Supplementary Materials

Univariate and multivariate analyses of postoperative hospital stay, operation time and blood loss during surgery are shown in Supplemental Tables 1-3. VFA was not significantly associated with length of postoperative hospital stay in multivariate analysis (regression coefficient [β] 0.008, 95% CI -0.010–0.027, P=0.38). However, VFA was an independent predictor of the operating time (β 0.23, 95%CI 0.11–0.35, P<0.001) and amount of blood loss (β 0.43, 95% CI 0.12–0.73, P=0.006).

Supplemental Table 1: Univariate and multivariate analyses of postoperative hospital stay

Variable		Univariate analysis		Multivariate analysis	
		Regression coefficient [β] (day) (95% CI)	P value	Regression coefficient [β] (day) (95% CI)	P value
Visceral fat area	per 1 cm²	0.025 (0.009 – 0.040)	0.002	0.008 (-0.010 – 0.027)	0.38
Operative procedure	TG	2.44 (1.48 – 3.39)	<0.001	2.35 (1.41 – 3.29)	<0.001
Age	per 1 year	0.14 (0.053 - 0.22)	0.0014	0.11 (0.026 – 0 20)	0.011
Surgical approach	open	5.60 (4.18 – 7.03)	0.012	3.65 (1.32 – 6.17)	0.023
	robotic	1.51 (-0.63 – 3.64)	0.17	0.58 (-1.50 – 2.66)	0.59
Sex	male	0.81 (-0.14 – 1.75)	0.093	0.35 (-0.61 – 1.32)	0.47
BMI (kg/m²)	≥25	1.33 (0.27 – 2.39)	0.014	1.05 (-0.15 – 2.24)	0.085
ASA score	≥3	3.10 (-0.03 – 6.23)	0.052	1.97 (-1.14 – 5.09)	0.21
Lymph node dissection	D2	1.55 (-0.25 – 3.35)	0.091	1.13 (-0.82 – 3.08)	0.25
cStage	II	3.26 (0.93 – 5.59)	0.006	1.73 (-0.70 – 4.17)	0.16
	III	3.24 (0.85 - 5.12)	0.007	0.90 (-3.12 – 6.32)	0.54
Serum albumin (g/dl)	≤3.5	2.40 (-0.052 – 4.85)	0.055	1.42 (-1.23 – 4.06)	0.29
Diabetes mellitus	yes	0.47 (-0.91 – 1.86)	0.50	-	-

Variable		Regression coefficient [β] (min) (95% CI)	P value	Regression coefficient [β] (min) (95% CI)	P value
Sarcopenia	yes	0.42 (-0.51 – 1.35)	0.38	-	-
NAC	yes	0.32 (-1.04 – 1.68)	0.64	-	-

BMI: body mass index, ASA: American Society of Anesthesiologists, NAC: neoadjuvant chemotherapy, TG: total gastrectomy

Supplemental Table 2: Univariate and multivariate analyses of operation time

Variable		Univariate analysis		Multivariate analysis	
		Regression coefficient [β] (min) (95% CI)	P value	Regression coefficient [β] (min) (95% CI)	P value
Visceral fat area	per 1 cm^2	0.36 (0.23 – 0.49)	<0.001	0.23 (0.11 – 0.35)	<0.001
Operative procedure	TG	49.6 (42.4 – 56.7)	<0.001	43.7 (37.7 – 49.6)	<0.001
NAC	yes	38.1 (27.0 – 49.1)	<0.001	12.2 (1.5 – 22.8)	0.025
Sex	male	16.3 (8.4 – 24.1)	<0.001	8.5 (2.4 – 14.6)	0.007
BMI (kg/m^2)	≥25	19.1 (10.2 – 27.9)	<0.001	10.8 (3.3 – 18.3)	0.005
Surgical approach	open	-24.2 (-35.8 – -12.7)	0.008	-59.8 (-72.6 – -45.6)	<0.001
	robotic	26.9 (9.6 – 44.3)	0.002	10.5 (-2.7 – 23.6)	0.12
Lymph node dissection	D2	56.4 (41.9 – 70.8)	<0.001	30.1 (17.8 – 42.4)	<0.001
cStage	II	43.5 (24.8 – 62.3)	<0.001	21.9 (6.3 – 37.6)	0.006
	III	78.5 (35.7 – 121.2)	<0.001	38.9 (15.4 – 52.3)	0.004
Serum albumin (g/dl)	≤3.5	22.6 (1.9 – 43.3)	0.033	17.8 (1.5 – 34.1)	0.033
Age	per 1 year	0.050 (-0.66 – 0.76)	0.89	-	-
ASA score	≥3	-15.9 (-42.4 – 10.6	0.24	-	-
Diabetes mellitus	yes	5.8 (-5.9 – 17.5)	0.33	-	-
Sarcopenia	yes	-1.54 (-9.39 – 6.31)	0.70	-	-

