

**Diffusion-weighted imaging complements T2-weighted MRI for tumour response
assessment in squamous anal carcinoma**

Electronic Supplementary Material

Supplemental Table 1. MRI sequences and typical acquisition parameters.

	TR/TE (msec)	Slice thickness (mm)	Interslice gap (mm)	Matrix Size	FOV (cm)	No. of Signals Acquired
Sagittal T2W whole pelvis	4430/100	3	.3	307 x 384	250 x 250	2
Axial T2W whole pelvis	4590/101	5	1.5	307 x 384	300 x 300	1
Small FOV T2W perpendicular and parallel to anal canal	6530/104	3	.3	512 x 512	200 x 200	2
Axial DWI whole pelvis	5900/68	5	1.5	116 x 154	300 x 300	4

Supplemental Table 2. Observer confidence at assessing tumour response. Significant change towards high confidence scores is seen when T2-weighted MRI and DWI are used in conjunction.

	Confidence score	T2*	T2 + DWI*	P-Value
Observer 1	2	2 (2%)	0 (0%)	<0.001
	3	31 (36%)	10 (12%)	
	4	44 (52%)	48 (56%)	
	5	8 (9%)	27 (32%)	
Observer 2	2	14 (16%)	0 (0%)	<0.001
	3	25 (29%)	11 (13%)	
	4	44 (52%)	30 (35%)	
	5	2 (2%)	44 (52%)	
Observer 3	2	10 (12%)	1 (1%)	<0.001
	3	37 (44%)	17 (20%)	
	4	32 (38%)	38 (45%)	
	5	6 (7%)	29 (34%)	
Observer 4	2	6 (7%)	1 (1%)	<0.001
	3	27 (32%)	13 (15%)	
	4	38 (45%)	19 (22%)	
	5	14 (16%)	52 (61%)	
All combined	2	32 (9%)	2 (1%)	<0.001
	3	120 (35%)	51 (15%)	
	4	158 (46%)	135 (40%)	
	5	30 (9%)	152 (45%)	

* Data are number of cases, with percentage of total in parentheses.

Supplemental Table 3. Interobserver agreement for expert and non-expert observers for T2-weighted MRI alone and T2-weighted plus DWI.

Observers	T2 Kappa (95% CI)	T2 + DWI Kappa (95% CI)	Difference # (95% CI)	P-Value
Expert	0.40 (0.23, 0.56)	0.31 (0.08, 0.43)	-0.09 (-0.29, 0.12)	0.40
Non-expert	0.39 (0.23, 0.55)	0.55 (0.40, 0.71)	0.16 (-0.06, 0.38)	0.16
All	0.28 (0.22, 0.35)	0.33 (0.27, 0.40)	0.05 (-0.04, 0.14)	0.27

Difference calculated as value for T2+DWI minus value for T2