AB004. Feasibility of transumbilical anatomic segmentectomy in a canine model

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Background: That transumbilical approach has been shown to be feasible for performing lung wedge resection and anatomic lobectomy. This study uses a canine model to assess the feasibility of transumbilical segmentectomy.

Methods: Transumbilical segmentectomy was performed on 10 beagle dogs using a 3-cm umbilical incision combined with a 2.5-cm diaphragmatic incision. We evaluated the surgical outcomes, operative complications, physiologic cha6nges, hemodynamic changes, and inflammatory changes of the procedures.

Results: Transumbilical segmentectomy was successfully completed in eight of ten animals. There was one mortality complication related to lung injury causing hemodynamic collapse. Another animal required conventional thoracotomy to complete the surgery due to limited working space. There were no notable events in the postoperative period for all eight dogs that completed the segmentectomy via the transumbilical approach.

Conclusions: This animal study demonstrates that the pulmonary segmentectomy can be performed with current standard endoscopic instruments via a single transumbilical incision. We believe that advancing surgical innovation and good collaboration between multi-disciplinary research teams will further establish clearer roles for transumbilical segmentectomy in thoracic surgery.

Keywords: Animal study; transumbilical lung segmentectomy; video assisted thoracic surgery (VATS)