The author reported no conflicts of interest.

The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.



REPLY FROM AUTHORS: LEAKAGE OF CERVICAL ANASTOMOSIS AFTER ESOPHAGECTOMY: INSIGHTS OF LOCAL TISSUE PERFUSION

## **Reply to the Editor:**

We appreciated the comments from Zhang and colleagues,<sup>1</sup> who pointed out the interference of cervical esophagus mobilization related to anastomotic leakage after cervical anastomosis. In our view, some issues might interfere with that conclusion: (1) The distribution of direct vessels to the esophagus according to topography is heterogeneous, and are much more intense in the upper part of the esophagus<sup>2</sup>; (2) we systematically obtain 5 to 6 cm of esophageal remnant stump due to oncologic proximal margin, anatomically favorable to the lateral–lateral stapled anastomosis, and a favorable route to cervical incision could be made<sup>3</sup> if there is any leakage; and (3) the final topography of the anastomosis is up to the manubrium sternal. Therefore, we do not maintain fibrous tissue around the remnant esophagus in our institution.<sup>3</sup>

Our previous study discussed the improvement of tissue perfusion after the supercharged cervical anastomosis for esophagectomy (SAFE) procedure and focused mainly on the area close to the lateral–lateral esophagogastric anastomosis. Since the extension of the esophageal stump was practically identical, we did not find any differences in perfusion of the esophageal stump mobilization even after reviewing the angiography with the SPY device (SPY Elite System; LifeCell Corp) before and after supercharging.

Technically, their hypothesis of the relationship between local differences of perfusion in residual esophagus and the occurrence of cervical anastomotic leakage is challenging to prove, mainly because of the following: (1) apparently, there is no considerable difference of perfusion captured by the SPY device. (2) The number of cases to obtain a substantial difference is huge with an equal technique in a high-volume center with a good quality and controlled methodology.<sup>4</sup> (3) The quantitative assessment of perfusion is still unclear. Most of the available devices have been improved, but they are subject to many biases, such as intraoperative interference, medications, clinical conditions, and comorbidities.<sup>4,5</sup> (4) The interference of perioperative treatment, such as chemotherapy and radiotherapy, in tissue healing is under debate, which could be a factor that interferes even more in the results.<sup>4</sup> To conclude, we really appreciate all comments regarding our previous study, and hopefully we will move on to a randomized controlled trial very soon.

> Flavio Roberto Takeda, MD, PhD Digestive Surgery Division Department of Gastroenterology Hospital das Clínicas HCFMUSP Faculdade de Medicina Universidade de São Paulo São Paulo, Brazil

## References

- Zhang G, Yang H, Li X, Li J. Length of "naked" residual esophagus and correlation with the occurrence of cervical anastomotic leakage after esophagectomy. J *Thorac Cardiovasc Surg Open*. 2022;10:426-7.
- Cuesta MA, van der Wielen N, Weijs TJ, Bleys RL, Gisbertz SS, van Duijvendijk P, et al. Surgical anatomy of the supracarinal esophagus based on a minimally invasive approach: vascular and nervous anatomy and technical steps to resection and lymphadenectomy. *Surg Endosc.* 2017;31:1863-70. https://doi. org/10.1007/s00464-016-5186-1
- Takeda FR, Sallum RAA, Fernandes FA, Cecconello I. McKeown—cervical anastomosis in minimally invasive esophagectomy. *Ann Esophagus*. 2021 [Epub ahead of print].
- Takeda FR, Cecconello I. The complex assessment of anastomosis' perfusion following esophagectomy: set in stone? *Eur J Surg Oncol.* 2021;47:1491-2. https://doi.org/10.1016/j.ejso.2020.11.010
- Takeda FR, Sallum RA, Cecconello I, Nahas SC. Cervical esophagogastric anastomosis fistula following esophagectomy: a problem with no solution? Arq Bras Cir Dig. 2022;34:e1619. https://doi.org/10.1590/0102-672020210002e1619

## https://doi.org/10.1016/j.xjon.2022.04.036

Copyright © 2022 The Author(s). Published by Elsevier Inc. on behalf of The American Association for Thoracic Surgery. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).