Renal Incidentalomas - Diagnosis and Treatment of Small Renal Masses

Brittine MacIntyre, MSN, APRN, FNP-C
Advanced Practice Provider
Department of Urology

Abstract

Background: One of the most common incidental or unexpected findings on diagnostic imaging scan is a kidney cyst or mass. The incidence is rising due to increased diagnostic imaging, longer life expectancy, better quality imaging.

Incidence: 1980s and before, kidney masses weren't usually found until the were much larger and symptomatic. Classic triad of flank pain, palpable abdominal mass and blood in the urine. Subtle signs and symptoms like fever, cough, fatigue, weight loss, edema.

Review of Literature: Since the 1980's and after, there has been a surge in diagnostic imaging and likewise the number of renal incidentalomas.

Reasons include longer life expectancy, increased availability of imaging, and better quality of scans. Most renal masses are asymptomatic and are found incidentally. 20-30% of small renal masses are benign or non-cancerous.

Implications for Practice:

Providers in many different settings ordering areas may benefit from knowledge of how to triage these patients, how to talk to patients about these findings, and how to follow up if they find anything. There is no rush for urgent evaluation and treatment. Therefore, there is no rush for urgent referral for further evaluation and management.

There are many different factors that contribute to our current approach.

Small Renal Mass Definitions and Key Facts

Renal Incidentaloma
- 50% of the time renal masses are found incidentally.
- Most incidentalomas are asymptomatic and undiagnosed as to why they were found.
- The vast majority of renal incidentalomas are small renal masses (<4 cm).

Tumor (Solid)
- Can be benign or malignant.
- Benign:
  - The most common benign renal masses are oncocytomas and oncocytoid tumors.
  - Most common: Renal Cell Carcinoma (RCC) 80-85% of all kidney cancers.
  - RCC originates from the outer portion of the kidney called the renal cortex. Since these cells are actively metabolically active, they are the most prone to dysplasia or cancer.
  - RCC is usually asymptomatic unless tumors are quite large or metastatic.
  - Urothelial Carcinoma: 5 to 7%.
  - Unilateral: carcinoma originates from the renal pelvis, ureters or bladder.
  - It also can be transitional cell carcinoma, which is the type of cell that lines the upper and lower urinary tract. Treatment for uncontrolled renal neoplasm is different than RCC since it is more similar to bladder cancer.
  - Other rare types - 0% of metastasis from other primary cancer.

Cystic mass (fluid)
- Simple:
  - Benign: “bag of flat”
  - 50% of patients age 50.
  - Do not affect kidney function, cause symptoms, or turn into cancer.
- Complex:
  - Most are benign.

Bosniak Classification for Cystic Renal Masses

System developed in 1986 by a radiologist to categorize and risk stratify.

Features

1. Simple cysts: ignore
2. Low-risk lesion (Bosniak IIa): avoid biopsy or surveillance
3. Intermediate-risk lesion (Bosniak IIb): requires close monitoring
4. High-risk lesion (Bosniak III): requires surgical intervention

Renal Masses: New Training Model (2021-2022) Predominantly in the nephrons and the papilla. They are generally less than 2cm but can range from 5mm to 4cm.

Benign:
- Simple cysts = ignore
- Lower-risk lesion (Bosniak IIa): avoid biopsy or surveillance

Evaluation and Management of Small Renal Masses

Triggers for Change from Active Surveillance to Treatment

Change in tumor
- Increased size >3cm
- Grows 5mm/yr (3mm/yr is average)
- Cystic to solid
- Increased contrast enhancement

Patient Anxiety or concern

Clinical Pearl

“Do a biopsy when you need to, do a partial nephrectomy (or ablation) when you can, do a radical nephrectomy when you can’t, and do active surveillance when the patient can’t.”

(Karam, 2017)

References

[References list]

What Makes a Renal Mass Suspicous?

Solid enhancing mass is suspicious for renal cell carcinoma.

Is Active Surveillance Safe?

YES! Small renal masses metastasize very RARELY (~1 to 2%). 20-40% of small renal masses are BENIGN.

Overview of imaging (MRI vs CT)

CT Preferred for most small renal masses. Enhancement (Hounsfield unit) Radiation exposure

No contrast if allergic or eGFR <30 MRI

Excellent soft tissue discrimination for vessels, cystic lesions Caution if claustrophobia or metal implant.

When to Refer to Urology

>5mm growth rate or <2cm size. Bosniak Criteria can guide referral and management for cystic masses. Simple cysts do not need follow up or referral. Refer to Suspection of Cancer if renal lesions <2cm.

Take Home Points

Most renal masses are asymptomatic and are found incidentally. Simple cysts = ignore Solid enhancing mass = suspicious