

Esophageal cancer affects more than 450,000 people worldwide and is a leading cause of morbidity and mortality from cancer. Surgical resection is an important component in the treatment of esophageal cancer; however, esophageal resection is a complex operation. In an effort to decrease morbidity, there has been increasing interest in minimally invasive surgery for esophageal resection. Early experiences with a minimally invasive approach to esophagectomy were initially described by a few investigators including Cuschieri, DePaula and Swanstrom (1-3). Luketich and colleagues adopted and refined this technique of minimally invasive esophagectomy (MIE) and have pioneered advancements in MIE over the last 2 decades (4-6). This book, compiled and published by the AME group, highlights minimally invasive surgery for esophageal cancer.

In the first section of the book, the current state of the art in minimally invasive surgery is detailed. Nobel, Molena and colleagues have provided an excellent summary of MIE. This is followed by the technical details of performing an MIE with a laparoscopic and video-assisted thoracoscopic surgery (VATS) approach and the details of performing robotic-assisted MIE. This section also includes an interesting article on the use of intraoperative vagal nerve monitoring to minimize vagal nerve injury.

The second section of the book highlights some essential aspects of the application of minimally invasive surgery. Since esophagectomy is a very complex operation, to be successful, MIE must be adopted in a systematic fashion. The implementation of an MIE program in Norfolk, United Kingdom is nicely detailed in the contribution by Edward Cheong. Similarly, Nilsson and colleagues discuss the implementation of an MIE program in a tertiary center in Sweden. Some newer approaches, including the use of a single port through an access incision for the VATS portion of the operation, have been discussed in 2 articles.

Proper patient selection and staging is essential for selection of appropriate therapies and optimizing outcomes in patients with esophageal cancer. The contribution by Mehta and colleagues highlights minimally invasive staging for esophageal cancer. There is also an article by Shridhar and colleagues evaluating the impact of neoadjuvant treatment on perioperative outcomes after robotic MIE.

This section also includes articles on the outcomes of esophagectomy and comparison of hybrid and open MIE techniques. Koyanagi and Ozawa have provided a nice summary of prospective trials evaluating MIE. These include a prospective trial in the United States, the ECOG 2202 study, which was led by Luketich and colleagues at the University of Pittsburgh and demonstrated the safety and feasibility of MIE in a multicenter setting (5). In addition, the results of a randomized trial, the Traditional Invasive *vs.* Minimally Invasive Esophagectomy (TIME) study, are also summarized well (7). The TIME study showed improved perioperative outcomes with a minimally invasive approach. In their contribution, Huang and Onaitis have nicely summarized studies of minimally invasive and robotic MIE including a landmark study of the outcomes of over 1000 MIEs by Luketich and colleagues (6).

While the emphasis of this book is on minimally invasive surgery for esophageal cancer, minimally invasive esophagectomy is applicable in selected patients with benign disease. Section 3 of the book includes the discussion of esophagectomy for benign diseases. Additionally, Asti and colleagues summarize the minimally invasive management of chylothorax, a complication of esophagectomy.

The reader should find this book useful in updating their knowledge on minimally invasive surgery for esophageal cancer. Further, the contributions include many references that the reader should also find informative. We hope the readers will find this book focusing on minimally invasive surgery for esophageal cancer a very interesting and useful reference.

References

1. Cuschieri A, Shimi S, Banting S. Endoscopic oesophagectomy through a right thoracoscopic approach. *J R Coll Surg Edinb* 1992;37:7-11.
2. Depaula AL, Hashiba K, Ferreira EA, et al. Laparoscopic transhiatal esophagectomy with esophagogastroplasty. *Surg Laparosc Endosc Percut Tech* 1995;5:1-5.
3. Swanstrom LL, Hanson P. Laparoscopic total esophagectomy. *Arch Surg* 1997;132:943-9.
4. Luketich JD, Alvelo-Rivera M, Buenaventura PO, et al. Minimally invasive esophagectomy: outcomes in 222 patients. *Ann Surg* 2003;238:486-95.
5. Luketich JD, Pennathur A, Franchetti Y, et al. Minimally Invasive Esophagectomy: Results of a Prospective Phase II Multicenter

- Trial-the Eastern Cooperative Oncology Group (E2202) Study. *Ann Surg* 2015;261:702-7.
6. Luketich JD, Pennathur A, Awais O, et al. Outcomes after minimally invasive esophagectomy: review of over 1000 patients. *Ann Surg* 2012;256:95-103.
 7. Biere SS, van Berge Henegouwen MI, Maas KW, et al. Minimally invasive versus open oesophagectomy for patients with oesophageal cancer: a multicentre, open-label, randomised controlled trial. *Lancet* 2012;379:1887-92.

Arjun Pennathur, MD, FACS

Sampson Family Endowed Chair in Thoracic Surgical Oncology,
Department of Cardiothoracic Surgery and Department of Critical Care Medicine,
University of Pittsburgh School of Medicine,
University of Pittsburgh Medical Center,
Pittsburgh, Pennsylvania, USA