

# Rekonstrukcija korijena aorte uz prezervaciju zalistka i ugradnju ekstraortnog prstena

## Remodeling technique of aortic valve repair with root replacement and extraaortic ring implantation

Igor Rudež<sup>1</sup>,  
Josip Varvodić<sup>1\*</sup>,  
Davor Barić<sup>1</sup>,  
Daniel Unić<sup>1</sup>,  
Savica Gjorgjievski<sup>1</sup>,  
Marko Kušurin<sup>1</sup>,  
Ivana Jurin<sup>1</sup>,  
Nikola Bulj<sup>2</sup>

<sup>1</sup>Klinička bolnica Dubrava,  
Zagreb, Hrvatska

<sup>2</sup>Klinički bolnički centar  
Sestre milosrdnice, Zagreb,  
Hrvatska

<sup>1</sup>University Hospital Dubrava,  
Zagreb, Croatia

<sup>2</sup>University Hospital Centre  
"Sestre milosrdnice", Zagreb,  
Croatia

RECEIVED:  
October 21, 2018

ACCEPTED:  
November 5, 2018



**KLJUČNE RIJEČI:** aorta insuficijencija, rekonstrukcija korijena aorte, rekonstrukcija aortnog zalistka.

**KEYWORDS:** aortic valve insufficiency, aortic root repair, aortic valve repair.

**CITATION:** *Cardiol Croat.* 2018;13(11-12):383. | <https://doi.org/10.15836/ccar2018.383>

**\*ADDRESS FOR CORRESPONDENCE:** Josip Varvodić, Klinička bolnica Dubrava, Avenija Gojka Šuška 6, HR-10 000 Zagreb, Croatia. / Phone: +385-99-355-3909 / Email: [josip.varvodic@gmail.com](mailto:josip.varvodic@gmail.com)

**ORCID:** Igor Rudež, <https://doi.org/0000-0002-7735-6721> • Josip Varvodić, <https://doi.org/0000-0001-6602-699X>  
Davor Barić, <https://doi.org/0000-0001-5955-0275> • Daniel Unić, <https://doi.org/0000-0003-2740-4067>  
Savica Gjorgjievski, <https://doi.org/0000-0002-4304-1852> • Marko Kušurin, <https://doi.org/0000-0001-5690-9924>  
Ivana Jurin, <https://doi.org/0000-0002-2637-9691> • Nikola Bulj, <https://doi.org/0000-0002-7859-3374>

**Uvod:** Zamjena aortnog zalistka još uvijek je najčešća metoda liječenja aortne insuficijencije (AR). Rekonstrukcija aortnog zalistka predstavlja atraktivnu alternativu, jer izbjegavamo komplikacije povezane s umjetnim zalistkom.<sup>1,2</sup> Ovdje prikazujemo dosadašnje iskustvo s rekonstrukcijom korijena aorte uz prezervaciju zalistka i ugradnju ekstraortnog prstena.

**Pacijenti i metode:** Između studenoga 2014. i rujna 2018. godine, kod 65 bolesnika (53,1 ± 13,1 godina; 18,5% žene; EuroScore II od 0,48% do 11,17%) učinjen je popravak aortnog zalistka. Kod 8 bolesnika pronađena je izolirana malokaptacija listića, dok je 57 bolesnika imalo i dilataciju korijena aorte. Rekonstrukciju smo izvodili s ekstraortnim Coroneo prstenom (27 (25-31)) te Gelweave graftom (28 (25-32)). Kod četiri bolesnika u istom aktu učinjena je i rekonstrukcija mitralnog zalistka, u dva slučaja i rekonstrukcija trikuspidnog zalistka, u četiri bolesnika aortokoronarno premoštenje, u dva slučaja učinjena je zamjena luka aorte, a kod dva bolesnika zamjena luka aorte uz postavljanje stenta u silaznu torakalnu aortu (Evita stent graftom). Ultrazvukom srca procijenjena je funkcija aortnog zalistka preoperativno te u ranom postoperativnom razdoblju i tijekom praćenja.

