

Preface

It is an honour to be the Guest Editor of this inaugural edition of the *Annals of Cardiothoracic Surgery* devoted to exploring many contemporary issues affecting minimally invasive thoracic surgery. I am confident that this journal will become a major source of reference and debate within the cardiothoracic surgical community. I thank the contributors for their work in this project, which addresses many important aspects of technique and practice in current VATS and robotic-assisted lobectomy. I commend the Editor-in-Chief and his team for preparing such an outstanding publication.

The first reports of VATS lobectomy appeared some 20 years ago. It would be true to say that for most of the first decade uptake was modest and only a few centres ran VATS major pulmonary resection programs. Moreover, there were several competing operative strategies described with which to accomplish a VATS lobectomy. These comprised: a mini-thoracotomy approach through which the surgeon both viewed the operative field and operated - the video camera providing a light source and ancillary view for other team members; a simultaneously stapled approach, in which video imaging was employed but a mass staple strategy was adopted for the hilar structures; and, a video imaged endoscopic dissection approach, in which the individual hilar structures were dissected and divided in a manner analogous to open surgery. The endoscopic hilar dissection approach has become the dominant, but even within this, significant technical differences between various surgical groups may be observed. Examples of these differences are presented in this edition and include direction of dissection and procedural sequencing. In reality, this variation mirrors open practice, adds to surgical options and encourages debate and development – all unquestionably to the ultimate advantage of the patient.

The rise of VATS major pulmonary resection has been a long journey - understandably, in many respects, given that surgeons rightly had concerns regarding both immediate- and long-term outcomes, as well as issues such as cost and training. However, multiple papers reporting primary data and subsequent meta-analyses have confirmed at least equivalent long term survival in cancer patients and improved outcomes for VATS cases in terms of postoperative stay, respiratory function, access to adjuvant therapy, pain and immune disturbance. With this confirmation and, perhaps, the changing of surgical generations, VATS lobectomy has become an increasingly common resection strategy and currently provides somewhere about 20% of pulmonary resection in the US and perhaps 10-15% in Europe. No list of individuals can be sufficiently comprehensive to include all those whose steady work made this development possible, but I hope that I may be forgiven for saluting in particular those few who persevered and invented the relevant techniques during those early and often lonely early years, notably: D'Amico, Demmy, Gossot, Guidicelli, Hansen, Kim, Lewis, Loscertales, McKenna, Roviario, Stamatis, Sugi, Swanson and Yim.

Despite the growth in VATS lobectomy, certain aspects of technique still require to be clarified. The number of operative ports utilised by authors varies between four and, recently described, one. We do not know whether any particular number of ports is best or if, indeed, it really matters provided rib spreading is not employed. Also, the debate regarding VATS resection has, in the writers' opinion, often served as a surrogate for what are in effect fractures occurring at the boundaries of thoracic surgical beliefs. For example, a major criticism of VATS resection was based on perceived limitations in mediastinal lymph node dissection. We now know that this can be equally well performed with either technique and for those with experience, it can be argued that the improved operative view during VATS procedures facilitates a detailed dissection. However, we still have no real answer to the fundamental question as to whether mediastinal node dissection, however performed, enhances patient outcomes as distinct from clarifying staging.

Finally, it must be inevitable that evolving supportive technology will impact hugely on the further development of VATS surgical practice. Current instrumentation might best be described as alternate usage of devices primarily intended for GI surgery. VATS major lung resection merits bespoke equipment designed for thoracic surgery, including specific stapling tools and development of both simple and complex devices, miniaturisation, smart instrumentation and robots or auxiliary robotic devices.

There is much to look forward to in the further development of minimally invasive lung resection but to paraphrase one great statesman, we can only observe that the present stage is not the beginning of the end but perhaps the end of the beginning.

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