

Supplementary

Supplementary Table 1. Individual surgical margin according to comparison with T-stage (unit: cm)

Surgical margin	Overall	T ₁ stage	T ₂ stage	T ₃ stage	T ₄ stage	<i>P</i> -value
Anterior	0.78±0.36	0.75±0.34	0.69±0.41	1.25±0.07	1.00±0.46	0.122
Posterior	0.98±0.73	1.21±0.89	0.76±0.56	1.75±0.64	1.13±1.10	0.082
Superior	0.86±0.41	0.73±0.19	0.80±0.48	1.25±0.35	0.67±0.55	0.342
Inferior	0.65±0.38	0.65±0.34	0.55±0.49	1.05±0.21	0.33±0.21	0.925
Deep	0.60±0.39	0.91±0.34	0.49±0.33	0.90±0.28	0.30±0.26	0.013*
Nearest	0.39±0.24	0.50±0.16	0.22±0.17	0.80±0.14	0.27±0.26	0.012*

**P*<0.05.

Values are presented as mean±standard deviation.

P-value was calculated between early stage (T₁, T₂) and advanced stage (T₃, T₄).

Supplementary Table 2. Individual surgical margin according to comparison with WPOI (unit: cm)

Surgical margin	Overall	Non-aggressive invasion (WPOI 1, 2, 3)	WPOI 4	WPOI 5	<i>P</i> -value
Anterior	0.78±0.36	0.67±0.32	0.88±0.37	0.83±0.42	0.317
Posterior	0.98±0.73	0.72±0.21	0.85±0.56	1.00±0.95	>0.999
Superior	0.86±0.41	0.67±0.28	1.01±0.41	0.74±0.68	0.808
Inferior	0.65±0.38	0.64±0.37	0.61±0.31	0.49±0.62	0.164
Deep	0.60±0.39	0.84±0.37	0.79±0.38	0.53±0.39	0.055
Nearest	0.39±0.24	0.47±0.22	0.40±0.20	0.24±0.28	0.031*

(WPOI: worst pattern of invasion)

**P*<0.05.

Values are presented as mean±standard deviation.

Supplementary Table 3. Cut-off value of surgical margin according to survival and recurrence (unit: cm)

Surgical margin	Survival	Recurrence
Anterior	1.35	0.25 ¹
Posterior	1.25	0.90
Superior	0.85	0.56
Inferior	0.13	0.13
Deep	0.25	0.35

¹ $P=0.022$.