Preoperative assessment of tumor extension in endometrial cancer by
Transvaginal Sonography versus Magnetic Resonance Imaging

Buonomo F. M.D. (1) Ferreginno A. M.D.(2), Ziniola G. M.D.(2), Mirandola M. M.D. (2), Romano F. M.D. PhD (1), Mangino F.P. M.D.(1), Ricci G. M.D. PhD (1,2)

Authors' affiliations
1. Institute for Maternal and Child Health, I.R.C.C.S “Burlo Garofolo”, Trieste, Italy
2. University of Trieste, Italy

OBJECTIVES: The aim of the present study was to evaluate the feasibility of 2D and 3D ultrasound technique in the evaluation of the tumour local extension (myometrial invasion and cervical invasion) in high risk and low risk endometrial cancer in comparison to MRI.

MATERIALS AND METHODS: It was a retrospective study from October 2015 to May 2018. 73 women affected by endometrial cancer were recruited. A preoperative TVUS was made to define myometral and cervical infiltration with subjective assessment by a single operator. A subsequent MRI was done. These preoperative data were compared to histological results and the Pathological Staging (see. TNM VII ed.) of the tumour. The surgical approach was both laparoscopic and laparotomy depending on the physical condition of the patient. The radicality of the intervention was modulated according to the extent of the disease, as stated by the International Federation of Gynecology and Obstetrics (FIGO) stages.

RESULTS: 5 tumour subtypes were identified: endometrioid adenocarcinoma (60-82%), serous papillary adenocarcinoma (7-9.5%), clear cell adenocarcinoma (1-1.4%), mixed adenocarcinoma with endometrioid and mucinous component (4-5.5%) and undifferentiated adenocarcinoma (1-1.4%). 33% of the patients had grade 1, 44% had grade 2 and 23% grade 3.

TVS sensitivity, specificity, PPV, and NPV values for myometrial infiltration were 89.5%, 80.0%, 82.9% and 87.5%, respectively. Overall MRI sensitivity, specificity, PPV, and NPV values for myometrial invasion were 76.3%, 80.0%, 80.6%, and 75.7%, respectively.

Regarding the parameter myometrial infiltration TVUS demonstrates better sensitivity than MRI (SE: 89.5% vs 76.30%) and equal specificity (80%) TVS sensitivity, specificity, PPV, and NPV values for cervical infiltration were 80.0%, 94.8%, 80.0% and 94.8%, respectively while MRI sensitivity, specificity, PPV, and NPV values were 66.7%, 93.1%, 71.4%, and 91.5%, respectively. TVUS and MRI were compared (Mc-Nemar test). A p value < 0.05 was considered statistically significant.

CONCLUSION: While MRI is currently recommended for pre-operative evaluation in some guidelines, according to our results, we believe that TVUS may have a role as a first imaging technique in order to evaluate the myometrial invasion and cervical involvement in women affected by endometrial cancer. These findings might be of clinical relevance because TVUS is cheaper, easy to use in expert hands, repeatable and not harmful.