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Hypertrophic Cardiomyopathy: the edge-to-edge mitral valve repair secures the correction of the systolic anterior motion

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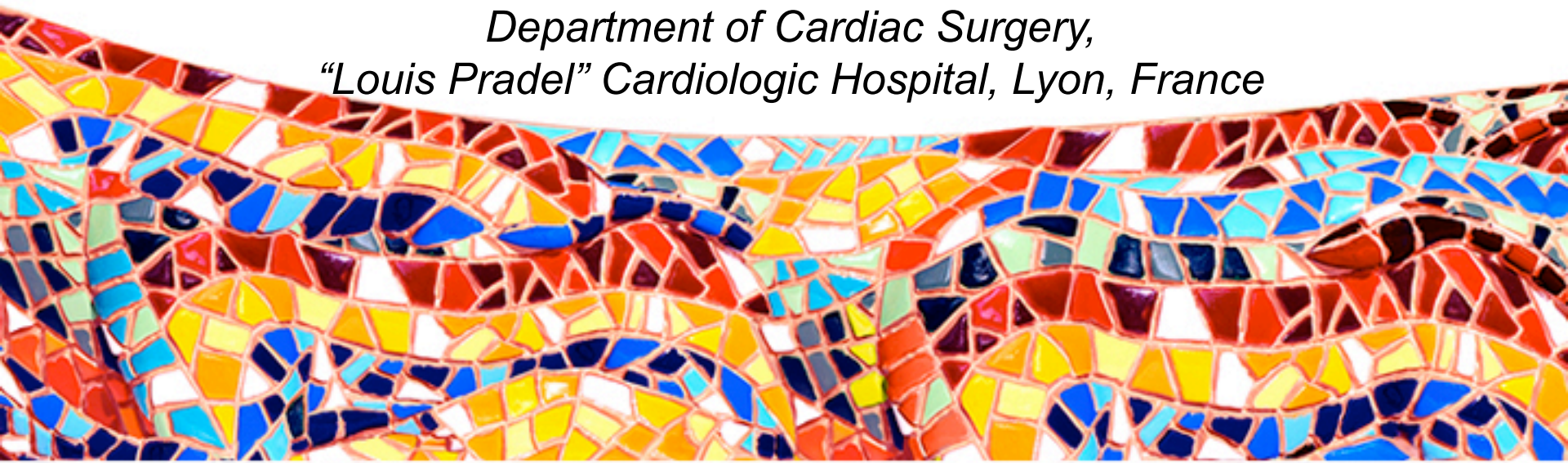
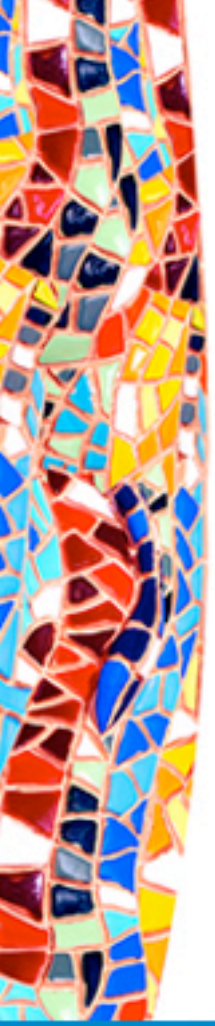




CONFLICT OF INTEREST

The authors have no conflict of interest to disclose

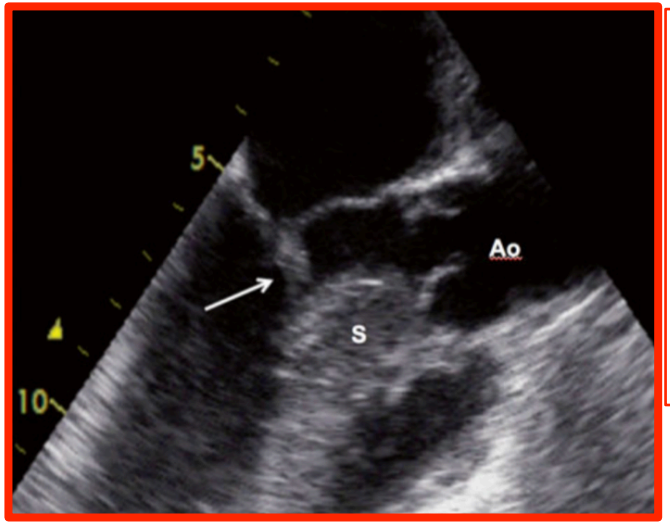
INTRODUCTION

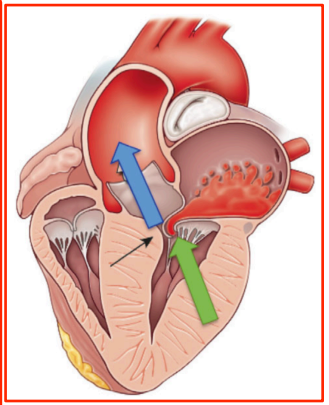
The leading **anatomic features** of hypertrophic cardiomyopathy (HCM) are:

