See Article page 89.

Commentary: Complicated complications—making lemonade from lemons

Matthew L. Inra, MD, and
Richard S. Lazzaro, MD, FACS

Matthew L. Inra, MD, and Richard S. Lazzaro, MD, FACS

In this issue of *JTCVS Techniques*, Watkins and colleagues¹ describe a traumatic diaphragmatic hernia and fecopneumothorax from bowel perforation presenting 4 years after minimally invasive esophagectomy (MIE). The patient had a “sentinel” presentation to the emergency department with shoulder pain: “a chest x-ray (CXR) and shoulder film was read as “normal.” Retrosternal air was mischaracterized as her gastric conduit.”¹ The shoulder pain was attributed to arthritis, the patient was discharged from the emergency room, and subsequently presented 3 days later with a surgical emergency to be saved by great physicians and great teamwork. There is much to learn from this rare complication as the Monday morning quarterback.

First, unexpected operative steps can lead to unexpected complications. The possible complications of esophagectomy—chylothorax, anastomotic leak, and anastomotic stricture, to name a few—are well described,² and knowing how they occur allows us to perform the best operation possible to prevent them. Liver resection was an unexpected component of the MIE, adding a new step to the operation with its own associated short- and long-term morbidity—biloma, and injury to the diaphragm while dividing the triangular ligament, respectively. Additionally, there are multiple techniques for esophagectomy, each with unique complications.

From the Department of Cardiovascular and Thoracic Surgery, Northwell Health Lenox Hill Hospital, New York, NY; and Donald and Barbara Zucker School of Medicine at Hofstra Northwell, Hempstead, NY.

Disclosures: The authors 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.

Received for publication Nov 6, 2021; revisions received Nov 6, 2021; accepted for publication Nov 12, 2021; available ahead of print Nov 17, 2021.

Address for reprints: Richard S. Lazzaro, MD, FACS, 130 East 77th St 4th Floor – Black Hall, New York, NY 10075 (E-mail: rlazzaro@northwell.edu).

JTCVS Techniques 2022;11:92-3

2666-2507

Copyright © 2021 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/>).

<https://doi.org/10.1016/j.jtc.2021.11.012>

CENTRAL MESSAGE

Effective communication enhances recognition of postoperative complications, which inevitably occur. Patient-centric goals supplemented by good judgement serve our patients best.

Benjamin and colleagues³ reported that diaphragmatic hernia might be more common after MIE than open esophagectomy. So as we perform different steps and use different techniques, we must be aware of potential consequences.

Next, if symptoms do not make sense in a postoperative patient, expand the differential diagnosis. The phrase “when you hear hoofbeats, think horses, not zebras” is attributed to Theodore Woodward, MD, a charter member of the Infectious Diseases Society of America.⁴ This maxim is told to all medical students as we learn how to develop a differential diagnosis. Esophagectomy patients, however, are not straightforward postoperative patients, and their postoperative issues might require broader differentials if the diagnosis is not readily apparent. It is important always to consider our procedures as the cause of postoperative concerns before we attribute them to another cause—even if the procedure was remote. Because common problems present commonly, we should rule out the horses first, but when we perform complex operations, like MIE, we must think about the zebras as well.

Last, and most important, esophageal cancer care is multidisciplinary and communication is crucial, pre-, peri-, and postoperatively. There was a breakdown in communication between radiology, the emergency department, and the surgical team, and as George Bernard Shaw said, “the single biggest problem in communication... is

the illusion that it has taken place.” Interpreting radiographic studies is extremely important in the postoperative care of surgical patients because interpreting x-ray films requires knowledge of normal anatomy, expected postoperative anatomy, and correlation between “densities, symptoms, and physical findings.”⁵ Understanding the surgical technique and new normal and abnormal anatomy is extremely important for all teams involved, and “much confusion will be avoided by consultation between roentgenologist and [surgeon].”⁵ Communication between the point of care physician, emergency medicine, radiology, and thoracic surgery will facilitate accurate and expedient diagnosis, and successful and timely treatment.

Complications happen. Preoperatively, intraoperatively, and postoperatively; we try to mitigate that risk for our patient. Charles Mayo said that “judgement is a great asset; it makes the diagnostician and surgeon both supermen.” When complications occur, we must use

judgement to recognize them, and we must treat them. Judgement allows us to anticipate unexpected problems after complex procedures, to recognize those rare complications when needed, and to communicate with and educate colleagues about our patients, our procedures, and our complications. Our patients will benefit, and as William Mayo said, “the best interest of the patient is the only interest to be considered.”

References

1. Watkins AA, Kalluri A, Gupta A, Gangadharan SP. Iatrogenic diaphragmatic hernia with fecopneumothorax following minimally invasive esophagectomy and liver resection. *J Thorac Cardiovasc Surg Tech*. 2022;11:89-91.
2. Parekh K, Iannetoni M. Complications of esophageal resection and reconstruction. *Semin Thorac Cardiovasc Surg*. 2007;19:79-88.
3. Benjamin G, Ashfaq A, Chang YH, Harold K, Jaroszewski D. Diaphragmatic hernia post-minimally invasive esophagectomy: a discussion and review of literature. *Hernia*. 2015;19:635-43.
4. Hart AM, Moore KS. When you hear hoofbeats, think horses—but be prepared for zebras. *J Nurse Pract*. 2019;15:A10.
5. Heusinkveld DW. Interpretation of chest x-ray films. *Chest*. 1940;6:373-6.