

Totally endoscopic robotic repair for sinus venosus atrial septal defect with partial anomalous pulmonary venous connection

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OBJECTIVE:

Robotic repair of sinus venosus atrial septal defect with a partial anomalous pulmonary venous connection (PAPVC) to the superior vena cava offers a less invasive alternative to conventional surgical approaches in selected group of pediatric patients. The aim of this report is to present our experience in robotic surgery in 2 patients with PAPVC, with or without left persistent superior vena cava.

METHODS:

Between July and September 2015, 2 children (16 and 17 years, one male) was referred to our hospital with a diagnosis of PAPVC and high venous atrial septal defect. The height and weight of patients were 160 vs. 170 cm and 44 vs. 54 kg, respectively. Transthoracic echocardiography examinations confirmed the diagnoses and, in one of these cases, left persistent superior vena cava with the absence of innominate vein was diagnosed. Preoperative biochemical tests and chest X-ray were normal. Patients underwent totally endoscopic robotic surgery with the Da Vinci endoscopic surgery system for repair of these pathologies.

RESULTS:

Operations were completed uneventfully. There was no complication developed after operations. Under peripheral cardiopulmonary bypass with moderate hypothermia, lateral cava-atrial incision was made to expose the defects. Left persistent vena cava was drained with a pump sucker through the coronary sinus after right atriotomy incision. Double patch repair was performed using glutaraldehyde-treated autologous pericardial patch (Figure). By this technique, the risk of turbulent flow and stenosis of the right upper pulmonary vein orifice and superior vena cava-atrial junction was eliminated. The mean duration of cardiopulmonary bypass and arrest were 98 vs. 85 minutes and 65 vs. 60 minutes, respectively. Ventilation and intensive care unit stays were 3 vs. 5 hours and 16 vs. 18 hours, respectively. There was no perioperative blood loss and blood transfusion. Patients were uneventfully discharged on postoperative day 3. Follow-up examination were normal with a good clinical status. Echocardiographic examinations showed no turbulence and a superior vena cava-right atrium pressure gradient in both patients.

CONCLUSIONS:

Robotic repair of PAPVC can be safely managed in selected group of children. The double-patch technique is technically reproducible without any increase in complications.

Legends

Figure. Endoscopic view shows high venous atrial septal defect through transcaval-atrial incision (left panel) and closure of the defect with pericardial patch (right panel).

