Peer Review File

Article Information: https://dx.doi.org/10.21037/jgo-22-985

Reviewer A

Comment 1: Hematogenous metastases other than liver, bone, lung, and brain were more frequent in the TD resected than in the TD preserved group. Please provide detailed information on where the other organs are.

Reply 1: In one-year follow-up, we concluded that liver, bone, lung and brain were susceptible to metastases in ESCC patients. Meanwhile, in TD-resected group, we also found some metastases in other organs including pancreas (n=1), peritoneum(n=1), alveolar ridge(n=1), pleura(n=1), kidney(n=1) and adrenal(n=1).

Comment 2: What was the association between TD-LN metastasis and the total metastatic lymph node number? Were there any patients with TD-LN metastasis alone? Please compare the number of metastatic lymph nodes between patients with and without TD-LN metastasis in the TD resected group.

Reply 2: Mediastinal thoracic duct lymph nodes (TD-LNs) lie within the adipose and connective tissue between the descending aorta and azygos vein. The number of metastatic TD-LN was included in total metastatic lymph node number. After thoroughly checking the raw data, we did not find any patient with TD-LN metastasis alone.

In the TD resected group, there were 8 patients with TD-LN metastasis (1.38±0.69) and 65 patients without TD-LN metastasis, respectively. The number of metastatic lymph nodes in patients with and without TD-LN metastasis was (6.75±3.53) and (1.77±3.26).

Comment 3: The authors have not retrieved an essential reference recently published. Please cite 'Prognosis of patients with esophageal carcinoma following routine thoracic duct resection: A propensity-matched analysis of 12,237 patients based on the Comprehensive Registry of Esophageal Cancer in Japan (Ann Surg 2021 Dec 14, DOI: 10.1097/SLA.0000000000005340).

Reply 3: The reference mentioned has been added in the revised manuscript.

Reviewer B

Comment 1: The results of this smaller, monocentric study are in conflict with larger, multicenter studies (Tanaka et al.) that show that en-bloc thoracic duct (TD) dissection improves oncological outcomes. The follow-up is too short to make definite conclusions. No sufficient explanation is given that the robotic approach has a role in the increased distant metastasis rate. No multivariate analysis was performed to evaluate dependence of the results to stage etc.

Reply 1: Our study had some limitations, including its small volume of samples, monocentric and the follow-up period was too short to reach a significant end point. Similar study often produced different or even opposite research results, despite the limitations in our study, we did analyze a lot of factors to arrive at this result which was consistent with a large-scale multicenter cohort study (Ann Surg 2021 Dec 14, DOI: 10.1097/SLA.0000000000005340) suggested that TD resection can obtain more positive lymph nodes, but it may lead to worse long-term survival and more distant

organ metastasis.
We did not compare the distant metastasis rate among different surgical approaches, our study revealed that distant metastasis rate was higher in the RAE-TD resected group compared to RAE-TD preserved group and the possible explanation could be associated with relevant immune system damage.
Large scale, multicenter study and multivariate analysis will be performed in our following study.

Commment 2: There is no data to support the conclusion that the immune system is involved. This is speculative.
Reply 2: According to the studies from Zilversmit DB, Wasmuth-Pietzuch A and Cavriani G, the TD is indispensable in immune function and nutrition circulation, as it is the largest lymphatic vessel and drains about 75% of the lymph, with rich ingested fats, proteins, T lymphocytes, and various immune components; thus, the ligation or resection of the TD may result in hemodynamic disturbances and malnutrition. The TD also lets intestinal chyle flow into the venous system, and the continued interruption of chyle flow can lead to immunosuppression and impaired B-lymphocyte–mediated immune function, which may worsen the outcomes of TD-resected patients.

Comment 3: Also for adenocarcinoma literature exits that shows improved oncological outcome in en bloc TD resection (Ann Thorac Surg 2021;111:1133-40)
Reply 3: Different pathological types may yield different prognosis. Esophageal adenocarcinoma is more common in the lower esophagus, tumor is closer to the cisterna chyli anatomically and the probability of tumor metastasis through the thoracic duct is increased and it may be one of the reasons about the improved oncological outcome in en bloc TD resection.

Reviewer C
Comment1: The authors Li, Li, Yang, and Li have conducted a longitudinal study of the long term effects of thoracic duct resection during a three-field esophagectomy and correlated it with the lymph node yield, short and long term survival as well recurrence free survival. Unfortunately, the study remains too small for the conjecture that is offered by the authors. Although there is a numerically small, and statistically significant increase in the lymph node yield, this does not influence the positivity of the lymph nodes therefore the clinical significance of the increase in the harvested numbers of lymph nodes is not clear. The patters of recurrence demonstrated by the authors are too small to identify a difference in survival. Furthermore, the authors fail to clearly explain the higher rate of distant metastases in the thoracic duct resection group.
Reply 1: We are still in the exploratory stage of robot-assisted esophageal cancer surgery and the results we acquired were based on our recent findings. The small scale and short follow-up period restrained our study significance. As for the higher rate of distant metastases in the thoracic duct resection group, we believed that after thoracic duct resection, humoral immunity is impaired which may lead to more distant organ metastasis.
Clinical significance of thoracic duct resection in esophageal cancer surgery required higher level of evidence-based basis and more large scale, multicenter studies. Our study was the first step taken by our team on this topic and we will enrich our study by enrolling more medical centers and expanding sample size.