

Evidence Discussion (PV 12)

- Transabdominal pelvic and/or transvaginal pelvic ultrasound are widely accepted as the initial imaging modality of choice for uterine fibroids^{1,2}. Ultrasound also allows for real-time evaluation with color and power Doppler which can help identify vascular flow and distinguish fluid and cysts from soft tissue. 3-D rendering is useful for further evaluation of intracavitary lesions and for surgical planning for myomectomy³. Additional benefits to ultrasound as a first line imaging modality include wide availability, fast access, and lack of ionizing radiation exposure.
- MRI is accepted as an adjunct modality to ultrasound in cases where ultrasound may not fully characterize a soft tissue abnormality due to its superior signal to noise ratio. MRI can be useful for surgical planning for myomectomy, determining degeneration or necrosis of fibroids, and to plan uterine artery embolization or radiofrequency ablation^{4,5,6,7}.
- MRI may be considered for suspected leiomyosarcoma in cases where ultrasound features and symptoms are suggestive of this diagnosis⁸. The reported prevalence of unsuspected sarcoma at surgery for symptomatic leiomyoma ranges widely, from 0.01% (one in 10 000) to 0.28% (one in 352)⁸.
- MRI offers the highest accuracy for characterization of uterine masses before intervention due to improved soft-tissue contrast, larger field of view, diffusion sequences, and multiplanar sequences. For procedural planning, MRI offers better localization of fibroid position in the uterus and can be used to assess viability and arterial supply of fibroids. In the context of preprocedural planning, MRI features have been evaluated for performance in separating leiomyosarcoma from leiomyomas or atypical leiomyomas. MRI features noted in multiple studies as associated with leiomyosarcoma include the following features: intermediate to high signal intensity of the mass at T2-weighted imaging, irregular margins of the uterine mass with the adjacent myometrium, and high signal intensity at high-*b* value diffusion-weighted imaging and corresponding low signal intensity on apparent diffusion coefficient maps⁸.
- MRA or CTA may be used to determine vascular flow to uterine fibroids for embolization planning in cases where MRI is insufficient. Knowledge of the vascular supply for fibroids is crucial for successful embolization of target arteries⁹.
- CT is of limited use in the evaluation of pelvic anatomy due to limited soft tissue contrast resolution¹⁰.

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