American College of Radiology
ACR Appropriateness Criteria®

Clinical Condition: **Palpable Abdominal Mass**

Radiologic Procedure	Rating	Comments	RRL*
CT abdomen	8		Med
US abdomen	7		None
MRI abdomen	6		None
X-ray colon barium enema	4	Exam can be used to evaluate selected cases.	Med
X-ray abdomen supine and upright	4		Low
X-ray upper GI series	4	Exam can be used to evaluate selected cases.	Low
X-ray upper GI series with small bowel follow-through	4	Exam can be used to evaluate selected cases.	Med
X-ray abdomen supine	4		Low
X-ray intravenous urography	4	Exam can be used to evaluate selected cases.	Low
Rating Scale: 1=Least appropriate, 9=Most appropriate			*Relative Radiation Level

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Summary of Literature Review

There has been little written about the generic use of imaging in evaluating palpable abdominal masses since the 1980s. Rather, newer research has been both scant and focused on evaluation of specific masses using computed tomography (CT), ultrasound (US), and magnetic resonance imaging (MRI).

Investigators have found both US and CT excellent for affirming or excluding a clinically suspected abdominal mass [1-5], with sensitivity and specificity values in excess of 95% [1,5]. This is particularly noteworthy since as few as 16%-38% of patients referred for suspected abdominal mass will have that diagnosis corroborated by an imaging study [6].

Both US and CT can visualize the organ from which a mass arises. The success of US in determining organ of origin has been 88%-91% [3,5], while CT has fared slightly better at 93% [1]. US is limited by bowel gas in cases of dilated bowel. As one might expect, attempts to predict the pathologic diagnosis of masses based on imaging findings are less successful. US studies correctly predicted the pathologic diagnosis in 77%-81% of cases [3,5,7], while CT suggested the diagnosis in 88% of cases [1].

Investigators have stressed the ability of CT and US to image masses no matter what their organ of origin and have touted them as first-line procedures for evaluating palpable masses [2,7]. While certain combinations of clinical findings could lend themselves to a more targeted approach (for example, hematemesis plus a palpable gastric-region mass might merit endoscopy as the first study), cross-sectional imaging in general is well suited to initial evaluation of abdominal masses. One study in 1981 showed that, compared with strategies not using CT, the use of CT can result in savings in time for diagnosis and overall cost of hospitalization [2].

At the time of this writing, no comparative studies evaluating MRI are available. From an intuitive standpoint, however, the nonorgan-specific nature and multiplanar imaging capabilities of MRI seem quite suitable for evaluating an abdominal mass. In the absence of data, the usefulness of MRI in evaluating palpable masses is unknown. It is likely comparable to CT and US.

References

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