



Simulation and navigation techniques in VATS and RATS

The advent of new imaging techniques has revolutionized our perceptions of anatomy, enabling us to have a detailed, personalized, and intuitive understanding of the anatomical structure. Accordingly, a more profound knowledge of the anatomy has further inspired physicians to develop novel simulation and navigation techniques. In this special series entitled ‘Simulation and Navigation Techniques in VATS/RATS’, we aimed to explore this captivating topic from a broad perspective; beginning with a review of thoracic anatomy, then taking an overview of simulation and navigation techniques, and finally focusing on specific techniques utilized in actual clinical cases.

The first article of this series will review recent anatomical studies of the thorax, since any genre of simulation and navigation technique is founded upon the accurate visualization and understanding of each patient’s anatomy. Especially, the past few decades have seen advances in 3D-imaging techniques that enable the in-depth study of anatomical structures. Such updates in anatomical data and classification have changed how surgeons perceive the anatomy, plan a surgery, and perform procedures. The next review article of the series gives a comprehensive overview of simulation and navigation techniques, with a special focus on techniques used in segmentectomy. Because segmentectomy requires a much better understanding of the bronchial and vascular anatomy, it is a surgical procedure that has particularly flourished with the introduction of imaging, simulation, and navigation techniques. In the last part of this series, we are more than pleased to showcase detailed presentations of actual simulation and navigation techniques, such as indocyanine green (ICG) imaging, radiofrequency identification of nodules, and navigation based on mixed reality, all illustrated within real clinical scenarios.

We hope that this series will serve as a cornerstone for readers interested in understanding fundamental aspects of simulation and navigation techniques. Novel techniques are developed on a daily basis and we will inevitably see updates for this continuously evolving field. We would like to thank all the authors that have participated in this series, especially for the time and effort they devoted to sharing their knowledge and techniques. We also thank the *Video-Assisted Thoracic Surgery* editorial team for the opportunity to put this special series together.

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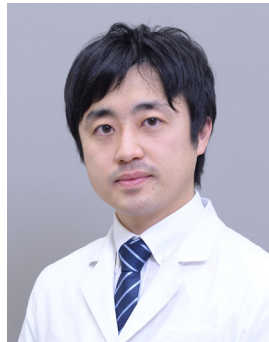
Footnote

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Seshiru Nakazawa



Hitoshi Igai

Seshiru Nakazawa[^], MD, PhD

Department of General Surgical Science, Gunma University Graduate School of Medicine, Maebashi, Japan.

(Email: snakazawa@gunma-u.ac.jp)

Hitoshi Igai, MD, PhD

Department of General Thoracic Surgery, Japanese Red Cross Maebashi Hospital, Maebashi, Japan.

(Email: bitoshiigai@gmail.com)

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[^] ORCID: 0000-0001-6218-9396.