Specialty area: Clinical Cancer MRI: Case-Based Course

Title of Talk: Staging Endometrial and Cervical Carcinoma: A Case-Based Approach

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Highlights
- Staging endometrial carcinoma
- Staging cervical carcinoma

TARGET AUDIENCE
This presentation is targeted at sub-specialty and general radiologists, imaging scientists, technologists and radiology trainees who would like to improve their MR staging of uterine carcinomas.

OUTCOME/OBJECTIVES
Attendees will be able to report the pertinent imaging findings when staging patients with endometrial and cervical carcinoma, and understand the impact of specific imaging findings on the patient management.

PURPOSE
To promote a better understanding of the role of MR imaging in managing patients with uterine carcinoma.

DISCUSSION
The recent update in the FIGO staging system better reflects tumour biology and the different clinical management strategies for uterine and cervical carcinoma. Management of endometrial carcinoma is primarily surgical, whereas that for cervical carcinoma depends on the FIGO stage at the time of initial presentation. MR imaging plays an integral role in evaluating disease extent and stratifying the management pathway.

The prognosis of patients with endometrial carcinoma depends on a number of factors, including the Stage at initial presentation and the tumour histology. The depth of myometrial invasion, cervical stromal invasion and nodal status all contribute to the 5-year survival. Prognostic factors with respect to tumour histology include tumour grade, cell type and the presence or absence of lymphovascular space invasion. Information about tumour grade and cell type are typically available at the time of D&C, but there is frequent discordance with the final surgical pathology as only a small portion of the tumour is sampled at D&C. Lymphovascular space invasion is the single best predictor for nodal involvement but this information is only available after the fact at the time of final surgical pathology.

Our role as imagers is to establish the local disease extent. MR imaging can accurately depict the depth of myometrial invasion, which correlates with lymph node metastases and overall patient survival. MR imaging is increasingly being used as a standard tool for the preoperative evaluation of patients with endometrial carcinoma. Incorporating the MR findings allows for better risk assessment than using histology alone, and ultimately guides surgical panning (despite the known discrepancy between MR assessment of myometrial invasion, nodal status and final pathology).

The management and prognosis of patients with *cervical carcinoma* is based on the clinical FIGO stage of the disease at initial presentation. Although preoperative MR imaging criteria are not formally included in the revised FIGO staging system, MR imaging is highly sensitive and specific for depicting important prognostic factors. MR imaging when available, should be used as an adjunct to the clinical assessment, which currently remains the reference standard. In particular, MR imaging provides accurate information about important prognostic factors, such as tumor size, parametrial and pelvic sidewall invasion, and lymphadenopathy. The role of MR imaging is to distinguish early stage disease which is treated with surgery; from early stage bulky disease (> 4cm) and locally advanced disease, which are treated primarily with chemoradiotherapy.

High-resolution anatomic T2-weighted multiplanar images, in combination with functional imaging (DCE-MRI and DWI), allow for accurate staging and follow-up of uterine carcinomas. Diffusion-weighted imaging (DWI) has an increasingly accepted role in routine cervical and endometrial carcinoma staging because it increases tumor conspicuity and aids in image interpretation

CONCLUSION
The MR imaging findings of uterine carcinoma should be discussed in a multidisciplinary setting in conjunction with clinical and histologic findings. This approach allows for accurate staging and risk stratification, and thereby optimizing individualized treatment.

REFERENCES:
1. *FIGO Committee on Gynecologic Oncology. J Gyn & Ob. 2009;105:103-104*
2. *Querleu D. et al. Clinical practice guidelines for the management of patients with endometrial cancer in France: recommendations of the Institut National du Cancer and the Societe Francaise d'Oncologie Gynecologique. Int J Gynecol Cancer 2011; 21:945-950*
3. *Freeman, SJ, Aly AM, Kataoka MY, Addley HC, Reinhold C, Sala E. The revised FIGO staging system for uterine malignancies: Implications for MR Imaging. Radiographics 2012; 32:1085-1827*