Is Upper Mini-sternotomy approach the future of Aortic valve procedures? The Belfast experience

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Introduction:

Upper ministernotomy (UMS) for Aortic valve surgery is a well-established approach. It has been proven to be a competitive alternative to full sternotomy with improved aesthetic appearance and non-inferior safety. With current patient choice/Cardiologist pressures to pursue minimally invasive procedures, Upper mini sternotomy approach is of increasing popularity. We here present our single centre experience showing short and medium term surgical outcomes of UMS approach for aortic surgery.

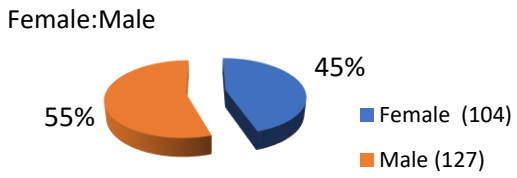
Methods:

Retrospective analysis of patients who undergone UMS Aortic valve procedures over the last five years. Analysis of patients' demographics, intra-op findings and evaluation of early/medium term outcomes. Data presented as median (interquartile range) or percentages.

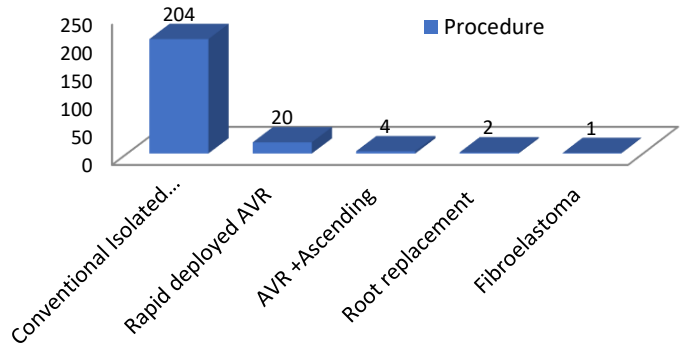
Results:

231patients had UMS Aortic valve surgery at our Hospital over the last 5 years (Sep2014-Sep2019)

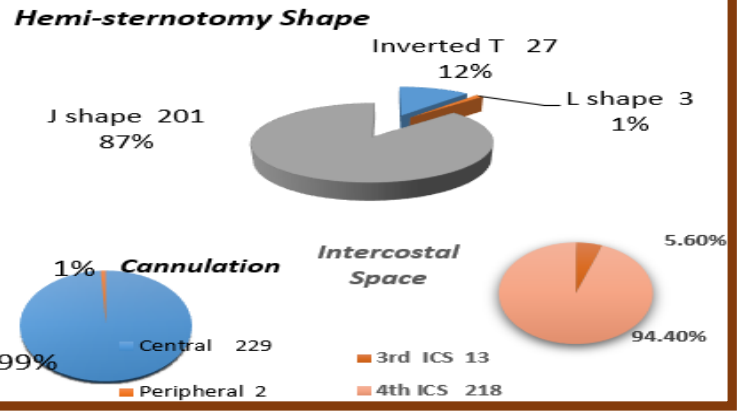
Age at operation (years)	**67 (31-86)**



SMOKER	108(46.7%)	**BMI**	30.24 (18.-55)
DM	43(18.6%)	**BMI> 30 (kg/m²)**	120(52%)
HTN	158(86.3%)	**LVEF >50**	209 (91.6%)
CVA	8(3.4%)	**LVEF 30-50**	21 (9%)
TIA	9(3.8%)	**LVEF<30**	1 (0.4%)
PVD	5(2.1%)	**Logistic Euroscore**	5.27 (1.51-25.79)
COPD	25(10.8%)	**Euroscore II**	1.74 (0.5-8.99)
NYHA III-IV	86(37.2%	**Angina CCS 3-4**	29(12.5%)



Intra op results:

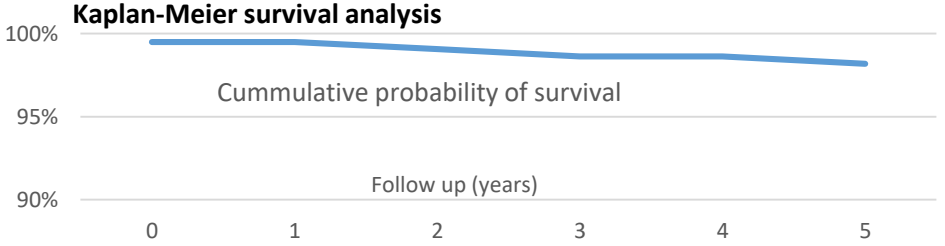


CPB time (min)	**108 (51-190)**
CX Clamp time (min)	60 (33-170)

Surgical Mortality	**1(0.43%)**	**Vent time(hours)**	**8.86 hr (0-42)**
Hospital Mortality	1(0.43%)	**ICU stay (days)**	1 (1-20) days
Conversion to full sternotomy	11(4.7%)	**Hospital stay (days)**	8(3 -32) days
Rewiring sternum	2(0.86%)	**PPM**	2(0.86%)
New onset AF	8(3.40%)	**30-day readmission**	7 (3%)

Mean gradient (mmHg)	**9.7(1-34)**
Peak gradient (mmHg)	19.8 (6-58)
Paravalvular leak	
	No leak: 218 (94.4%)
	Mild: 11 (4.8%)
	Moderate: 2 (0.8%)
Follow up	2.8 ± 2 (years)

Kaplan-Meier survival analysis



Conclusion:

Aortic valve, aortic root and ascending aorta surgery is amenable by mini sternotomy incision with good outcomes taking into consideration careful patient selection. It is essential to respect the learning curve and accepting low threshold for conversion to conventional full sternotomy when required.