Supplemental Table 3: Univariate and multivariate analyses of blood loss during surgery

Variable		Univariate analysis		Multivariate analysis	
		Regression coefficient [β] (ml) (95% CI)	P value	Regression coefficient [β] (ml) (95% CI)	P value
Visceral fat area	per 1 cm²	0.63 (0.31 – 0.95)	<0.001	0.43 (0.12 – 0.73)	0.006
Operative procedure	TG	33.3 (13.3 – 53.3)	0.0038	25.4 (7.5 – 43.2)	0.006
Surgical approach	open	575 (549 - 602)	<0.001	558 (532 – 585)	<0.001
	robotic	194 (153 - 233)	<0.001	182 (142 – 221)	<0.001
Lymph node dissection	D2	54.5 (17.5- 91.5)	0.004	54.9 (18.4 – 91.4)	0.003
Sex	male	19.8 (0.26 – 39.3)	0.047	8.6 (-9.7 – 26.9)	0.35
NAC	yes	29.9 (1.9 – 57.9)	0.037	8.1 (-23.4 – 39.5)	0.61
cStage	II	39.7 (-8.7 – 88.1)	0.11	-23.2 (-69.2 – 22.7)	0.32
	III	61.1 (19.8 – 103.4)	0.012	-14.2 (-48.7 – 30.8)	0.34
Age	per 1 year	-0.060 (-1.80 – 1.68)	0.95	-	-
BMI (kg/m²)	≥25	11.4 (-10.6 – 33.5)	0.31	-	-
ASA score	≥3	10.9 (-54.1 – 75.9)	0.74	-	-
Diabetes mellitus	yes	-6.12 (-34.7 – 22.5)	0.67	-	-
Sarcopenia	yes	-9.3 (-28.5 - 9.9)	0.34	-	-
Serum albumin (g/dl)	≤3.5	22.7 (-28.2 – 73.5)	0.38	-	-

BMI: body mass index, ASA: American Society of Anesthesiologists, NAC: neoadjuvant chemotherapy, TG: total gastrectomy

Supplemental Table 4: Stratified analysis about BMI

BMI<25 (n=435)

		OR (95% CI)	P value
Visceral fat area	per 1 cm^2	1.009 (1.004 – 1.015)	0.001

BMI≥25 (n=131)

		OR (95% CI)	P value
Visceral fat area	per 1 cm^2	1.009 (1.002 – 1.017)	0.016

Supplemental Table 5: Stratified analysis about DM

DM : no (n=498)

		OR (95% CI)	P value
Visceral fat area	per 1 cm^2	1.009 (1.005 – 1.014)	<0.001

DM : yes (n=68)

		OR (95% CI)	P value
Visceral fat area	per 1 cm^2	1.009 (0.91 – 1.077)	0.097

Supplemental Table 6: Relationship between sarcopenic obesity (SO) and infectious complications after laparoscopic total gastrectomy (n=153)

	SO (n=41)	The other (n=112)	P value
Infectious complications	12 (29%)	17 (15%)	0.049

SO are patients with sarcopenia (using Prado's criteria) and obesity (VFA≥100 cm^2). Infectious complications include superficial SSI, abdominal abscess, pancreatic fistula and anastomotic leakage that are grade II or higher using the Clavien-Dindo classification.