Video Assisted Thoracoscopic Middle Lobectomy Utilizing A 3-D Model For Preoperative Evaluation And Intraoperative Education

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ABSTRACT

BACKGROUND – This is an example of a video assisted thoracoscopic middle lobectomy that was aided by using a 3D printed model of the patient's tumor location and anatomy. This film is an example of how the integration of technology should be used to enhance preoperative evaluation and education with regards to the thoracic surgery patient.

METHODS – A 3D model was obtained in the preoperative setting to evaluate tumor location and its relationship with the patients vascular and bronchial anatomy.

RESULTS – Integration of this technological innovation lead to the ability to create an educational video to help increase the surgical learners visual memory and understanding of this specific thoracic procedure.

CONCLUSIONS – This is an example of the future of surgical education using high quality video imagery and technological integration to help train the future cardiothoracic surgeon.

INTRODUCTION

- Cardiothoracic surgery as a specialty continues to be one of the most technically demanding surgical disciplines.
- Given the array of surgical procedures performed innovation in the educational realm of thoracic surgery training is more relevant than ever.
- Our department presents a case example where a 3-D model was utilized for both preoperative and post operative education within the thoracic surgery department

MATERIALS & METHODS

3-D images and model obtained from sketch fab and 3-D axial

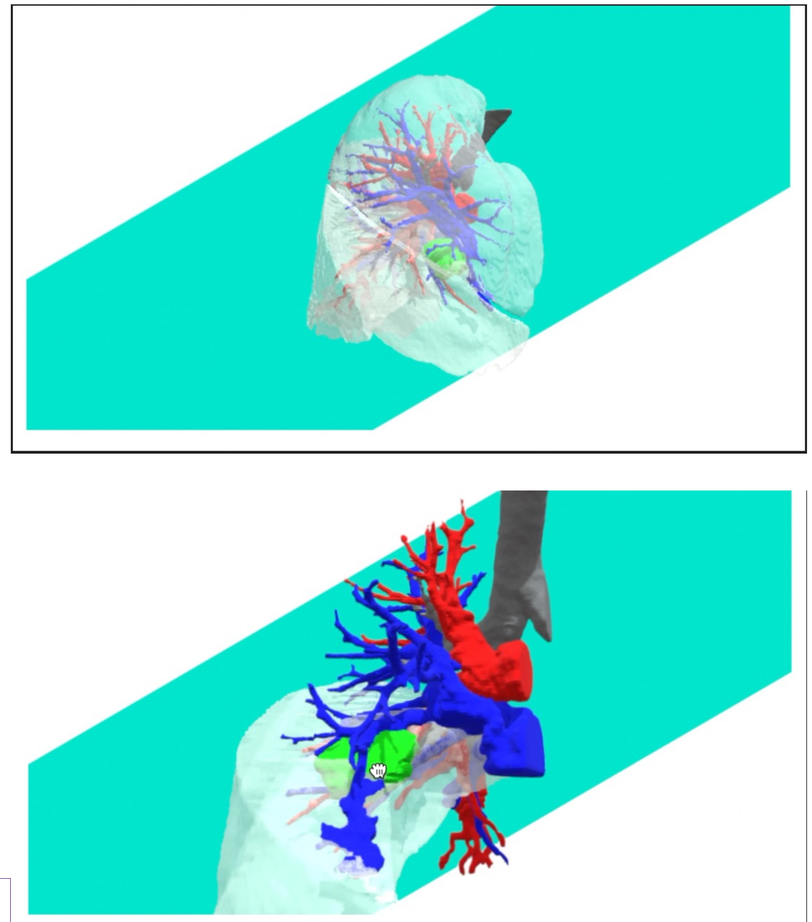


Figure 1:

Examples images from the 3-D model interface that was also printed in a 3-D model

DISCUSSION

- Integration of innovative technology into intraoperative teaching is imperative to prepare the cardiothoracic surgeons of the future
- Our program has begun to use operative video to help increase the visual memory of all students and trainees to participate in general thoracic surgery
- A international initiative to produce high quality cardiothoracic video to help further student and trainee education in the future

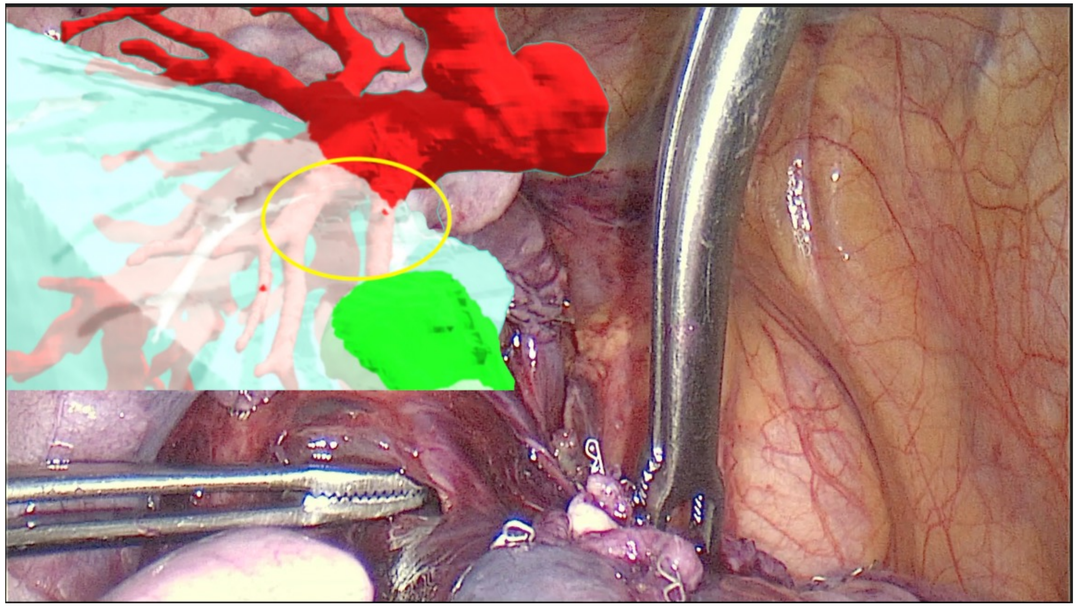


Figure 2:

Intraoperative image with 3-D interface integrated into the operative video