

Thoracoscopic surgery technique for pneumonectomy shown to be safe

7 November 2014, by Annie Deck-Miller

In the largest series of its kind to date, researchers at Roswell Park Cancer Institute (RPCI) have shown that performing thoracoscopic pneumonectomy, removal of the entire lung through a minimally invasive endoscopic approach, at a high-volume center appears to be safe and may provide pain and survival advantages in the long term.

"During the past 20 years, portions of the lungs have been removed for [lung cancer](#) through lobectomies, and that has been shown to be better done through small incisions or through thoracoscopic lobectomy compared with standard, open lobectomy," says Todd Demmy, MD, FACS, Clinical Chair of the Department of Thoracic Surgery and Professor of Oncology at RPCI. "We wanted to see if any of the benefits of the lobectomy—which typically involves removal of 20-50% of the organ—carry forward when you take the whole lung out in a pneumonectomy."

Dr. Demmy and his colleagues retrospectively reviewed all patients who underwent pneumonectomy at RPCI from 2002 through 2012. Of the 107 consecutive pneumonectomies performed during this time period, 40 cases were done through an open technique, 50 were done through successful video-assisted thoracoscopic surgery (VATS), and 17 were converted from VATS to an open procedure.

"We performed a relatively large number of pneumonectomies without a significant event in the operating room such as excessive bleeding, which has been one of the major concerns that have prevented other surgeons from trying this technique," Dr. Demmy says.

By the second half of the series, researchers reported an increase in successful VATS pneumonectomies from 50% to 82%.

In contrast to thoracoscopic lobectomy, which has

been associated with dramatic reductions in pain compared with the open technique, VATS pneumonectomy did not yield early reductions in pain or incidence of complications. "But with time, those patients who underwent VATS pneumonectomy tended to have better pain ratings, whereas people who had large incisions with the open technique still had a lot of pain a year later," Dr. Demmy notes.

At one year, 53% of patients who underwent VATS pneumonectomy reported being pain-free compared with 19% of the patients who underwent the open surgical technique. Among patients with early-pathological-stage cancer, those who underwent successful VATS pneumonectomy had a median longer survival of 80 months vs. 16 months for patients who were converted from VATS to an open procedure and 28 months for those who underwent the open procedure. Among patients with advanced clinical stage disease, those who underwent the VATS procedure had a longer median overall survival of 42 months vs. 13 months for those who underwent the open technique.

"Patients who need to undergo pneumonectomy tend to have worse tumors; they often need chemotherapy, and the VATS procedure might help them start chemotherapy or complete it if they have less pain from surgery," Dr. Demmy says. "Less pain may also reduce the patient's need for narcotics, and we're finding now that narcotics may actually have an adverse effect on cancer patients and may increase the growth rate of some tumors, so reducing [pain](#) is essential."

The researchers are continuing to monitor [patients](#) who undergo pneumonectomy in a registry, with the ultimate goal of reducing the number of open pneumonectomies they perform.

The study, "Thoracoscopic Pneumonectomy: An 11-Year Experience," appears in the November 2014 issue of *Chest*, a peer-reviewed journal

published by the American College of Chest
Physicians.

Provided by Roswell Park Cancer Institute

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