DIAGNOSTIC VALUE OF MAGNETIC RESONANCE IMAGING IN ASSESSING DISEASE EXTENT IN CERVICAL CANCER

A. Cealan[*]

Department of Radiology and Medical Imaging, Nicolae Testemitanu State University of Medicine and Pharmacy, Chisinau, Moldova
*E-mail: andrei.cealan@usmf.md

Background and study aim: Cervical cancer represents a significant health problem worldwide. In the Republic of Moldova it represents the second most frequent cancer in women after breast cancer. Despite the longer survival because of earlier diagnosis and more effective therapies, the disease still remains among the leading causes of cancer-related death in women. The purpose of the study was to determine the diagnostic value of magnetic resonance imaging (MRI) in assessing disease extent in cervical cancer.

Materials and methods: The study included 83 patients aged 28 – 77 years with cervical cancer investigated in the period December 2014 – June 2016. All patients underwent a formal pelvic MRI exam for evaluation of their disease extent. The findings were correlated with the biopsy results, as well as with the intraoperative findings when applicable. Sensitivity and specificity were calculated for different parameters.

Results: In our cohort, pelvic MRI showed the highest sensitivity for detecting vaginal invasion (100%) and urinary bladder invasion (83%). A sensitivity of only 71%, however, was recorded for detecting parametrial or pelvic side wall invasion (Table 1). The relatively lower sensitivity for detecting parametrial invasion may be related to the MRI appearance of the parametrium. Thus, preservation of a hypointense fibrous stromal ring at T2-weighted MRI has a high negative predictive value for parametrial invasion [1]. With disruption of the stromal ring but no definite parametrial mass, however, false-negative findings are not uncommon [1]. Initial small extensions within the pelvic wall might be also more challenging to detect. The recorded specificity for detecting parametrial, vaginal, urinary bladder and pelvic wall invasion was much higher (values between 90 – 100%, Table 1). In addition to providing detailed information about the tumor invasion into adjacent organs and pelvic wall, the modality proved also useful for evaluating nodal metastases (89% sensitivity in our study).

Table 1. Recorded sensitivity and specificity of pelvic MRI in patients with cervical cancer

	Sensitivity	*Specificity*
Parametrial invasion	71	94
Vaginal invasion	100	90
Pelvic wall extension	71	94
Urinary bladder invasion	83	100

Conclusion: Pelvic MRI provides valuable information related to disease extent in patients with cervical cancer, having a particularly high sensitivity and specificity for detecting vaginal and urinary bladder invasion.

[1] Nicolet V, Carignan L, Bourdon F, Prosmanne O. MR imaging of cervical carcinoma: a practical staging approach. Radiographics. 2000;20(6):1539-1549.