

P254 Impact of pelvic dimensions on anastomotic leak after anterior resection for patients with rectal cancer

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BACKGROUND

• **Anastomotic leak (AL) after surgery for patients with rectal cancer is one of the most serious complications which may lead to higher rates of morbidity and mortality.**

• **Differences in patients’ pelvic dimensions may affect the outcomes of surgery.**

AIM

• **The aim of this study was to evaluate the impact of pelvic dimensions on the risk of AL.**

Table 1. Univariate analysis of risk factors associated with anastomotic leak in rectal cancer patients who underwent anterior resection.

Characteristics	OR (95% CI)	P value
Age at the time of surgery, every 1-yr increase	1.00 (0.98-1.01)	0.727
Gender (male vs. female)	2.60 (1.56-4.36)	<0.001
Smoking (ever vs. never)	1.77 (0.85-3.67)	0.125
Alcohol (ever vs. never)	0.69 (0.16-3.00)	0.619
Significant comorbidities (yes vs. no)	1.07 (0.78-1.47)	0.677
History of abdominal surgery (yes vs. no)	0.71 (0.33-1.52)	0.376
Body mass index, every 1-kg/m ² increase	0.98 (0.93-1.03)	0.420
Preoperative total protein<60g/L (yes vs. no)	0.50 (0.27-0.92)	0.025
Preoperative albumin<35g/L (yes vs. no)	0.35 (0.16-0.78)	0.010
Bowel obstruction (yes vs. no)	1.13 (0.59-2.17)	0.712
Distance of tumor from anal verge, every 1-cm increase	0.94 (0.87-1.01)	0.087
Tumor diameter, every 1-cm increase	1.15 (1.03-1.28)	0.014
Preoperative radiotherapy (yes vs. no)	1.86 (1.12-3.09)	0.017
Preoperative chemotherapy (yes vs. no)	1.11 (0.72-1.71)	0.633
Laparoscopic surgery (yes vs. no)	0.69(0.37-1.28)	0.240
Conversion (yes vs. no)	4.18(2.25-7.76)	0.001
The need for a temporary stoma (yes vs. no)	1.39(0.91-2.12)	0.131
Pathological TNM stage (pTNM3-4 vs. pTNM0-2)	0.98 (0.90-1.07)	0.623
Pelvic inlet	0.96 (0.94-0.98)	<0.001
Interspinous distance	0.96 (0.94-0.98)	<0.001
Pelvic outlet	0.97 (0.95-1.00)	0.043
Intertuberos distance	0.95 (0.93-0.96)	<0.001
Length of sacrum	1.00 (0.98-1.02)	0.983
Depth of the sacral	1.00 (0.96-1.04)	0.963

Table 1

Table 2

Table 2. Multivariate analysis of risk factors associated with anastomotic leak in rectal cancer patients.

Characteristics	Anastomotic Leak		
	OR	95% CI	P value
Multivariate analysis without pelvic dimensions			
Gender	2.35	1.38-4.01	0.002
Preoperative radiotherapy	2.28	1.29-4.04	0.005
Distance of distal dissection edge from anal verge	0.83	0.72-0.97	0.016
Tumor diameter	1.16	1.02-1.31	0.020
Preoperative total protein	0.74	0.34-1.61	0.454
Preoperative albumin	0.33	0.12-0.90	0.030
Conversion	3.27	1.45-7.40	0.004
Multivariate analysis with pelvic dimensions			
Gender	0.87	0.42-1.81	0.707
Preoperative radiotherapy	2.16	1.20-3.90	0.010
Distance of distal dissection edge from anal verge	0.83	0.71-0.97	0.017
Tumor diameter	1.14	1.01-1.30	0.036
Preoperative total protein	0.73	0.33-1.61	0.441
Preoperative albumin	0.47	0.16-1.35	0.159
Conversion	3.11	1.33-7.29	0.009
Pelvic inlet	0.99	0.97-1.01	0.472
Interspinous distance	1.00	0.97-1.04	0.873
Pelvic outlet	1.00	0.97-1.03	0.776
Intertuberos distance	0.95	0.93-0.98	<0.001

