

38 - Title: Early Chest Tube Removal after Surgery for Primary Spontaneous Pneumothorax: A Randomized Controlled Trial

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Background: Video Assisted Thoracoscopic Surgery (VATS) blebectomy/wedge resection with chemical pleurodesis (CP) is a standard treatment for recurrent primary spontaneous pneumothorax (PSP) and in certain instances after the first episode. A chest tube is standardly placed and kept to suction until post-operative day (POD) #2 to allow for the inflammatory process to create scarring of the visceral and parietal pleura. However, the inflammatory process takes place over a period of weeks and there is no data to support POD#2 as optimal time for removal. Preliminary studies have shown earlier removal of the chest tube is feasible and safe with low need for replacement. Furthermore, shorter chest tube duration can decrease the length of stay, patient discomfort, and hospital cost. We seek to compare 2-year recurrence rate for early chest tube removal (POD#1) vs standard removal (POD#2) after VATS blebectomy/wedge resection + CP for PSP.

Methods/Research Design: This non-inferiority study will be a multi-center (including Stony Brook) randomized control trial comparing early vs standard chest tube removal after VATS blebectomy/wedge resection + CP for PSP. This study is enrolled with ClinicalTrials.gov (NCT06411431). Adult patients (≥ 18 years) with PSP planned to undergo VATS blebectomy/wedge resection + CP will be included. A total of 200 patients to be enrolled. Patients will undergo standard of care VATS blebectomy/wedge resection with CP. The morning of POD#1, the chest tube and chest x-ray will be assessed for any bleeding, air leak, high drainage, or pleural separation which would prohibit removal. If not found, patients will then be randomized to early (within 24 hours after surgery) vs standard (on POD#2) chest tube removal. Patients will be followed up with repeat chest x-ray within 2 weeks then at 1- and 2-years post-surgery.

Results: The primary outcome of this study is 2-years recurrence rate with secondary outcomes of length of stay, chest tube duration, complication, and need for repeat interventions.

Hypothesis: We hypothesize that early chest tube removal will have a non-inferior recurrence risk to standard removal with decreased length of stay without increased complication or reinterventions.