Dry Run of Robotic Lung Lobectomy Using Anatomically Correct Lung Models As a Trial and Training Method for Robotic Surgery

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Abstract   We herein present the efficacy of a dry run in robotic surgery using the anatomically correct lung models as a trial before introducing a robotic surgical system. The da Vinci robotic surgical system has been demonstrated to be safe and useful; however, it is extremely expensive, so it thus remains unclear whether or not it is cost-effective to use this system. To address this question, we performed robot-assisted lung lobectomy (da Vinci lobectomy) using lung models and tried to evaluate the cost-effectiveness of the procedure. A Da Vinci lobectomy with the lung models was carried out three times; during the first two trials, the lung models were simply put on the table, and during the last trial, they were put in the box that simulated the chest wall. Even using the lung model, we were able to obtain a good evaluation of the ability and feasibility of the da Vinci system, and were able to note potential clinical problems that might be encountered using this method, especially when the model was put in the chest-like box. We believe that performing dry runs of the da Vinci lobectomy with lung models is also useful as a training method for robotic surgery as well.

Key words   Robotic surgery, Lung model, Training, Simulated surgery, Da Vinci