



Liverpool Heart and Chest Hospital
NHS Foundation Trust

The First Fifty Robotic Mitral Valve Repairs in the United Kingdom: Better Late than Never, but Experience is Important.

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Introduction

Compared to sternotomy, robotic mitral valve repair (rMVP) is associated with shorter hospital stay, less pain and faster return to normal activities
But this is expensive technology.
The United Kingdom has been slow to adopt this, in part because the National Health Service (NHS) has finite resources.
Before progressing to a totally endoscopic repair, prior experience with the video-assisted mitral approach was deemed necessary.

Methods

Robotic mitral valve repair was adopted after the team had performed 400 video-assisted mitral surgeries

We used the Lateral Endoscopic Approach for Robotics (LEAR) technique, except when the Intraclude was unavailable due to a product recall, when we used the Chitwood clamp.

All patients had severe MR due to PMVL prolapse, <1+ AR and good LV function.

Antegrade cold Custodiol cardioplegia (Male= 1.75L; Female= 1.5L) re-dosed at 90-120mins and systemic cooling to 28-30°C were used for myocardial protection in all cases.

All patients had internal jugular venous cannulae (17-19Fr) placed to ensure optimal venous drainage.

We analysed the results of the first 50 rMVPs performed between March 2018 to March 2022. All patients had severe MR due to posterior leaflet prolapse.

Technique

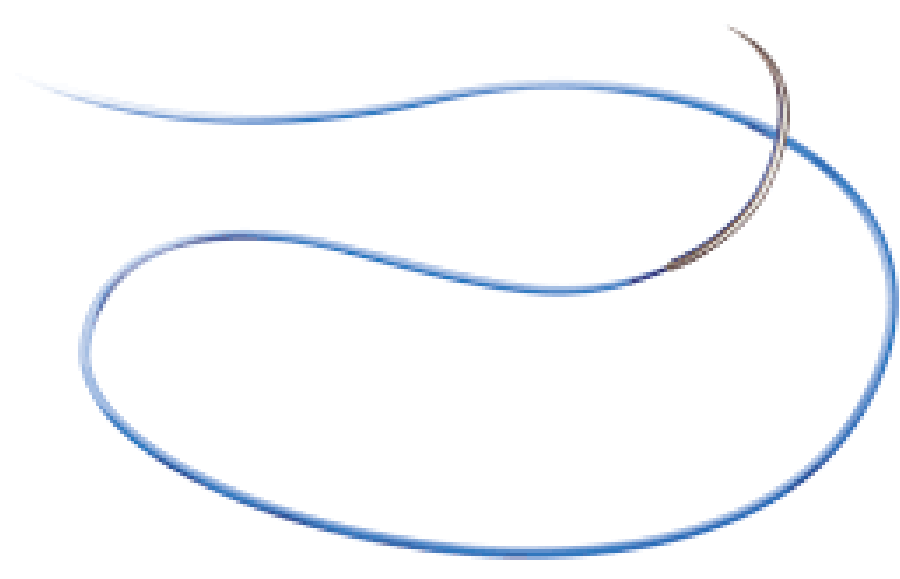
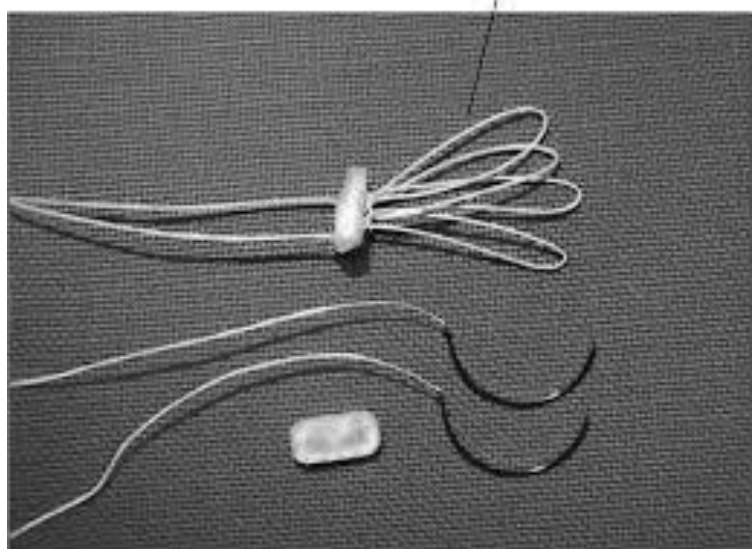
Valve repair was accomplished using up to 4 techniques.

i) Loop Neochordae

ii) Individual pairs of neochordae

iii) Cleft closure

iv) flexible or semi-rigid annuloplasty bands with either GoreTex running sutures or Corknot.



Pre-operative Demographics

n	51
Age (years)	60 (52-67)
Female	9 (17.6%)
BMI	26.2 (23.1-28.4)
Elective	50 (98%)
Prior Cardiac Surgery	0 (0%)
Good LV function	51 (100%)
Log EuroSCORE	2.5 (1.5-3.7)

Post-Operative Outcomes

Mortality	0 (0%)
Stroke	0 (0%)
Return to OR for bleed	0 (0%)
ICU stay (hours)	22 (19-43)
Hospital stay (days)	4 (4-5)
Wound infection	0 (0%)
AF	16 (31%)

Operative Data

Repair	51 (100%)
≤1+ MR on leaving OR	51 (100%)
Concomitant Procedures	
PFO Closure	4 (7.8%)
Cryomaze	2 (3.9%)
Aetiology	
FED	33 (65%)
Barlow's	18 (35%)
CPB time (mins)	224 (208-233)
AXC time (mins)	158 (140-168)
Conversion to sternotomy	0 (0%)

Echo Outcomes & Follow-up

All patients were discharged with 0-1+ MR and during annual TTE follow-up of all patients, none developed more than 1+ MR.

Conclusion

With an appropriately experienced team, totally endoscopic robotic cardiac surgery can be safely introduced with excellent results into healthcare systems with finite resources.

The Leipzig loop technique is transferable to robotic surgery.

Significant experience with video-assisted mitral repair is invaluable and avoids conversion to sternotomy.