شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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Diffusion-weighted image in correlation with T2 sequence as an imaging biomarker for urinary bladder cancer.

Thesis
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Abstract

Recent functional diagnostic imaging techniques have emphasized the role and importance of MRI in pelvic organs imaging. Functional imaging by means of diffusion-weighted magnetic resonance imaging (DW-MRI) and ADC value are now considered an essential part of the standard imaging protocols for evaluation of the pelvic organs.

DWI depends on the fact that water molecules can diffuse freely in low cellular tissues, while increased cellularity restricts its diffusion, a phenomenon called '*Brownian motion'*. Therefore, in cases of malignant lesions which have high cellularity, water diffusion is restricted and appear as bight lesions, in contrary to most benign tumors which have low cellularity.

In this study, we give an overview of DWI technique, concentrating on its main clinical application in preoperative urinary bladder cancer staging and its correlation to T2 weighted images in order to reach the appropriate management plan.

Key words: urinary bladder carcinoma, urinary bladder carcinoma staging , Diffusion weighted MRI, ADC value.

Lists of abbreviations

1.5/3 T2	1.5 or 3 Tesla
ADC	Apparent Diffusion Coefficient
AJCC	The American Joint Committee on Cancer
AUC	Area under the curve
CaPSURE	Cancer of the Prostate Strategic Urologic Research Endeavor
CI	Confidence interval
CT	Computed Tomography
DCE	Dynamic contrast enhanced
DCE-MRI	Dynamic contrast enhanced magnetic resonance imaging
DWI	Diffusion Weighted Image
DW-MRI	Diffusion weighted magnetic resonance imaging
Fig.	Figure
FOV	Field Of View
HFS	Head First Supine
IVC	Inferior vena cava
LVSI	Lymph Vascular Space Invasion
MALT	mucosa associated lymphoid tissue
MIBC	Muscle invasive bladder carcinoma
mm	millimeter
MRI	Magnetic Resonance
MRI	Magnetic resonance imaging
NMIBC	Non-muscle invasive bladder carcinoma
No.	Number
NPV	Negative predictive value

PGSE	Pulsed Gradient Spin Echo
PPV	Positive predictive value
RF	Radio-Frequency
ROC	Receiver operator curve
SCC	Squamous cell carcinoma
SCM	Squamous cell metaplasia
SE	Spin Echo
SD	Standard deviation
SI	Signal Intensity
T stage	Tumor stage
T1WI	T1 weighted image
T2 WI	T2 weighted image
TCC	Transitional cell carcinoma
TE	Time to Echo
TR	Time to Repetition
TURBT	Transurethral resection of bladder tumor
UCC	Urothelial carcinoma

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