Difference of Apparent Diffusion Coefficient with Diffusion Weighted MR Imaging in Esophageal Cancer with different pathological differentiation

N. Wang[1], X. P. Zhang[2], L. TANG[2], Y. S. Sun[2], K. Cao[3]

[1]Radiology, Peking University School of Oncology &Bejing Cancer Hospital, Beijing, China, People's Republic of, [2]Radiology, Peking University School of Oncology & Bejing Cancer Hospita, Beijing, China, People's Republic of, [3]Radiology, Radiology, Peking University School of Oncology &Bejing Cancer Hospital, Beijing, China, People's Republic of

Purpose: To compare the difference of apparent diffusion coefficient (ADC) in esophageal cancer with different pathological type and determine the role of ADCs in differentiating the pathological type of esophageal cancer.

Materials and Method: Thiryt-nine patients included well differentiation squamous carcinoma 7 cases, moderate differentiation squamous carcinoma 16 cases and poor differentiation squamous carcinoma 16 cases, all the patients were examined with single-shot EPI diffusion-weighted MR sequences at 1.5T (GE Healthcare, Waukesha, USA) with an 8-channel body phase-array coil and ASSET technique. multiple signal acquired (2NEX) and sequential breath-hold techniques (20sec, one breath-hold) were employed (TR 2450ms, TE 50.8~67.4ms, FOV 44~48cm, matrix 128x128, slice thickness 7mm, slice gap 0). To calculate the ADCs of esophageal cancer obtained with three motion-probing gradients (b=0 and b=500s/mm^2). To compare the difference of ADC in esophageal cancer with different pathological type grouped by the pathology test after operation or biopsy, The SPSS11.5 was used for data analysis.

Results: The average ADCs of esophageal cancer with well-, moderate-, and poor- differentiated were 2.17±0.88, 2.05 ±0.44 and 2.31±0.71 respectively, which had no significant difference (well differentiation vs. middle differentiation: t=0.386, p=0.712; moderate differentiation vs. poor differentiation, t=-0.378, p=0.719; well differentiation vs. poor differentiation: t=0.481, p=0.638).

Conclusion: The ADCs obtained with DW-MRI in patients with esophageal cancer of various pathological differentiations are not different. It reveals that DW-MRI can not hint the pathological differentiations of esophageal cancer.

Table 1 t test of different pathological type of esophageal squamous cancer

Pathological type	Number of patients	ADC mean value	Standard deviation	t	p
Well differentiation	7	2.17	0.88	0.386	0.712
Moderate differentiation	16	2.05	0.44	-0.378	0.719
Poor differentiation	16	2.31	0.71	0.481	0.638

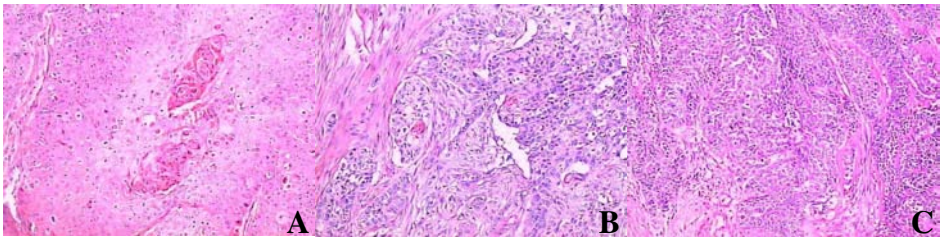

Fig1 A, B and C: pathological images of well, moderate and poor differentiation of esophageal squamous carcinoma

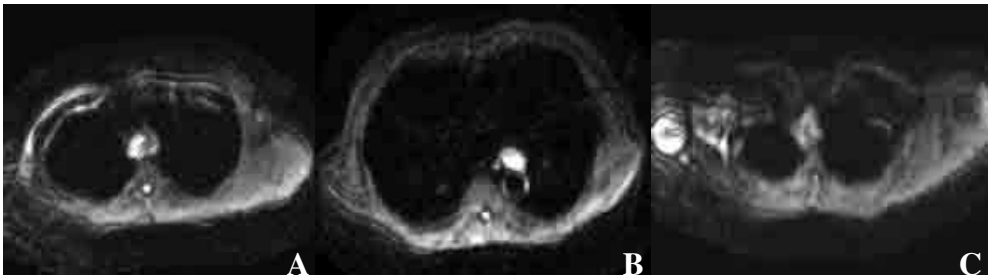

Fig2 A, B and C: DWI images with b value 500s/mm^2 correspond with same image in Fig1