a single-stage or a two-stage procedure using hybrid techniques. Aortic valve replacement 2 weeks after stent implantation to the coarctation has been reported [21]. This technique necessitates an additional general anaesthetic procedure and lengthens the hospital stay. We performed a hybrid technique in three patients with coarctation and accompanying cardiac lesions. After stent deployment, we operated on the cardiac pathology in the same procedure using conventional techniques without any complications. The mean operation time was longer than the cardiac procedure for the two-staged patients. However, two-stage techniques necessitate a coarctation operation with a second general anaesthetic procedure. The coarctation and associated lesions might be repaired in the same session with one general anaesthetic procedure, thereby reducing the length of hospital stay and cost.

The limitation of this study is its retrospective nature, which might cause a challenge to our algorithm. Aortic coarctation and accompanying lesions are very rare clinical cases. The decision concerning the surgical procedure to be employed is the most important step in treatment of these patients. In this article, we share our experience and our conclusions by evaluating these 25 cases.

Various strategies could be employed in the treatment of aortic coarctation accompanied by cardiac pathologies. The main step is to stratify the repair modality individually according to the severity of the diseases. In the surgical options, ascending-to-descending bypass should be performed for a coarctation accompanied by an ascending aortic aneurysm or critical aortic stenosis. In two-stage operations, the cardiac pathology should be operated in the first stage if congestive heart failure symptoms are observed. Currently, a single-stage operation with hybrid procedures might be a good option for most cases.

Conflict of interest: none declared.

REFERENCES


eComment. Ascending-descending aortic bypass in patients with complex aortic coarctation

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We read Ugrn et al.’s study with interest [1]. Aortic coarctation surgery may be considered a well established procedure in paediatric congenital heart surgery. However, it becomes a complex and challenging procedure in adulthood, especially in the presence of accompanying anomalies. Until the last decade, ascending-descending aortic bypass with a posterior pericardial approach via a stentotomy has been the gold standard for complex coarctation with excellent outcomes [2]. In the era of endovascular interventions, balloon dilatation and stenting have gradually become a reliable option for the management of isolated aortic coarctation [3]. Recently, a hybrid approach has become an alternative technique for treatment of complex cases with encouraging early results [4].

In our institution, we performed ascending-descending aortic bypass as a concomitant procedure in 11 adult patients (9 patients with aortic coarctation and 2 patients with type C interruption of aorta), who had accompanying cardiac diseases. All procedures were done with a median sternotomy and cardiopulmonary bypass in single stage. We performed simultaneous aortic valve replacement, coronary artery bypass grafting, ascending aorta replacement and the Bentall procedure in 4, 3, 2, and 2 patients, respectively. Ascending-descending aortic bypass was done with an anterior aortic arch. The Dacron graft was anastomosed to the lateral ascending aorta and extended toward the left ventricle lateral border. The posterior pericardium was opened and the descending aorta incircled. Descending aorta anastomosis was done with a side clamp. All patients survived surgery without any major adverse cardiac and neurologic events. One patient was reoperated because of infective
endocarditis in the second postoperative month. No major adverse cardiac or cerebrovascular events were found in medical follow-up records.

The hybrid approach may provide safe and simple repair of coarctation and shortens operative time in patients with accompanying cardiac diseases. Aortic rupture, aneurysmal dilatation, dissection, pseudoaneurysm, restenosis and stent fracture are infrequent but life-threatening complications. Although balloon dilatation and stenting is a well-established treatment in the paediatric population, long-term outcomes and prospective randomized studies comparing surgery and endovascular approaches are necessary in the adult population. Furthermore, extra-anatomic bypass with median sternotomy is a well-known technique facilitating the single stage management of concomitant cardiac problems. Limited posterior pericardial incision usually provides adequate exposure for distal anastomosis and decreases the risk of bleeding from excessive collateral vessels. Briefly, we still consider ascending-descending aortic bypass with median sternotomy to be the preferred approach in patients with complex aortic coarctation.

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References


