

The ongoing debate regarding optimal nutritional routes following esophagectomy

Ariel W. Knight, Shanda H. Blackmon

Division of General Thoracic Surgery, Department of Surgery, Mayo Clinic, Rochester, Minnesota, USA

Correspondence to: Shanda H. Blackmon, M.D., M.P.H., FACS. Division of General Thoracic Surgery, Mayo Clinic, 200 First Street, SW, Rochester, MN 55905, USA. Email: blackmon.shanda@mayo.edu.

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A significant amount of debate remains regarding optimal post-esophagectomy nutrition. It is well established that enteral nutrition is associated with fewer complications compared to parenteral nutrition, and thus feeding is typically initiated distal to the anastomosis, either via jejunostomy or nasojejunal tube (1,2). It is also common practice to keep esophagectomy patients nil per os for a period of several days to theoretically avoid anastomotic leak and aspiration pneumonia. However, there is no consensus regarding the optimal timing or route of enteral nutrition after esophagectomy.

Randomized studies of other gastrointestinal surgical patients have demonstrated that immediate postoperative oral feeding is associated with decreased incidence of complications, including ileus and anastomotic leak (3,4). Given the increased morbidity and mortality of esophagectomy relative to other gastrointestinal resections, there has been hesitance amongst thoracic surgeons to adopt this practice. Accordingly, the literature regarding oral and enteral feeding following esophagectomy is relatively inconclusive. The overwhelming majority of studies examine small, underpowered patient cohorts, and do not demonstrate consistent results.

Regarding the route of nutrition, enteral nutrition is clearly preferred over parenteral nutrition, and is associated with lower rates of postoperative weight loss, decreased incidence of wound infections and pneumonia, and shorter length of hospital stay (1,2). However, it has also been shown that supplemental parenteral nutrition given to compensate for caloric deficits in post-esophagectomy enteral feeding better preserves total body weight and fat-free body mass, and also improves patients' quality of life

postoperatively (5). Further complicating this debate is the lack of conclusion on the optimal route for enteral nutrition. Some studies suggest that there is no clear benefit of either jejunostomy or nasojejunal feeding over the other in regards to postoperative complications (6). Other literature still suggests that nasoenteral tubes themselves may contribute to increased incidence of postoperative pulmonary complications compared to retrograde jejunogastric conduit decompression (7). Unfortunately this particular enteral nutrition route has only been recently reported by one surgical group, and has not been further studied or recreated in another environment.

Regarding the timing of post-esophagectomy nutrition, however, there are widely varying results without a clear conclusion. Some authors have demonstrated a benefit with initiating enteral feedings within 48–72 hours of esophagectomy, citing shorter duration of postoperative SIRS response, higher caloric intake, earlier liberation from mechanical ventilation, earlier return of bowel function, and shorter length of hospital stay (8,9). However, there is conflicting data regarding its influence on anastomotic leak, with some reported significantly higher rates with early enteral nutrition, which is attributed to residual effects of neoadjuvant therapy (9). There is also conflicting data, with studies showing both significantly decreased and increased incidence of postoperative pneumonia with early initiation of enteral nutrition (8,10). Other studies still cannot demonstrate any clear benefit of or contraindication to early enteral nutrition following esophagectomy (10,11).

Expectedly, studies focusing on both the route and timing of post-esophagectomy nutrition have equally mixed results. Regarding early oral nutrition following esophagectomy,

a handful of authors have demonstrated that it is both safe and effective. Early oral nutrition following esophagectomy has been associated with significantly earlier return of bowel function, earlier advancement from a liquid to a soft diet, and shorter length of hospital stay without increased incidence of anastomotic leak or pneumonia (6,12). However, other studies have compared oral intake delayed for a few days versus four weeks, and demonstrated a significantly lower incidence of anastomotic leak with a longer delay (13).

However, the majority of these studies have focused on patients with earlier stage squamous cell carcinoma of the esophagus who are otherwise relatively healthy and have often not undergone any neoadjuvant therapy. As such, they reflect neither the typical Western esophageal cancer patient nor the cohort studied by Weijs *et al.* (14). Their current study differs from other prior investigations in that the majority of their patients had locally advanced esophageal adenocarcinoma and underwent neoadjuvant chemoradiotherapy instead of proceeding directly to resection. They also did not exclude patients based upon pre-existing medical comorbidities. As such, it is encouraging that they were able to demonstrate that immediate oral intake is not only safe, but also effective in significantly reducing both ICU and overall length of hospital admission. Their results also trended toward a decreased incidence of both anastomotic leak and pneumonia in patients receiving immediate oral intake, and perhaps these results would have reached statistical significance had their cohort been larger. However, as with other studies focusing on route or timing of post-esophagectomy nutrition, the reproducibility of these results is questionable not only because of the widely varying conclusions in the current literature, but also because their minimally invasive approach to an Ivor Lewis esophagectomy is not routinely pursued by most thoracic surgeons, even at high volume, tertiary care centers. Notably, Weijs *et al.* highlight the fact that immediate oral feeding following esophagectomy is unlikely to provide sufficient caloric intake on its own, as over 30% of their patients still required supplemental tube feeds postoperatively. However, they impressively demonstrated the safety and feasibility of early oral nutrition following esophagectomy in medically complex patients with locally advanced esophageal adenocarcinoma who had completed neoadjuvant treatment.

In conclusion, it remains clear that further, larger scale, randomized control trials are necessary to further determine

the evolving role of immediate oral feeds with or without supplemental enteral or parenteral nutrition following esophagectomy.

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Footnote

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