

Totally Endoscopic Repair of Partial Atrioventricular Canal Defect in Adult Patients Using A 3D High-definition Endoscopic System

Nguyen Cong Huu, Dam Hai Son, Nguyen Ba Phong, Nguyen Trung Hieu, Le Ngoc Thanh. Cardiovascular Centre-E Hospital-Ha Noi-Viet Nam

Objective: The purpose of this study is to assess the technique of totally endoscopic repair application for a partial atrioventricular canal defect in adult patients using a 3D endoscopic system.

Patients and procedures: From 12/2019 to 12/2022, 15 patients were operated. The average age is 38.7 ± 15.7 years. Male: 2, Female: 13. **Operative procedure:** Patients were placed under general anesthesia and had double-lumen intubation (See Fig1). The femoral vessels and right internal jugular vein were used for peripheral cardiopulmonary bypass(See Fig2). Using a three-dimensional high-definition video system, surgical manipulations were performed through 5-12 mm working ports(See Fig 3). For cardiac arrest, trans-thoracic Chitwood aortic clamping and antegrade Custodiol HTK cardioplegic solution administration via a needle(placed outside the 12mm trocar) inserted into the ascending aortic were used. Repair of lesions: closure of the left atrioventricular valve cleft, bovine pericardial patch for the ostium primum defect.