LV wall thickness ≥ 15 mm
(**septal hypertrophy**)

MV apparatus
anomalies

SAM
(LVOT obstruction in 1/3
of the HCM patients)





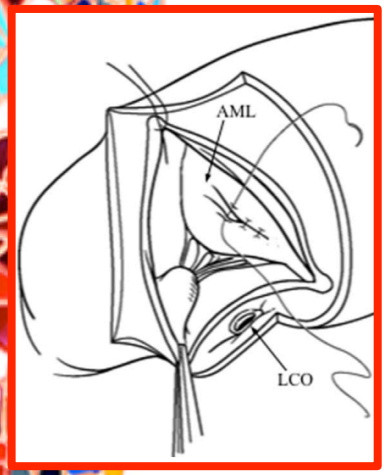
Eur Heart J 2014;35:2733-79
J Am Coll Cardiol 2016;67:1846-58
Nature Rev Cardiol 2015;12:689-710

BACKGROUND

The ventricular septal myectomy using the **Morrow procedure** remains the gold standard and main step of any surgery for HCM

However, the **surgical management of associated mitral valve lesions** resulting in mitral regurgitation is still matter of debate

AML PLICATION

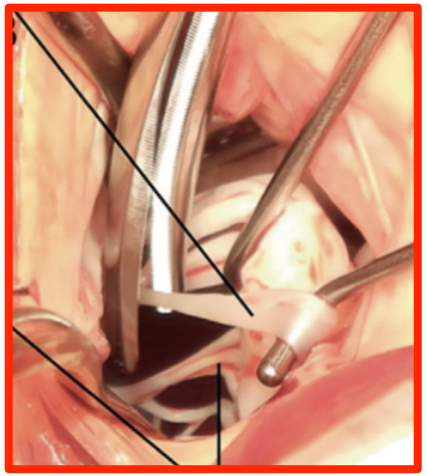


J Am Soc Echocardiogr 2015;28:1318-28

AML EXTENSION

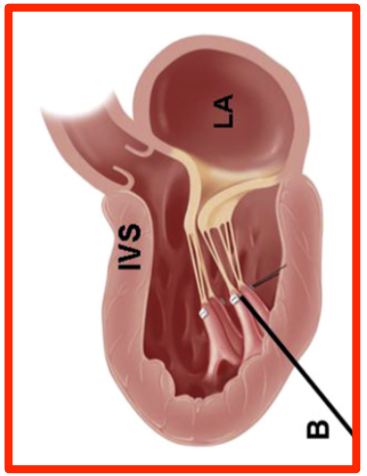
Eur J Cardiothorac Surg 2016;50:61-5

CHORDAL CUTTING



J Am Coll Cardiol 2015;66:1687-96

PM REORIENTATION

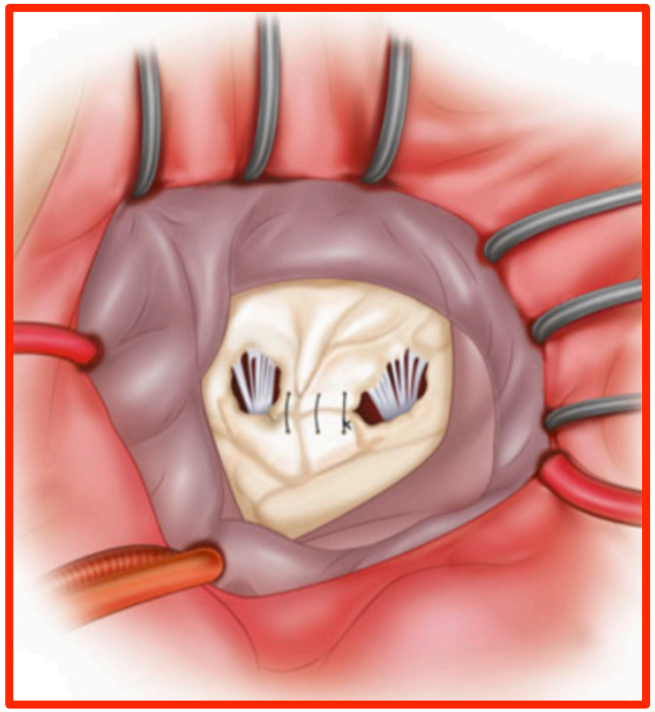


J Thorac Cardiovasc Surg 2010;140:317-24

STUDY OBJECTIVE

The **“edge-to-edge” technique** has been introduced in the 1990’s as an attractive option in the setting of degenerative mitral valve repair with satisfactory long-term results

