How should we define the no. 3b lesser curvature lymph node?

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Sir,

We read with great interest the article by Haruta et al. [1] reviewing data from 385 patients with gastric cancers, located mainly in the upper third of the stomach, to precisely evaluate lesser curvature node metastasis incidence according to the lymph-node-based (no. 3a and no. 3b) subclassification. Their results confirmed a very low incidence of no. 3b metastasis and the limited therapeutic value of dissecting this node, even for advanced tumors, when the cancerous lesions were confined to the upper third of the stomach. Despite the optimal cutoff value for this therapeutic index to be applicable to estimation of the benefits of nodal dissection being unknown, their results and conclusion appear to be valid and authentic. To our knowledge, theirs is the first report showing the respective incidences of metastasis at nodes no. 3a and no. 3b, and we greatly appreciate their study for providing detailed information on a large cohort.

Nevertheless, we have some methodological concerns, especially as regards the no. 3 vasculature, and defining the borderline between no. 3a and no. 3b. In the current classification system of the Japanese Gastric Cancer Association [2], the no. 3 station is subclassified into no. 3a [along the left gastric artery (LGA)] and no. 3b [along the right gastric artery (RGA)]. Therefore, these

stations can be distinguished by their associated vascular anatomy. The LGA–RGA borderline is usually clear at the anterior gastric surface, as shown in Figs. 2 and 3 in their report. We experienced one patient with no anastomosis between the LGA and the RGA, a reminder that the embryological origins of these two arteries are different. The LGA and RGA are derived from the dorsal and the ventral mesogastrium respectively. In the vast majority of cases, however, a posterior branch of the LGA anastomoses with the RGA after running along the lesser curvature, with branches to the posterior surface of the stomach. This vascular system was clearly described in an old textbook on vascular anatomy [3], and its existence is also supported by the clinical use of RGA embolization via the LGA [4], wherein the anastomosis between the LGA and the RGA was absent in only one of 88 patients. Thus, in most circumstances, there is no landmark allowing no. 3a to be distinguished from no. 3b on the posterior side. The authors scrutinized the entry point of the final branch of the RGA. We suggest that the authors may have examined the anterior subdivision of the RGA, and that “anterior” no. 3b was defined according to the anterior vascular system. In practice, it is rarely feasible to determine posterior no. 3b solely on the basis of its definition. This lymph node might, in fact, correspond to an identical area just opposite the anterior no. 3b.

In the light of the vascular system differences, lymphatic flow might differ between the anterior and posterior surfaces of the lesser curvature. Tumor location (i.e., anterior or posterior wall dominant) can potentially provide additional perspectives to consider when performing proximal gastrectomy for advanced gastric cancer in the upper third of the stomach.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Human rights statement and informed consent This article does not contain any studies with human or animal subjects performed by any of the authors.

References

1. Haruta S, Shinohara H, Hosogi H, et al. Proximal gastrectomy with exclusion of no. 3b lesser curvature lymph node dissection could be indicated for patients with advanced upper-third gastric cancer. *Gastric Cancer*. 2016. doi:[10.1007/s10120-016-0624-2](https://doi.org/10.1007/s10120-016-0624-2).
2. Japanese Gastric Cancer Association. Japanese classification of gastric carcinoma: 3rd English edition. *Gastric Cancer*. 2011;14:101–12.
3. Michels NA. Blood supply and anatomy of the upper abdominal organs with a descriptive atlas. Philadelphia: Lippincott; 1955.
4. Yamagami T, Kato T, Iida S, et al. Efficacy of the left gastric artery as a route for catheterization of the right gastric artery. *AJR Am J Roentgenol*. 2005;184:220–4.