Purpose/Objective(s): In patients with cancer of the uterine cervix, the prognostic significance of posterior bladder wall invasion on MRI without pathological evidence of mucosal invasion is not well known.

Materials/Methods: From 454 consecutive patients with cervical cancer who were treated with radiation therapy with or without chemotherapy at Samsung Medical Center, we reviewed images and analyzed the outcome of 97 patients. These patients were all diagnosed with FIGO stage IIIB-IVA cervical cancer, and had received pretreatment pelvic MRI. After exclusion of four patients without follow-up data and one who was treated with adjuvant hysterectomy after radiotherapy, the current study included 92 patients. We analyzed the patients in three groups, the normal, wall (muscle and/or serosal) invasion, and mucosal invasion groups, according to the depth of posterior bladder wall invasion on the MRI.

Results: MRI detected abnormalities in the posterior bladder wall in 42 patients (45.6%): wall invasion in 24, and mucosal invasion in 18. Five of 18 patients, suspected on MRI to have mucosal invasion, showed no pathological evidence of mucosal invasion. During the follow-up (median 34 months), seven patients died of causes other than cervical cancer. Three-year cause-specific survival (CSS) in the normal vs the wall invasion group was 76.2 % vs 71.4 % (p = 0.48). Three-year CSS for the wall invasion vs the mucosal invasion group was 71.4 % vs 54.3 % (p = 0.04). Pathological evidence of mucosal invasion did not correlate with survival in any group. Mucosal invasion on MRI (p = 0.03, H.R 5.15, 95% C.I 1.21 - 21.92) and concurrent chemoradiotherapy (p = 0.01, H.R 0.26, 95% C.I 0.09 - 0.69) were significant factors for CSS.

Conclusions: The prognosis of cervical cancer patients with evidence of muscle and/or serosal invasion of the bladder on MRI may not differ from that of patients without muscle and/or serosal abnormality on MRI. In patients with the MRI finding of bladder mucosal invasion, further studies should be conducted regarding the role of staging cystoscopy to determine the need for pathologic confirmation of the mucosal lesion.

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