Figure 1

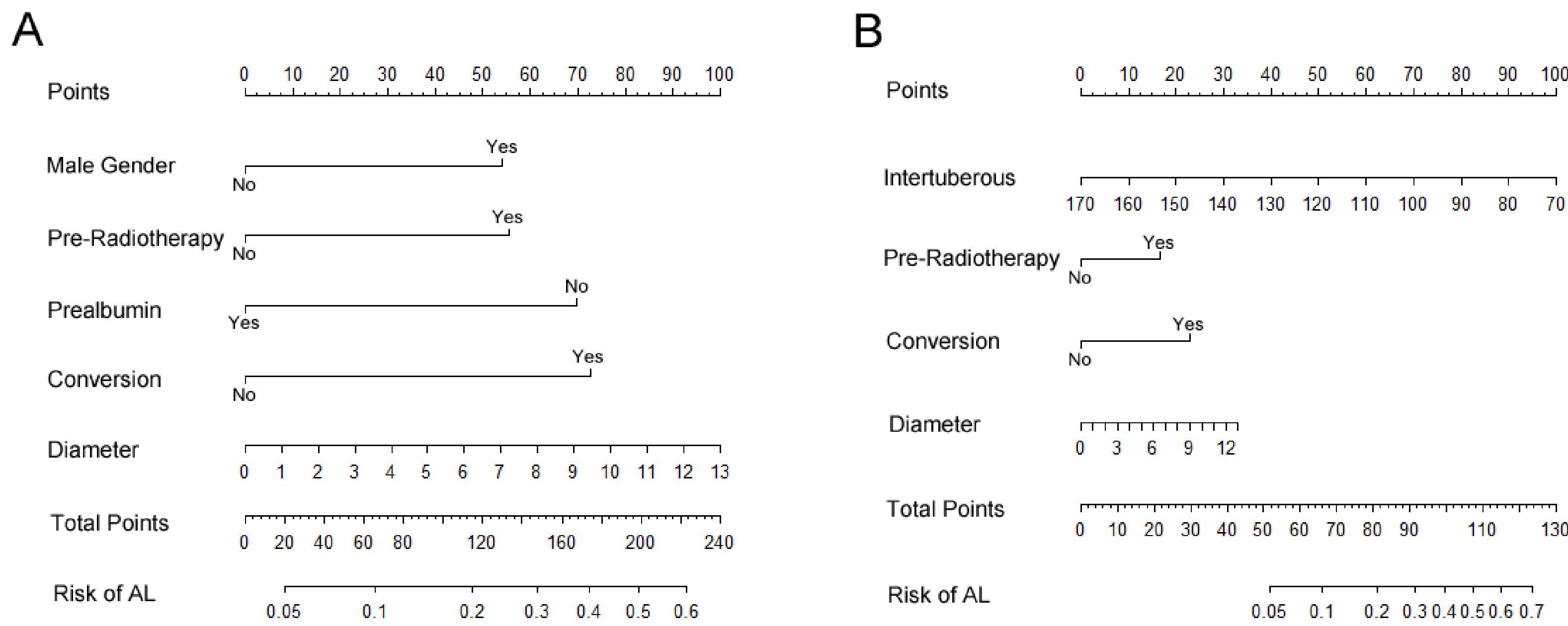
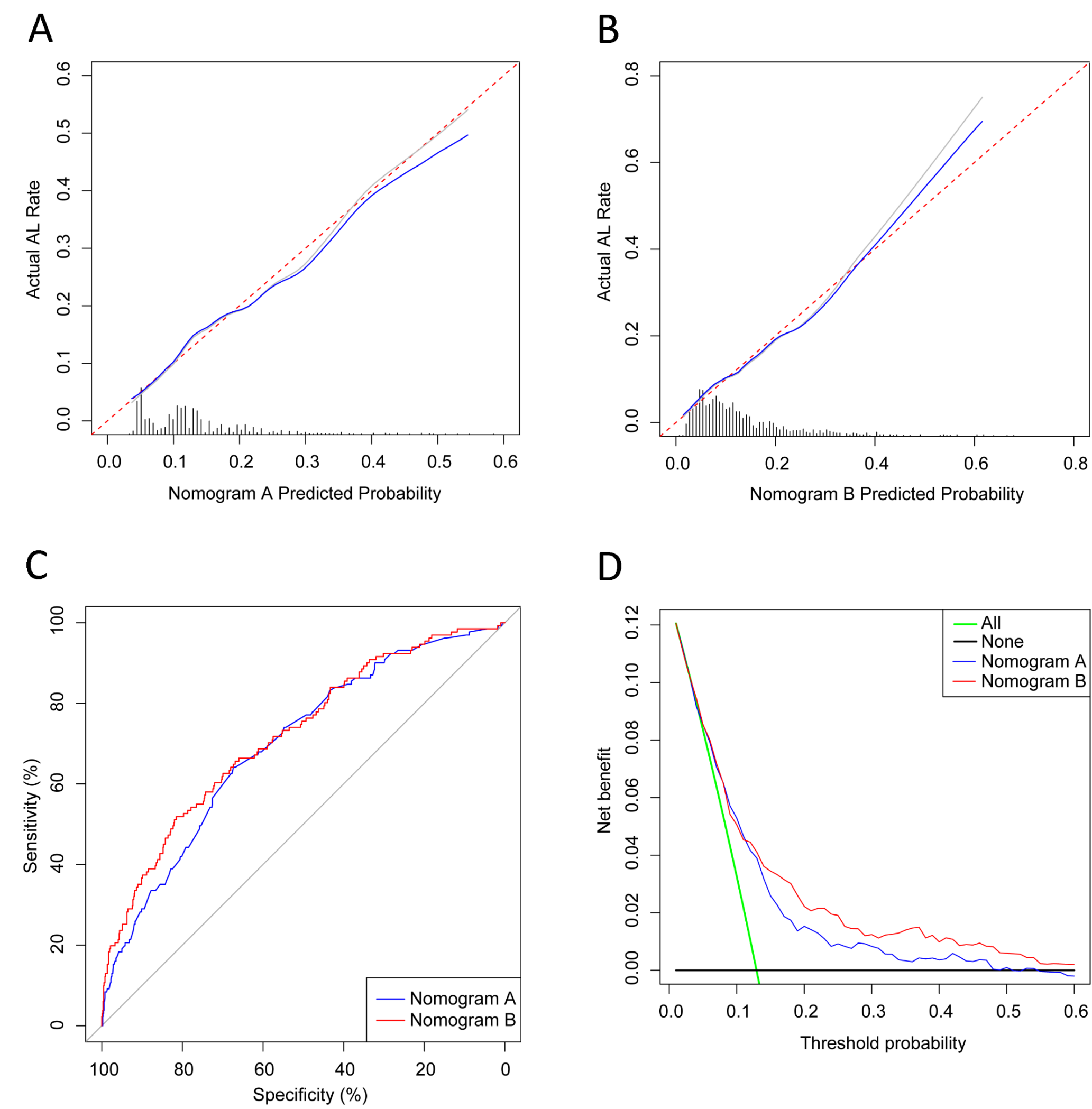