Our aim is to describe the results of the **edge-to-edge technique and the Morrow procedure** in the management of mitral valve anomalies associated with HCM



J Thorac Cardiovasc Surg 2012;144:1019-24
New York: Springer, 2015: 28

PATIENTS

We performed an observational analysis of our prospectively collected database

↓

22 patients
Mean age 48.5 years – Males 59.1%

DIAGNOSIS OF HCM	SYMPTOMS	MITRAL VALVE
Mean IVS thickness 25.8 mm Mean resting IVG 75.4 mmHg	Mean NYHA class 2.5 Syncope 31.8%	SAM 100% Mean MR 2.4

↓

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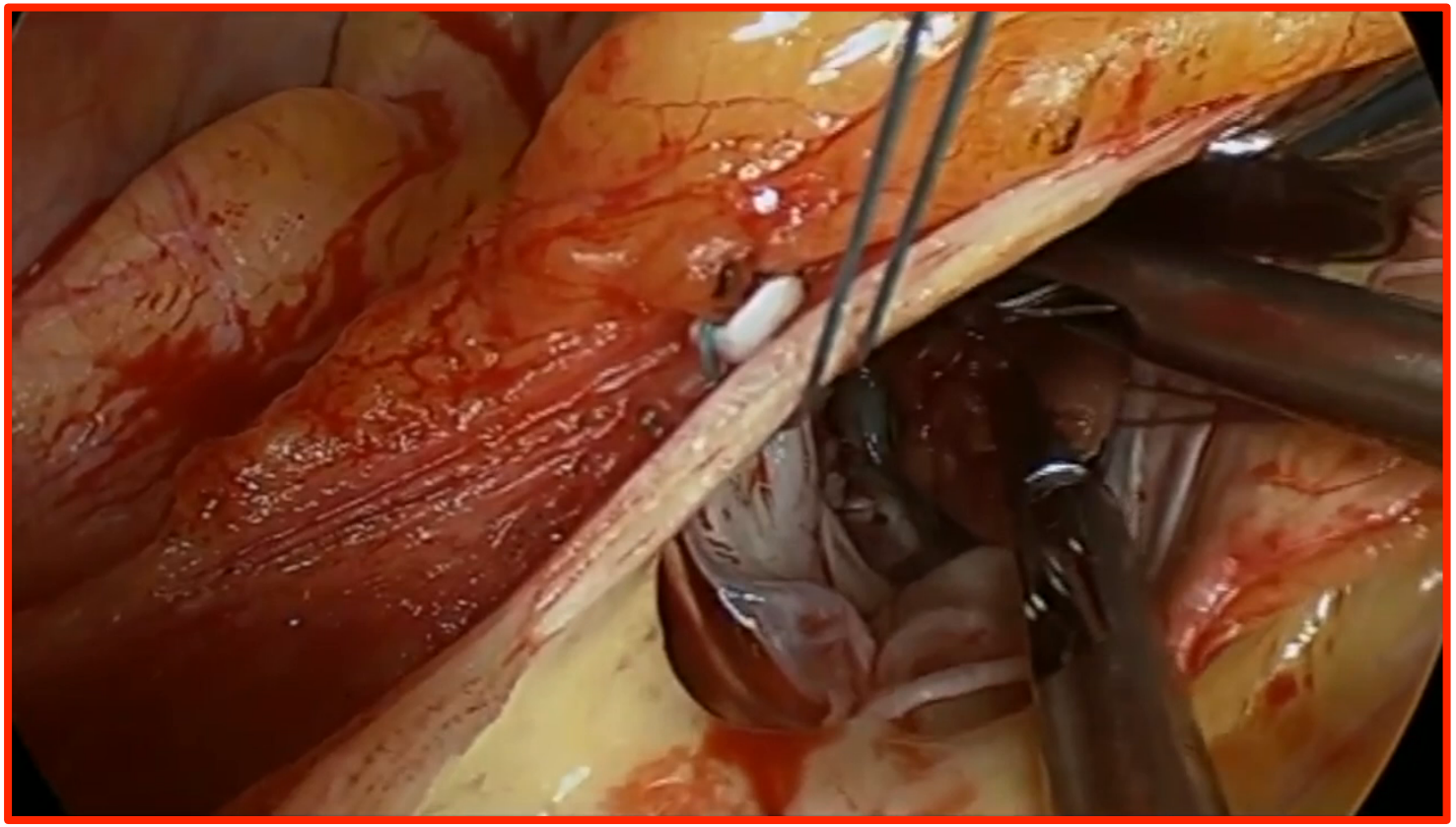
ESC GUIDELINES

surgical septal myectomy rather than percutaneous septal alcohol ablation

Eur Heart J 2014;35:2733-79

METHODS



RESULTS 1

Concomitant procedures in **3 (13.6%) patients**:
aortic valve replacement (n=1, 4.5%)
radiofrequency pulmonary veins isolation (n=2, 9.1%)

