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Novel split chest tube improves post-surgical thoracic drainagerunning head: Improved thoracic drainage system

Brandon H. Cherry
University of North Texas Health Science Center, USA

Purpose: Conventional, separate mediastinal and pleural tubes are often inefficient at draining thoracic effusions.

Description: We developed a Y-shaped chest tube with split ends that divide, permitting separate intrathoracic placement and requiring a single exit port.

Evaluation: Thoracic drainage by the split drain vs. that of separate drains was tested. After sternotomy, pericardiotomy, and left pleurotomy, pigs received separate chest drains (n=10) or a split tube prototype (n=9) with internal openings positioned in the mediastinum and in the costo-diaphragmatic recess. One liter of 0.58 M sucrose was infused into the thorax, and suction was applied at -20 cm H2O for 30 min.Within one minute, the split drain evacuated more fluid (967±43 ml) as the separate drains (680±61 ml, p<0.02).By 30 min, the split drain removed more fluid (1065±60 ml; p=0.056) and left a lower residual volume (19±24 ml; p=0.001) than the separate drains (886±280 and 208±213 ml, respectively).

Conclusions: The split chest tube drained the thoracic cavity more effectively than a conventional system.This new device could potentially alleviate postoperative complications.

Biography

Brandon Cherry began his career as an undergraduate researcher at the University of Texas Southwestern Medical Center in Dallas, where he studied the neural signaling mechanisms of the exercise pressor reflex under the guidance of Dr. Jere Mitchell. After earning his Bachelor's degree in biochemistry from Texas Tech University in Lubbock, he undertook his doctoral program at the University of North Texas Health Science Center at Fort Worth, where he joined the laboratory of his major professor, Dr. Robert T Mallet. His Ph.D. research is examining the neuroprotective antioxidant effects of intravenous pyruvate during cardiac arrest and early resuscitation.

Brandon.Cherry@live.unthsc.edu