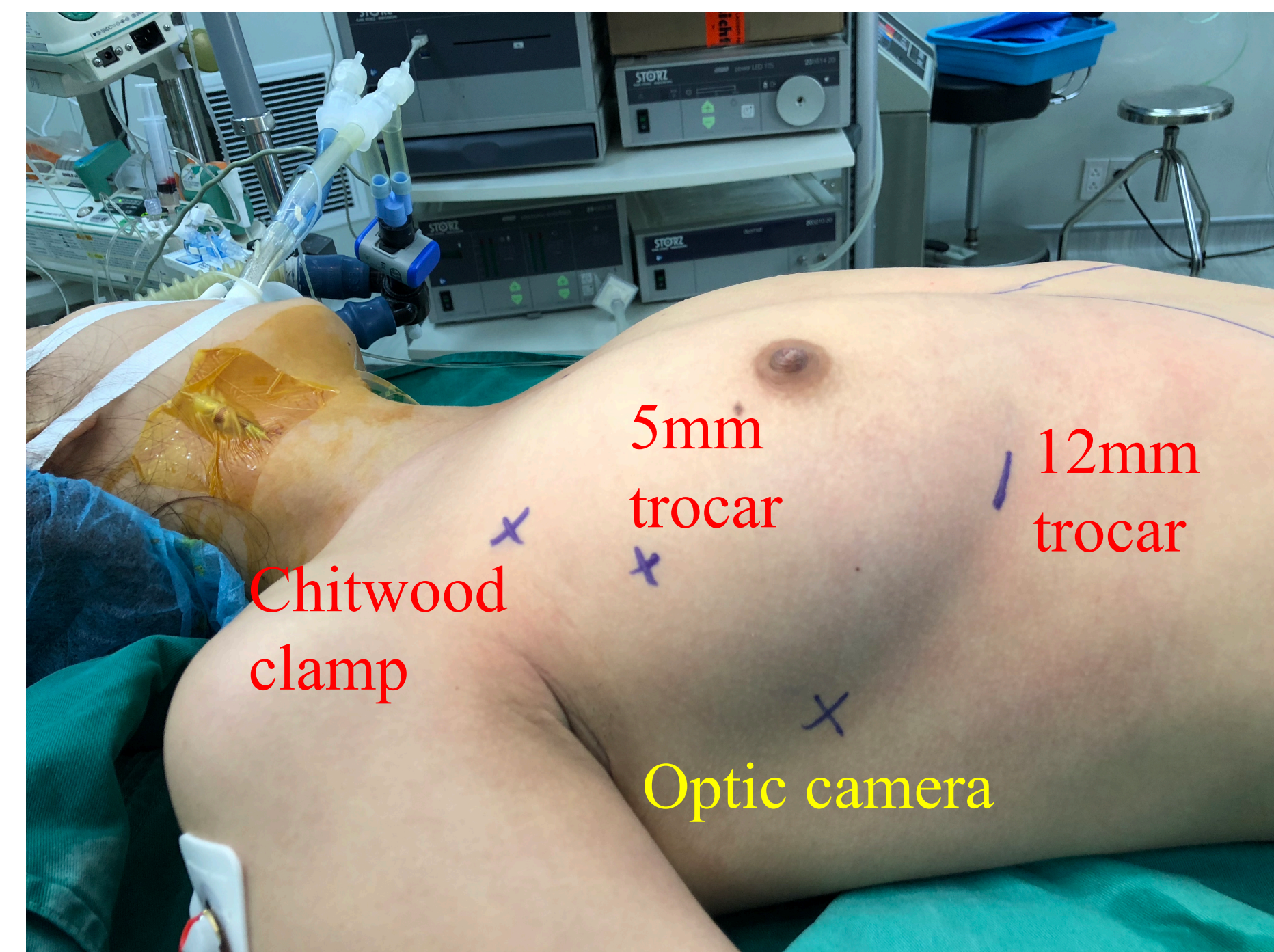


Figure1: Patient position and Incision site marking

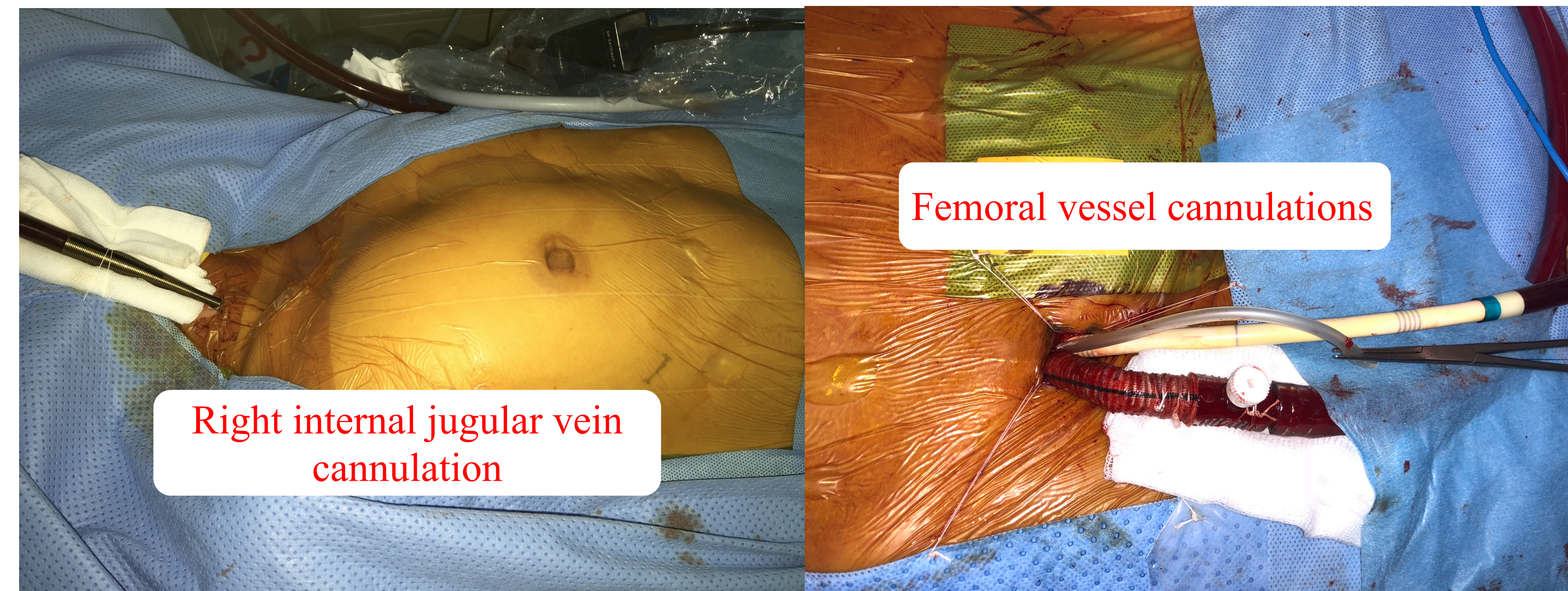


Figure2: Peripheral cardiopulmonary bypass

Conclusions: The 3D endoscopic system was used in a safe and simple manner, and the impressive 3D depth view allowed for easy and precise manipulation through small trocars, eliminating the need for a rib-spreading retractor. It has the benefits of less postoperative pain, a shorter recovery period, less surgical trauma, and a high cosmetic value with higher patient satisfaction.

Results: All patients had a successful operation, atrioventricular valves were all in good function ; no one needed a sternotomy or thoracotomy; and no hospital death. There has been no difficulty. The bypass and crossclamp times were 143 ± 25.7 minutes and 85.5 ± 24.2 minutes, respectively. The average time to extubation was 4.9 ± 2.1 hours, the length of stay in the ICU was 2.75 ± 1.3 days, and the time to discharge was 6.3 ± 1.5 days

Figure3: Surgical field and manipulations