**Rezultati:** U poslijeoperacijskom praćenju niti jedan bolesnik nije preminuo. Reoperacija nije bila potrebna u 92,5% (5/65) slučajeva. Dva bolesnika (3%) reoperirana su u istom boravku zbog aortne insuficijencije, dva bolesnika (3%) nakon dvije godine, jedan zbog insuficijencije, a jedan bolesnik zbog pseudoaneurizme korijena aorte. Postoperativni tijek jednog bolesnika kompliciran je ileusom te je učinjena laparotomija. Došlo je do značajnog smanjenja end-dijastoličkog promjera lijeve klijetke postoperativno (preoperativno 60,01/ postoperativno 54,25 mm), s daljnjom redukcijom u kasnijem praćenju. Tijekom postoperativnog praćenja ustanovljena značajna aortna insuficijencija kod jednog bolesnika (reoperiran) (AR 0 = 47; AR 1+ = 13; AR 2+ = 4).

**Zaključak:** Utvrdili smo da je ova tehnika odlična alternativa za liječenje bolesnika s aortnom insuficijencijom. Došlo je do značajne redukcije volumena lijeve klijetke na kraju dijastrale uz oporavak funkcije srca rano postoperativno te tijekom praćenja, uz odličnu funkciju zalistka.

**Objective:** Aortic valve replacement (AVR) is still the most commonly used therapeutic option for patients suffering from AR. Aortic valve repair (AVRep) is an attractive alternative method, since it avoids the risks of prosthesis-related complications.<sup>1,2</sup> We would like to present experience with the root remodeling, valve sparing technique with the extraaortic expandable ring.

**Patients and Methods:** Between November 2014 and September 2018, a total of 65 patients (53.1±13.1 years; 18.5% female, EuroScore II of 0.48% to 11.17%) underwent AVRep; 8 due to isolated cusp malcoaptation and 57 with associated with aortic root dilatation. Reconstruction was done with the Coroneo Extraaortic Ring (27 (25-31)), and the Gelweave graft (28 (25-32)). Concomitant procedures included mitral valve reparation in 4 patients, with tricuspid valve reparation in two of them, coronary artery bypass graft in four patients. In two patients replacement of aortic arch was performed and placement of EVITA stent graft in two patients. Echocardiography was used to determine AR severity grade preoperatively, during immediate postoperative period (within 7 days from operation) and at early follow-up.

**Results:** In postoperative follow-up no patients died. Freedom from reoperation was 92.5% (5/65) and there were 2 patients (3%) reoperated due to early postoperative regurgitation. Two patients (3%) were operated two years following surgery, one of them due to severe aortic insufficiency and the other due to aortic root pseudoaneurysm. One patient's postoperative recovery was complicated by ileus and a laparotomy was performed. A significant decrease in left ventricular end-diastolic diameter (LVEDd) was observed (preoperatively 60.01 mm/postoperatively 54.25 mm) with further decrease at early follow-up. At follow up one patient had major AR (he was reoperated) (AR 0 = 47, AR 1+ = 13, AR 2+ = 4).

**Conclusions:** We have proved that AVRep is a good alternative for patients with aortic insufficiency and leads to LV reverse remodeling with comparable results in terms of LVEDd and left ventricular ejection fraction immediately postoperatively and at early follow up.

### LITERATURE

- Lansac E, de Kerchove L. Aortic valve repair techniques: state of the art. *Eur J Cardiothorac Surg.* 2018 Jun 1;53(6):1101-1107. <https://doi.org/10.1093/ejcts/ezy176>
- Lansac E, Di Centa I, Vojacek J, Nijs J, Hlubocky J, Mecozzi G, et al. Valve sparing root replacement: the remodeling technique with external ring annuloplasty. *Ann Cardiothorac Surg.* 2013 Jan;2(1):17-23. <https://doi.org/10.3978/j.issn.2225-319X.2013.01.15>