

Anastomotic leak: an early complication with potentially long-term consequences

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Significant improvements in surgical techniques and postoperative care have led to a reduction in morbidity and mortality associated with esophagectomy (1). Nevertheless, anastomotic leak remains the most feared complication and represents the Achilles' heel of esophageal resection. The overall risk of developing an anastomotic leak is about 10%, with significant higher incidence for cervical anastomosis compared to intrathoracic (2). The impact on overall post-operative morbidity is significant, with increased hospital stay, need for re-operation, re-admission and 30-day mortality (3). The interesting question that Markar and colleagues (4) addressed with this study is the influence of an anastomotic leak on the long-term survival. Previous studies have analyzed the relationship between anastomotic leak and the risk of impaired oncologic outcomes with conflicting results. Escofet *et al.* (5) analyzed 240 patients who underwent esophagectomy from a regional cancer network in UK and found that long-term survival was not affected by anastomotic leak. Similar findings were reported by Hii and colleagues (6) in a series of 618 patients with no effect of postoperative complications on disease-specific survival. Xia *et al.* (7) also reported that major perioperative morbidity after esophagectomy did not have a negative impact on long-term survival. On the other hand, Rutegård and colleagues (8) showed that the occurrence of surgical complications was an independent predictor factor for poorer long-term survival in patients undergoing esophagectomy for esophageal cancer. Concordantly, Andreou *et al.* (9) stated that anastomotic leak following resection for esophageal cancer had a negative prognostic impact on long-term survival, independent from tumor stage. The problem with these studies is the lack of

standardization regarding the definition of anastomotic leak. Recently, the Esophagectomy Complications Consensus Group (ECCG) has defined anastomotic leaks as full-thickness defects involving the oesophagus, anastomosis, staple line or conduit, irrespective of the presentation or method of identification (10). In this classification, leaks are divided into three types based on management strategy. Type 1 leaks require no change in therapy, are treated medically or with dietary modification. Type 2 leaks require interventional but not surgical therapy (interventional radiology drain, stent, etc.) and type 3 leaks require surgical intervention. A standardized widely adopted system to record this type of complication is of great value and will help future studies to homogeneously report esophageal surgery morbidity.

Markar and colleagues utilized a multicenter database from thirty university hospitals and included 2,439 patients who underwent surgical resection for esophageal cancer. The authors defined severe anastomotic leak as a symptomatic disruption of the intrathoracic anastomosis, classified as grade III or IV according to the Clavien-Dindo classification and reported an overall incidence of 8.5%. This well designed study demonstrated that severe anastomotic leak after surgical resection for esophageal cancer was associated with poor overall and disease-specific survivals and an increase in overall, locoregional, and "mixed" recurrence but not systemic spread. Interestingly, the relative reduction in survival associated with anastomotic leak was seen within 12 months from surgery. The authors' hypothesis that anastomotic leak favors locoregional recurrence, by allowing direct spillage of viable esophageal cancer cells into a "favorable" medium for growth, is interesting and provocative and perhaps worth

further investigation. Nevertheless a simpler explanation of early recurrence in patients with anastomotic leaks may be related to the inability of these patients to receive adjuvant therapy. Interestingly, the patients who had the highest impairment in survival after a leak were those with stage III disease and patients with anastomotic leak were less likely to receive adjuvant treatment compared to those with no leak (11.5% *vs.* 21.6% respectively, $P < 0.001$). Although the benefit of adjuvant chemotherapy is still controversial (11,12), not adjusting for the unequal distribution of patients who received adjuvant therapy may have affected their results.

The central message of this paper, i.e., surgical morbidity does not only affect perioperative outcomes but also oncologic prognosis, underlines the importance of good results after esophagectomy. In order to change the skepticism towards esophagectomy and remain competitive with other treatment modalities, optimal outcomes after esophagectomy are essential.

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Footnote

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