Editorial

Securing enteral nutrition with routine feeding jejunostomy after esophagectomy: lost effort or a life saver?

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Surgical resection is the mainstay of curative treatment in patients with esophageal cancer, accompanied with neoadjuvant treatment in locally advanced disease (1,2). Patients commonly present with weight loss and malnutrition at diagnosis and after treatment (3). Malnutrition is associated with an increased risk of postoperative complications and reoperations, affecting also long-term survival (4,5). Esophagectomy is an extensive operation with high complication rates (6), which can prevent oral nutrition postoperatively. Furthermore, altered anatomy and performed bilateral vagotomy can cause nutritional problems postoperatively. It is, therefore, considered important to secure early nutrition after surgery (7). The insertion of a feeding jejunostomy during esophagectomy is a standard procedure in many centers (7,8). No strong scientific evidence support, however, this practice. Some studies suggest a decreased risk of weight loss with jejunostomy (9,10) without an effect on the length of stay, readmissions or complications (7). On the other hand, feeding jejunostomy itself can cause complications, although major complications have been reported only in 0–2.9% of patients (7). In a recent population-based study, all-cause mortality was similar in patients with and without feeding jejunostomy (3).

In a study from Iwate Medical University Hospital, Akiyama *et al.* reported results of 76 consecutive patients with esophageal cancer who were treated with esophagectomy between 2014 and 2017 (11). Of these patients, 33 received jejunostomy and 43 did not. Jejunostomy was used during earlier time period (from May 2014 to September 2015). They reported statistically similar postoperative morbidity with and without jejunostomy (30.3% *vs.* 44.2%, P=0.217). Incidence of bowel obstruction was higher with jejunostomy (9.1% *vs.* 0%, P=0.044). They conclude that routine feeding jejunostomy may not be necessary for all patients undergoing esophagectomy.

The authors should be commended for this report and their efforts on this unsolved clinical problem. Still the paper contains some important limitations.

First, the study is retrospective and patients receiving feeding jejunostomy were operated during earlier time period. As the authors state in their discussions, they have introduced an enhanced recovery protocol during the study period resulting with improved performance status in patients operated during latter period. Also previously shown, esophagectomy is one of the most technically challenging surgical procedures with long learning curves (12). Therefore, comparison over time can cause serious confounding. The authors also report positive findings with significantly less weight-loss at postoperative day 14 in patients with feeding jejunostomy, suggesting at least some positive effects.

Secondly and more importantly, the statistical power is a major limitation in single-center, and even in population-based studies regarding rare outcomes or small expected clinical effects. In the previous benchmark study, the rate of serious complications after esophagectomy was suggested to be ≤30.8% and 90-day mortality ≤4.6%. If we for example hypothesize that feeding jejunostomy could reduce serious complications from 30% to 25%, and 90-day

mortality from 4.6% to 3.8%, this hypothesized reduction is as much as 17% and can, without doubt, be considered as a clinically significant difference. Still with difference of this magnitude, we would need a trial including 1,251 patients per group in case of complications and a staggering 9,868 patients per group in case of 90-day mortality (when using traditional alpha 0.05 and power 80% in sample size calculation)! Therefore, we can say that the study is underpowered considering morbidity rates. Instead, results regarding postoperative weight loss should be given more emphasis.

Thirdly, in centers with completed learning curve and routine use of feeding jejunostomy, complications are rare (7,8). For example in our center, 82 minimally invasive esophagectomies including feeding jejunostomy insertion to all patients, we reported overall complication rate of 45.1% and major complication rate of 6.1%, none of which were related to jejunostomy (8). On our clinical experience, securing the enteral feeding with jejunostomy becomes extremely important when serious complications occur and oral nutrition is impossible. With a low anastomotic leak rate, such as 3.7% in our study, the need for prolonged enteral feeding is, however, rare (8). These complications occur more often in high-risk patients and, therefore, instead of a routine use, jejunostomy could be placed selectively, as well.

Overall, we appreciate the study by Akiyama *et al.* of important addition to the literature on jejunostomy. Their cautious conclusion "*…results suggest that routine feeding jejunostomy may not be necessary for all patients undergoing esophagectomy*." is easy to agree with. Based on previous literature, this could however be continued with "*Feeding jejunostomy is a safe procedure securing enteral nutrition route and reducing postoperative weight loss after esophagectomy*."

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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