MINIMALLY INVASIVE VIDEO ASSISTED SURGICAL CLOSURE OF ATRIAL SEPTAL DEFECTS: HASTENING RECOVERY USING A SAFE AND EFFECTIVE APPROACH

Poster Contributions
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Authors: Anna Sabate Rotes, Harold Burkhart, Rakesh Suri, Martha Grogan, Nathaniel Taggart, Hartzell Schaff, Joseph Dearani, Mayo Clinic, Rochester, MN, USA

Background: Minimally invasive video assisted thoracic surgery (VATS), with or without robotic support, permits port-access atrial septal defect closure. We sought to compare the safety and effectiveness of VATS versus conventional median sternotomy (open) in the repair of secundum atrial septal defect (ASD) or patent foramen ovale (PFO).

Methods: Among the 415 consecutive patients undergoing open or VATS ASD/ PFO closure between 1993 and September 2012 (VATS since 2007), 153 patients were compared using 2:1 propensity-matching (n=102 open vs. 51 VATS, respectively). Median age was 43 years (3-71 years) and 67% (n=102) were female. Baseline characteristics including age, gender, body surface area, past medical history of neurologic events, need of patch closure and degree of right ventricular enlargement were similar between the groups.

Results: There were no early deaths in either group. There were no conversions to open sternotomy. Although mean crossclamp time (14±7.6 vs 26±13.2 minutes, p<0.001) and bypass time (32±13.8 vs 61±20.9 minutes, p<0.001) were longer in the VATS group; VATS patients had shorter postoperative ventilation time (7.5±6.4 vs 4.4±2.8 hours, p=0.001) with 62.7% extubated in the operating room; along with shorter intensive care unit stay (26.7±10.8 vs 19.1±9.9 hours, p<0.001) and hospital stay (5.2±1.9 vs 3.5±0.9 days, p<0.001). There were no differences in transfusion requirements, chest-tube drainage, infection, neurologic events or arrhythmias. At early follow-up (mean 1.5 years, maximum 4.2 years) there was no difference in freedom from residual shunt, reintervention, or arrhythmias. Of the 27 patients that underwent VATS ASD/PFO closure for a neurologic event, none had a recurrence.

Conclusions: The use of VATS, with or without robotic assistance, provides a safe, equally effective alternative to conventional sternotomy for ASD/PFO closure. A less invasive port access approach results in shorter ventilation requirements and earlier dismissal from hospital with excellent freedom from recurrent neurologic events.