



Left Ventricular Aneurysm Repair Through The Left Anterior Thoracotomy: A Minimally Invasive Approach

Oleksandr Babliak, Dmytro Babliak

Diagnostic and Treatment Center For Children And Adults Of The Dobrobut Medical Network

BACKGROUND

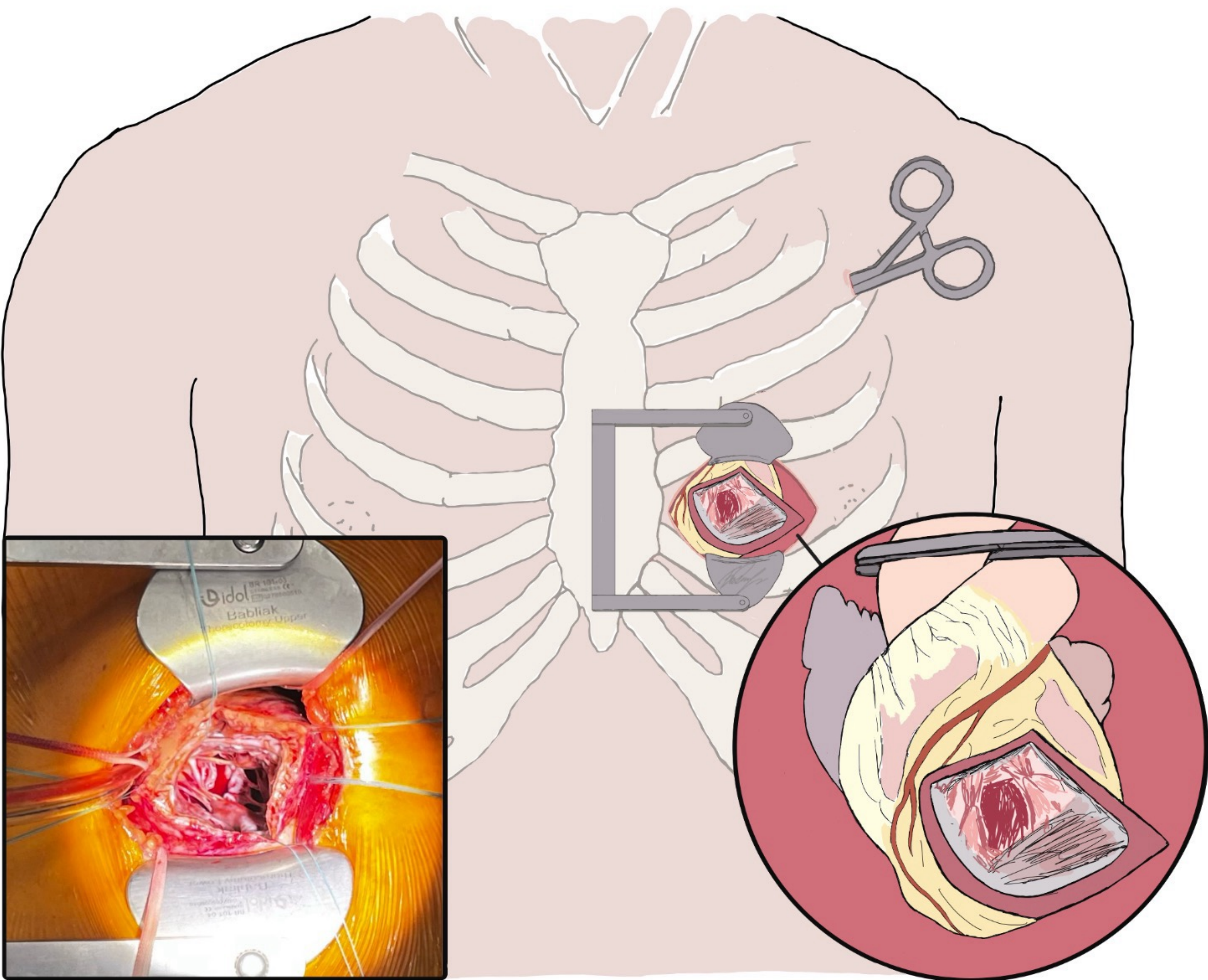
Expanding on the success of left ventricle (LV) aneurysm repair via the left anterior thoracotomy (LAT) and simultaneous coronary artery bypass grafting (CABG) with and/or mitral valve (MV) surgery through the same minimally invasive approach, this study explores the outcomes and feasibility of the procedure.

METHODS

Between October 2018 and November 2023, a cohort of 36 non-consecutive patients underwent LV aneurysm repair via the left anterior thoracotomy. Simultaneous procedures included CABG and/or MV surgery through the LAT. Patient characteristics

Variable	N = 36
Age, years	61 ± 15.5 (33;82)
Men, n	28 (77.8%)
Diabetes, n	6 (16.7%)
LVEF, %	30 ± 8.7 (10;55)
BMI	27.9 ± 4.4 (19.9; 35.9)
EuroSCORE II, %	5.8 ± 5.2 (1.52; 20)

Preoperative CT angiography was conducted, and the surgical procedure involved peripheral cardiopulmonary bypass, aortic cross-clamping, and cold blood cardioplegia. LV access was achieved through a 6 to 8 cm incision in the 4th intercostal space (ICS).



RESULTS

Variable	Mean ± SD (min;max)
Distal coronary anastomoses per patient	2.1 ± 1.1 (1;5)
Total operation time, min	314 ± 55.4 (230;440)
Cardiopulmonary bypass time, min	209 ± 50.8 (119;320)
Cross-clamp time, min	116.8 ± 29 (55;199)
ICU stay, days	2.1 ± 1.4 (1;8)
Total hospital stay, days	6.9 ± 2.9 (4;14)

Successful visualization of the LV aneurysm was achieved in all patients without conversion to sternotomy. Simultaneous CABG and/or MV surgery were performed, with MV was accessed through the LV in 14 patients (38.8%), and transeptally in 1 patient (2.8%). MV repair was performed in 13 individuals (36.1%), and MV replacement in 2 patients (5.5%). Conventional tools were used in all cases. No significant bleeding, strokes, major complications or hospital mortality were observed. 30-days mortality includes one sudden death.

CONCLUSIONS

Left ventricular aneurysm repair through the left anterior thoracotomy, combined with simultaneous CABG and/or MV surgery via the LAT, proves to be highly efficient and safe. This approach demonstrates promising outcomes encouraging the further developments in minimally invasive cardiac surgery.