TABLE 1 Subgroup analysis of surgical quality in the RAMIE and TLE groups

Characteristics*	Entire study cohort			Propensity-matched cohort	
	RAMIE (n = 50)(%)	TLE (n = 97)(%)	P value	RAMIE (n = 48)(%)	TLE (n = 48)(%)
Operative time, min	231(210-266)	282 (238-324)	<0.001[a]	237(211-269)	271 (232-320)
Thoracic nodes	10.5(7.0-16.0)	10 (6-15)	0.291[a]	10.5(7.0-16.0)	8.5(5.0-14.5)
Total RLN nodes	4.5(2.0-6.3)	3(1-5)	0.003[a]	4.5(2.0-7.0)	2.5(1.0-5.0)
Right RLN nodes	2(1-4)	2(1-3)	0.051[a]	2(1-4)	2(0-3)
Left RLN nodes	1.5(1.0-3.0)	1(0-2)	0.007[a]	2(1-3)	1(0-2)
Abdominal nodes	5(3-8)	5(3-7)	0.951[a]	5(3-9)	4(2-7)

*Categoric data are shown as number (%) and continuous data as mean ± SD or median (interquartile range)
Wilcoxon rank sum test.
MIE, minimally invasive esophagectomy; RAMIE, robot-assisted minimally invasive esophagectomy; TLE thoracolaparoscopic esophagectomy.

ing. This study aims to evaluate the value of CT imaging-based machine learning models for predicting pathologic complete response (pCR) in ESCC patients receiving NCRT and to establish correlations with their underlying biology via radiogenomics analysis.

Methods. We identified 231 eligible patients from two centers. Handcrafted radiomics features (analyzed by PyRadiomics) and deep learning features (analyzed by transfer learning using the convolutional neural network, Xception) were extracted from pretreatment CT images. A handcrafted radiomics model and deep learning model were built with support vector machine. The models were trained in the training cohort (n = 161) and validated in an external testing cohort (n = 70). The radiological model with better performance was incorporated into a nomogram. Pathway enrichment analysis in a subset of the cohort (n = 28) with gene expression profiles revealed the potential biological processes correlated with the radiological prediction.

Results. We constructed a seven-feature handcrafted radiomics model and an eight-feature deep learning model to predict NCRT response. The deep learning model outperformed its counterpart (AUC: 0.76 vs. 0.73; accuracy: 71.4% vs. 65.7%) and was used to establish a nomogram model incorporating cN staging, which showed good discrimination in the testing cohort (C-index = 0.76, accuracy = 72.9%). Radiogenomics analysis illustrated a potential association between the radiological prediction and underlying molecular processes involving multiple factors, including WNT and TGF-□ signaling pathways, the microenvironment, radiation response and mitotic nuclear division.

Conclusion. We developed a CT imaging-based machine learning model that showed satisfactory performance in NCRT response prediction for ESCC patients. Further radiogenomics analysis provided useful insights into the biological mechanisms of therapy resistance in ESCC. These findings could enhance the applications of radiological characteristics in precision oncology and clinical practice.

52 SHORT-TERM OUTCOMES OF RAMIE VERSUS TLE FOR LOCALLY ADVANCED ESOPHAGEAL CANCER AFTER NEOADJUVANT CHEMORADIOTHERAPY: A PROPENSITY SCORE-MATCHED ANALYSIS
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This study aimed to compare the short-term outcomes of esophagectomy (RAMIE) versus thoracolaparoscopic esophagectomy (TLE) for patients undergoing neoadjuvant chemoradiotherapy (nCRT) for locally advanced esophageal cancer in a propensity matched cohort.

Methods. Data for consecutive patients receiving nCRT plus RAMIE or TLE were collected prospectively from February 2016 to December 2019. Baseline characteristics and perioperative outcomes of the RAMIE and TLE groups were retrospectively compared.

Results. After propensity matching, 48 pairs were identified. The conversion rate to open thoracotomy was comparable in RAMIE and TLE (4.2% vs 6.3%, P = 1). Median operative time in RAMIE was significantly shorter than TLE (237 vs 271 min, P < 0.001). Compared with TLE group, the median number of dissected lymph nodes was higher in RAMIE group at the left recurrent laryngeal nerve (RLN) area [2 (1–3) vs 1 (0–2), P = 0.014], total RLN area [4.5 (2.0–7.0) vs 2.5 (1.0–5.0), P = 0.008], and thoracic area [10.5(7.0–16.0) vs 8.5(5.0–14.5), P = 0.049]. There was no significant difference in pneumonia, leakage, and vocal cord paralysis.

Conclusion. Compared to traditional TLE, RAMIE can achieve more lymph nodes yield at the RLN region and shorter operative time for the patients undergoing nCRT with comparable postoperative outcomes.

55 OPTIMAL LYMPH NODE DISSECTION RANGE FOR ESOPHAGOGASTRIC JUNCTION CANCER
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There is no consensus on the mediastinal lymph node dissection range for esophagogastric junction cancer (EGJC).

Methods. We enrolled 113 patients with EGJC (defined by Nishi's classification) who underwent R0 resection between January 2001 and December 2016, focusing on comparisons between squamous cell carcinoma (SCC) and adenocarcinoma (AC).

Results. The characteristics of patients with SCC (n = 53) and AC (n = 55) were as follows: age: 65.4 ± 1.4 and 64.1 ± 1.5 years; male/female: 46/12 and 48/7; preoperative treatment (none/NAC/NACRT): 29/19/10 and 53/2/0; surgical method (subtotal esophagectomy/lower esophagectomy and gastrectomy): 39/19 and 34/21; pStage (I/II/III): 15/14/29 and 13/10/32, respectively. Esophageal invasion (EI) exceeding 20 mm was associated with an increased incidence of metastasis to the upper and middle mediastinal LN in patients with SCC and AC. However, for patients with SCC, the upper/middle mediastinal LN dissection effect index was 6.9/6.9 compared with 0/0 for AC patients.

Conclusion. In patients with EI exceeding 20 mm, esophagectomy with lymphadenectomy up to the upper mediastinum should be performed owing to the high incidence of upper and middle mediastinal LNM. However, the dissection effect is very poor in patients with AC; therefore, multidisciplinary treatment should be considered for these patients.