Figure 2



RESULTS

• **A total of 752 patients with rectal cancer, defined as being located at less than 15 cm above the anal verge, undergoing anterior resection at our institution from January 2013 to June 2015 were enrolled.**

• **Univariate analyses showed that pelvic inlet, pelvic outlet, interspinous distance and intertuberos distance were significantly associated with the risk for AL (P< 0.05). Multivariate analysis confirmed intertuberos distance was an independent risk factor for AL (P< 0.001). Significant factors were assembled into the nomogram A and nomogram B (intertuberos distance and factors in nomogram A). The area under curve (AUC) of nomogram B was 0.72 (95% CI, 0.67–0.77), which was higher than the AUC of nomogram A (0.69, [95% CI, 0.63–0.75]) but didn’t reach a statistical significance (p= 0.128). Decision curve supported nomogram B was better than nomogram A.**

CONCLUSION

• **Pelvic dimensions, especially intertuberos distance seemed to be an independent predictor for postoperative AL in RC patients. Intertuberos distance incorporated with preoperative radiotherapy, conversion and tumor diameter in the nomogram might provide a clinical tool for predicting AL.**

KEYWORDS

• **Pelvimetry; Rectal cancer; Anastomotic leakage**

Declaration:
The authors confirm that they have no conflicts of interest in the research.

