

Since the first series of minimally invasive esophagectomies (MIE) was reported by Sir Alfred Cushieri in 1992, there has been an outstanding development, with MIE gradually approaching the status as the standard, first line method of esophagectomy. Over the decades that have passed since the first report, several different techniques of MIE have emerged, using prone, semi-prone or left lateral patient positioning, two or three-stage access, totally minimal invasive or different hybrid approaches, combining minimally invasive and open techniques.

MIE was initially developed using conventional laparoscopy and thoracoscopy, but in recent years more and more centers have started using robotic surgical systems, mainly of course the Da Vinci<sup>TM</sup> system. Several MIE case series have been published, first showing safe short-term outcomes and satisfactory outcomes regarding oncologic surrogate variables, such as free resection margins (R0) and lymph node yields, and later also reporting increasing evidence of good long-term oncological results. In the last years three randomized controlled trials, comparing different MIE techniques to open esophagectomy, have been published, consistently showing less complications, quicker functional recovery and better quality of life following minimal invasive procedures compared to their conventional open counterparts. The most recently published of these, the MIRO trial, even showed a borderline significant advantage with regard to overall survival after laparoscopic-open chest hybrid MIE compared to completely open MIE. This finding of course needs to be confirmed, but nevertheless is profoundly intriguing and is actually well in line with the previously published body of data reporting that less complications after surgery is also associated with better oncological long-term outcomes.

There is no doubt that minimally invasive esophagectomy is here to stay. The technical evolution will continue and it's very likely that better, more versatile and less costly robotic equipment will be developed in the next decades, further improving and facilitating minimally invasive robotically assisted esophageal cancer surgery. In addition, the use of artificial intelligence will most likely also become an integrated part of the operating theatre environment and will most likely also affect the way we will perform our minimally invasive esophagectomies in the future. There will of course probably still be a role for conventional open esophagectomy in the future, but it's likely that this role will gradually decrease and mainly be reserved for cases of redo surgery, some cases of salvage esophagectomy after definitive chemoradiotherapy and for patients with severe abdominal or pleural adhesions.

In this book we present a wide selection of articles from some of the world's most prominent experts within the field of minimally invasive esophagectomy, describing and summarizing a wide range of the experiences that have led to where we are today. The articles range from overall MIE state-of-the art review articles, to description of individual and institutional MIE implementation processes and learning curves, to different aspects of robotic MIE, to single port approaches and further to problems and problem shooting, for example management of difficult complications such as chylothorax after MIE.



**Magnus Nilsson, MD, PhD**

Division of Surgery, Department of Clinical Science Intervention and Technology (CLINTEC), Karolinska Institutet and  
Center for Digestive Diseases, Karolinska University Hospital, Stockholm, Sweden