

Diagnostic accuracy of diffusion weighted imaging for detecting nodal metastasis in gynecologic oncology patients: comparison with histopathology evidence

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BACKGROUND

Diffusion weighted imaging (DWI) has been used in the study of tumor detection (1). However, the accuracy in the detection of nodal metastasis remains undetermined, which will be investigated in the present study.

MATERIALS AND METHODS

Total 38 patients with histopathologic proved gynecologic oncology were evaluated by DWI, including 17 endometrial cancers, 16 cervical cancers, 3 uterine sarcomas, 1 ovarian cancer and 1 vaginal cancer. The average time span between DWI and surgery was 6 days. A single-shot EPI diffusion-weighted sequence was used. The b factor was 1000 sec/mm² with the acceleration factor of 2. The DWI was later co-registered with the T2-weighted images for detail anatomical localization. Nodal metastasis was defined as nodular lesions with bright signal in DWI.

RESULTS

Among 777 harvested lymph nodes, 37 have pathological evidence of metastasis. Compared with the histopathological findings, the sensitivity of DWI to the diagnosis of the nodal metastasis was 18.92%, specificity 98.91%, positive predictive value (PPV) 43.75% and negative predictive value (NPV) 96.27%. (Figure 2, in blue). On the patient-based analysis, the sensitivity, specificity, PPV and NPV of DWI to detect nodal metastasis were 66.67%, 80.65%, 40% and 92.59%, respectively. (Figure 2, in red)

CONCLUSION

DWI has a satisfactory accuracy for the detection of nodal metastasis in gynecologic oncology, particularly on a patient-basis.



Figure 1

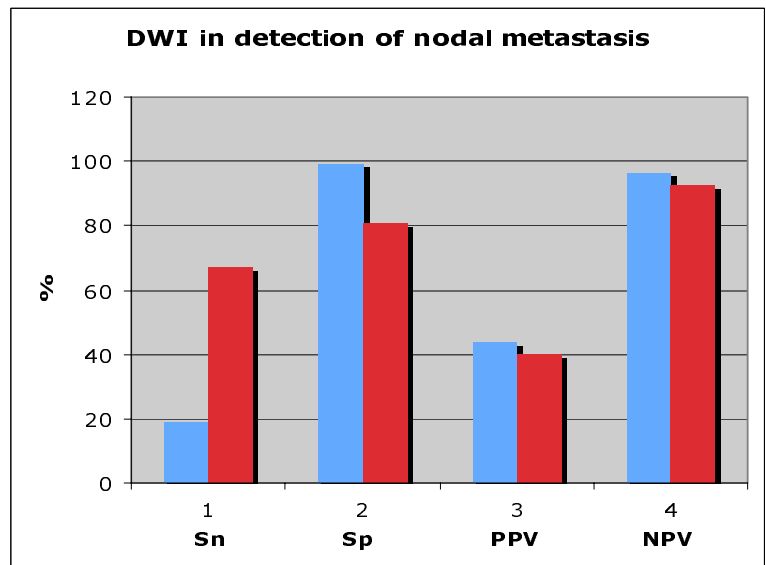


Figure 2

Reference: 1. Naganawa S. Apparent diffusion coefficient in cervical cancer of the uterus: comparison with the normal uterine cervix. Eur Radiol. 2005;15(2)71-8.