

INITIAL RESULTS OF TOTALLY ENDOSCOPIC VENTRICULAR SEPTAL DEFECT REPAIR: EXPERIENCE FROM A SINGLE CENTER IN VIETNAM

OBJECTIVE: To evaluate the early outcomes of totally endoscopic ventricular septal defect (VSD) repair at the Cardiovascular Center, E Hospital.

ABSTRACT:

Ventricular septal defect (VSD) is the most common congenital heart defect, accounting for approximately 40% of all congenital heart diseases. Currently, various treatment modalities have been applied, including conventional median sternotomy, minimally invasive approaches via thoracotomy or axillary incision, and transcatheter device closure. Each method has its own advantages and limitations depending on the defect's location and size, the patient's overall condition, and the facility's technical capabilities. Among these, totally endoscopic surgery has gained increasing attention due to its minimally invasive nature, high therapeutic efficacy, and favorable cosmetic outcomes. We conducted this study to evaluate the early results of totally endoscopic VSD repair and to assess its feasibility and effectiveness in the treatment of congenital VSD.

METHODS:

A retrospective study was conducted from January 2020 to December 2024 on 59 patients diagnosed with VSD who underwent totally endoscopic repair at the Cardiovascular Center, E Hospital. The cohort included 42 males (71.2%) and 17 females (28.8%), with a mean age of 9.5 ± 5.1 years (range: 3–26 years) and a mean body weight of 28.8 ± 13.8 kg (range: 14.5–81 kg). Preoperative Doppler echocardiography revealed that 66.1% had perimembranous VSD and 33.9% had infundibular VSD. Most defects were of medium size (42.4%). All patients underwent successful totally endoscopic repair without sternotomy. The mean cardiopulmonary bypass time was 141.2 ± 39.8 minutes; mean aortic cross-clamp time was 82.5 ± 27.4 minutes; and mean postoperative mechanical ventilation time was 6.7 ± 4.8 hours. No postoperative mortality was recorded. Complications included postoperative bleeding in 1 patient, postoperative hemothorax in 1 patient, and femoral artery injury in 2 patients.

CONCLUSIONS:

Totally endoscopic VSD repair is a feasible and safe surgical technique with a 100% procedural success rate and no postoperative mortality. This approach offers an effective minimally invasive treatment option for both pediatric and adult patients.

KEYWORDS: Totally endoscopic ventricular septal defect repair; ventricular septal defect; minimally invasive cardiac surgery.