morning serum cortisol level  
Take 1 mg dexamethasone at 11:00 pm the night before the test  
Cannot be on oral birth control pills

Morning plasma free metanephrines  
To be drawn laying down (supine)  
No caffeine for 24 hours  
No acetaminophen (Tylenol) for 5 days

If high blood pressure: Morning serum aldosterone and renin level  
To be drawn in sitting position

If adrenal cortical carcinoma is strongly suspected (eg mass over 4 cm or virilization):  
Dehydroepiandrosterone sulfate (DHEA-S), 17-OH progesterone, androstenedione,  
testosterone, 17 beta-estradiol

Alternative to above low dose dexamethasone test:

24 hour urine collection for cortisol level, creatinine level. Must have normal kidney function.

Alternative to above plasma free metanephrines:

24 hour urine collection for metanephrine level, creatinine level. Must have normal kidney function.

### **Cortisol**

A morning serum cortisol greater than 5 g/dl is diagnostic of Cushing syndrome.

### **Metanephrine**

Beta blockers can cause false positive metanephrine results. If metanephrines are positive, stop beta blocker and repeat metanephrine testing.

Metanephrine values four times normal are diagnostic of pheochromocytoma, lower values are equivocal results.

### **Aldosterone**

Replace potassium if low potassium as hypokalemia can cause false positive results.

Angiotensin converting enzyme inhibitors can cause false negative aldosterone testing. If aldosterone testing is normal and there is a strong suspicion for hyperaldosteronism (Conn syndrome), stop angiotensin converting enzyme inhibitor and repeat aldosterone testing.

Patients should be off potassium sparing diuretics and mineralocorticoid receptor blockers for six weeks before testing.

Morning aldosterone > 15 ng/mL with an aldosterone-to-renin ratio of >30 is indicative of Conn syndrome (hyperaldosteronemia).

Confirmatory testing with sodium loading is indicated. Elevated aldosterone levels after sodium loading confirms the presence of hyperaldosteronism.

All patients who test positive for hyperaldosteronism require adrenal venous sampling before adrenalectomy.

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