

MR Imaging In Uterine Neoplasms: The Basics And Beyond

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Uterine neoplasms refers to different types of cancers occur in the uterus: (1) epithelial carcinoma (such as, endometrioid cancer, papillary serous carcinoma, clear cell carcinoma, or carcinosarcoma, which is also known as malignant mixed Müllerian tumors [MMMT]); or (2) stromal/mesenchymal tumors (such as, low-grade endometrial stromal sarcoma, high-grade undifferentiated sarcoma, or leiomyosarcoma). Among them, endometrial cancer is the most common malignancy of the female genital tract in the developed countries. Uterine sarcomas are far less common and account for approximately 1 in 12 of all uterine cancer patients.

Robust imaging armamentarium has continuously been developed since inaccuracy exists by using preoperative tumor grade and intra-operative gross examination of the uterus to evaluate the myometrial invasion depth. Magnetic resonance (MR) imaging substantially better than ultrasonography, computed tomography, and non-enhanced MR imaging, and is further refined by using dynamic contrast enhancement technique for detecting the myometrial invasion. Diffusion-weighted MR imaging is recently proven able to differentiate normal and endometrial pathology. The use of high b value makes images more sensitive to water diffusion hence increases contrast between normal and cancerous tissue.

In this talk I will review the common imaging presentation of uterine benign and malignant tumors originating from various cell types. Imaging features corresponding to the TNM system will be demonstrated, with pearls and pitfalls particularly emphasized. Finally, we will discuss the clinical impact of MR for disease prevention, diagnosis, response evaluation and follow up.