Mean **aortic cross-clamping time:**	**55.1** ± 9.8 (42-76) minutes
Mean **cardiopulmonary bypass time**:	**68.2** ± 10.2 (54-88) minutes

During the postoperative course, **2 (9.1%) patients** required the implantation of a **pacemaker** due to atrioventricular block

No deaths either in the immediate postoperative period or during the **follow-up (26.3 ± 20.5 [range, 1.8-89.9] months)**

RESULTS 2

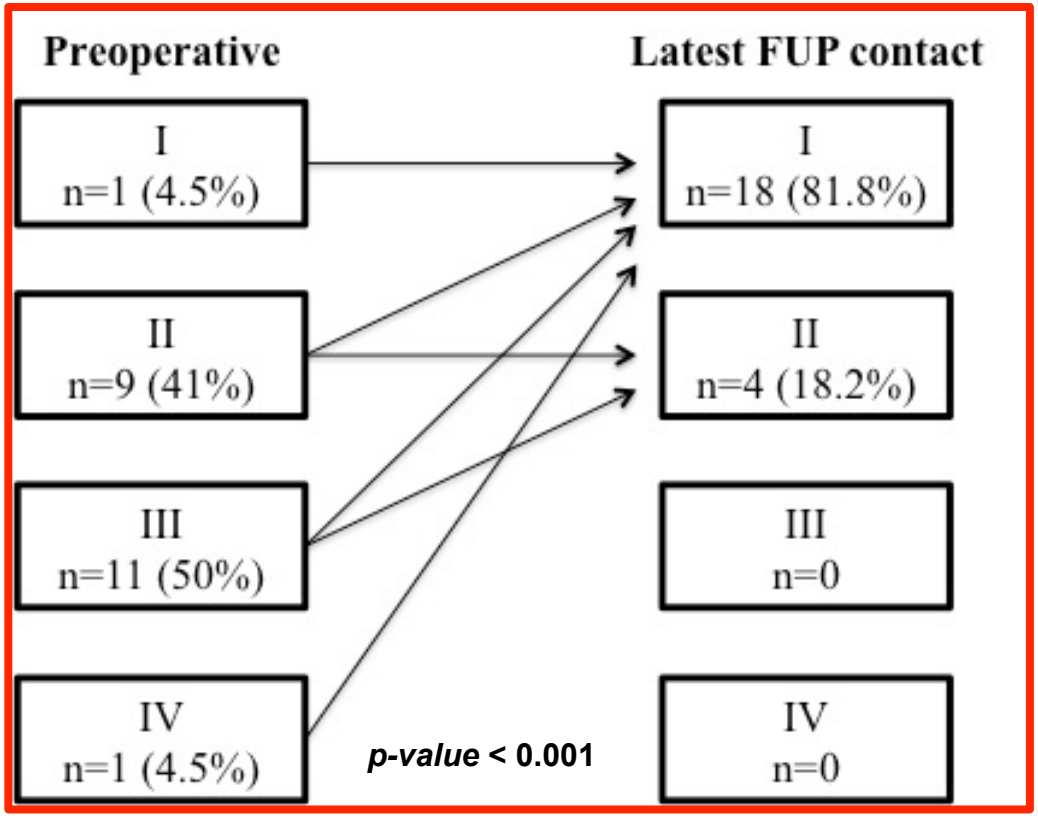
ECHOCARDIOGRAPHIC FOLLOW-UP

VARIABLE*	BASELINE	POSTOPERATIVE	FOLLOW-UP	p-value&
IVS thickness (mm)	25.8 ± 5.4	19.4 ± 7.9	18.5 ± 5.7	< 0.001[a,b]
IVG gradient (mmHg)	75.4 ± 30.5	11.3 ± 9.9	4.8 ± 7.6	< 0.001[a,b]
SAM (%)	100	4.5	0	< 0.001[a,b]
MR	2.4 ± 0.9	1.1 ± 0.9	1.2 ± 0.6	< 0.001[a] 0.002[b]

**Quantitative variables are presented as mean ± standard deviation; categorical variables are presented as percentages*
&For each variable, analysis was only performed on cases with matched data (i.e. excluding cases with missing data)
[a]Postoperative vs. baseline
[b]Follow-up vs. baseline

RESULTS 3

CLINICAL FOLLOW-UP



CONCLUSIONS

*The enlarged **Morrow procedure** remains the first step of any surgery for HCM owing to its **good clinical and echocardiographic long-term validated results***

*In case of MR due to SAM, the **edge-to-edge suture** is helpful to secure the **coaptation between the two leaflets of the mitral valve***

*In complex MR mechanisms the **edge-to-edge technique** is **simple**, **reproducible** and **fast without** a more questionable direct procedure on the mitral valve requiring **left atrium opening***