

## **Mini Sernotomy for Aortic Valve Replacement can be Implemented without Mortality in Selected Patients.**

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**Objectives:** The aim of the study was to introduce minimally invasive aortic valve replacement with minor risk to the patients and to evaluate the results especially with regard to complications related to the minimally invasive procedure itself.

**Patients and methods:** 45 patients, 36 men and 9 women, aged 37 to 78 years (median 60 years) were operated from 2003-2006. All patients had first time aortic valve replacement through an 8 cm long skin incision and a partial upper sternotomy (L-shaped from the jugulum to the third right intercostal space). A thin aortic cannula and a triplestage catheter for venous vacuum drainage from the superior cava and a flexible aortic clamp were used. The patients were selected at the discretion of the surgeon to minimize risk; patients with severe lung disease or obesity or calcifications in the ascending aorta were not operated with the mini sternotomy. Patientderived fibrin sealant was used in all cases to stop oozing bleeding. All patients were followed up until April 2006.

**Results:** The 30-day mortality was 0. Two patients died later from non-cardiac causes; a 71 year old man died from bleeding from a cerebral aneurysm 3 months after the operation and a 76 year old woman died from colonic cancer with volvulus of the large intestine 7 months after the heart operation. One patient was reoperated for bleeding from an intercostal artery due to a sternal wire lesion. Two patients had complications related to the procedure; one patient had a right sided hemothorax due to lesion of the right internal thoracic artery with the sternal saw and one patient had a lesion of the inferior vena cava from a lesion caused by the thin triple-stage catheter used for venous drainage. This complication necessitated extension of the skin incision and the sternotomy downwards. Four other patients had likewise extension of the sternotomy; in three cases because of bleeding from the aortotomy and in one case one of the discs in a mechanical valve were motionless and a reoperation with insertion of a new valve were required. The majority of the patients had an uneventful postoperative course with little bleeding and a normal chest Xray without atelectasis. There were no cases of sternal dehiscence or infection.

**Conclusion:** Mini sternotomy for aortic valve replacement can be performed without mortality in selected patients which is highly recommended when this type of operation is introduced in a new department.