

# Surgical management of aortic prosthetic valve endocarditis

AKADEMISK AVHANDLING

Som för avläggande av medicine doktorsexamen vid Sahlgrenska Akademin vid Göteborgs Universitet kommer att offentligens försvaras i Förmaket, Sahlgrenska Universitetssjukhuset, Göteborg Torsdag den 4 Februari 2016 av

**Sossio Perrotta**

Lägitimerad Läkare

Fakultetsopponent  
Docent Dan Lindblom  
Institutionen för kliniska vetenskaper  
Danderyds sjukhus  
Karolinska Institutet

Avhandlingen baseras på följande delarbeten:

- I. Perrotta S, Jeppsson A, Fröjd V, Svensson G.  
**Surgical treatment for infective endocarditis: A single center experience.**  
Submitted
- II. Fagman E, Perrotta S, Bech-Hanssen O, Flinck A, Lamm C, Olaison L, Svensson G.  
**ECG-gated computed tomography: a new role for patients with suspected aortic prosthetic valve endocarditis.**  
Eur Radiol. 2012 Nov;22(11):2407-14.
- III. Perrotta S, Aljassim O, Jeppsson A, Bech-Hanssen O, Svensson G.  
**Survival and quality of life after aortic root replacement with homografts in acute endocarditis.**  
Ann Thorac Surg. 2010 Dec;90(6):1862-7.
- IV. Perrotta S, Jeppsson A, Fröjd V, Svensson G.  
**Surgical treatment of aortic prosthetic valve endocarditis: A twenty-year single-center experience.**  
Ann Thorac Surg. 2015 Oct 7. pii: S0003-4975(15)01342-9.



UNIVERSITY OF GOTHENBURG

# Surgical management of aortic prosthetic valve endocarditis

**Sossio Perrotta**

Department of Molecular and Clinical Medicine, Institute of Medicine Sahlgrenska Academy, University of Gothenburg, Sweden

**Background:** Infective endocarditis (IE) is still associated with high mortality and morbidity despite advances in diagnostic, medical and surgical management.

**Aims: I.** To report short- and mid-term results after surgical treatment of IE in the current era and to compare the results between native valve endocarditis (NVE) and prosthetic valve endocarditis (PVE). **II.** To prospectively compare the ability of electrocardiogram (ECG)-gated computer tomography (CT) and transoesophageal echocardiography (TEE) to diagnose aortic PVE. **III.** To report our experience with implantation of aortic homografts in patients with aortic PVE or NVE with abscess. **IV.** To report the outcome of all patients operated for aortic PVE at our institution over the past 20 years and to examine whether the results have improved over time.

**Methods and methods:** In Study I, outcome after all consecutive patients operated for IE from 2008 to 2015 (n=254) was analysed. In Study II, 27 consecutive patients with aortic PVE underwent 64-sliced ECG-gated CT and TEE, and the results were compared and related to surgical findings. In Study III, outcome and Quality of life (QoL) in patients (n=62) with aortic PVE or NVE with abscess operated with implantation of an aortic homograft were analysed. In Study IV, outcome after all consecutive patients operated (n=87) for aortic PVE from 1993 to 2013 was analysed.

**Results:** In Study I, overall 30-day mortality was 8.7% and there was no statistically significant difference in 30-day mortality between patients with NVE and PVE (7.7% vs 11.1%, p=0.31). Thirty-nine percent of the patients had severe perioperative complications. Overall survival at one and five years was 86% and 75%, respectively. In Study II, agreement was good between surgical findings and imaging with ECG-gated CT and TEE and very good for the combination of CT and TEE. ECG-gated CT identified more abscesses and thickened aortic root wall while TEE detected more valvular dehiscence and vegetations. In Study III, overall 30-day mortality was 15%. Thirty-five percent of the patients had severe perioperative complications. Cumulative survival was 82%, 78%, 75%, and 67% at one, three, five and ten years, respectively. QoL did not differ significantly between the homograft patients and an age- and gender-matched normal control group. In Study IV, overall 30-day mortality was 10%. Forty-one percent of the patients had severe perioperative complications. Cumulative survival was 81% at five years and 75% at ten years. Thirty-day mortality was higher (22% vs 3.6%, p=0.007) and five-year cumulative survival was lower (66% vs. 88% p=0.013) during the first decade.

**Conclusions:** Surgery for infective endocarditis was associated with high early mortality and a considerable complication rate. Long-term outcome was acceptable. Morbidity and mortality were comparable in NVE and PVE patients. ECG-gated CT had comparable diagnostic performance to TEE in patients with aortic PVE and may be a complement to TEE. Acute aortic PVE and NVE with abscess formation treated with aortic homograft had substantial early complication rate and mortality. Long-term survival and QoL were satisfactory in patients surviving the immediate postoperative period. Aortic PVE was associated with a high rate of early complications and substantial early mortality. Long-term survival was satisfactory. The results have improved markedly during the past decade.

**Keywords:** infective endocarditis, prosthetic valve endocarditis, surgery, aortic valve endocarditis.

ISBN 978-91-628-9547-1 (Printed edition)

ISBN 978-91-628-9548-8 (Electronic edition)