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Minimal Access Aortic Arch Surgery

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Introduction and Aim: Reports of minimal access aortic arch surgery are scarce. We review our experience with minimally invasive aortic arch surgery performed through an upper mini-sternotomy, with emphasis on details of operative technique, early and late outcomes.

Material and Methods: The medical records of 123 adult patients (mean age 66±12 years) who underwent minimal access aortic arch surgery in two aortic referral centers were reviewed. Most common indication was degenerative aortic arch aneurysm in 92 (75%) patients. Standard operative and organ protection techniques were used in all patients and included an upper mini-sternotomy, uninterrupted antegrade cerebral perfusion and moderate systemic hypothermia (27.4±1°C).

Results: A partial aortic arch replacement was performed in 68 (55%) patients; the rest 55 (45%) patients received total arch replacement, further extended with either a frozen elephant trunk in 43 (35%) patients, or a conventional elephant trunk procedure in 9 (7%) patients. No conversion to full sternotomy and no wound dehiscence were observed. New permanent renal failure occurred in 1 (0.8%) patient, stroke in 2 (1.6%) and spinal cord injury in 4 (3.3%) patients. Early mortality was observed in 4 (3.3%) patients. Survival was 91 ± 6 % at 4 years and freedom from reoperations was 96 ± 3 % at 4 years.

Conclusion: Minimally invasive aortic arch repair through an upper mini-sternotomy can be performed safely, with early outcomes well comparable to series performed through a standard median sternotomy. The less invasive incision does not adversely influence the extent and the durability of aortic arch repair.

Biography

Petar Risteski is the lead consultant aortic surgeon with the Thoracic Aortic Surgery Unit, Department of Thoracic and Cardiovascular Surgery, Johann Wolfgang Goethe University in Frankfurt am Main, a position he has held since 2016. He completed his training at the University Hospital Frankfurt under Prof. Dr. Anton Moritz. Since 2012 he is German board certified cardiac surgeon, and in 2014 he was admitted as a Fellow of the European Board of Thoracic and Cardiovascular Surgeons. His clinical focus covers a wide range of contemporary, interventional, hybrid and minimally invasive treatments for aortic diseases. His academic interest focuses on organ protection during primary and reoperative aortic procedures, hybrid treatment of extensive aortic pathologies and minimally invasive approach for aortic and valvular procedures, where he published extensively. He has authored or coauthored more than 70 original articles (43 Pubmed-indexed publications) that have been cited over 620 times.

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