Modern Myectomy

Bruce Reitz MD

Stanford University

Andrew G Morrow MD

Dr Morrow was a trainee of Dr Alfred Blalock, who became the Director of the Surgical Branch of the Heart Institute of the NIH, a position he held from 1955 to 1985. With Eugene Braunwald, Stephen Epstein, Barry Maron, and others, he dedicated the NIH group to defining and treating the disease. They described the disease in 1964, in 64 patients.

In the ultimate irony, Dr Morrow came to learn that he had the disease himself, and succumbed to complications resulting from it.

Operative Technique for HCM

Operative treatment in hypertrophic subaortic stenosis. Techniques, and the results of pre and postoperative assessments in 83 patients

AG Morrow, BA Reitz, SE Epstein, WL Henry, DM Conkle, SB Itscoitz and DR Redwood

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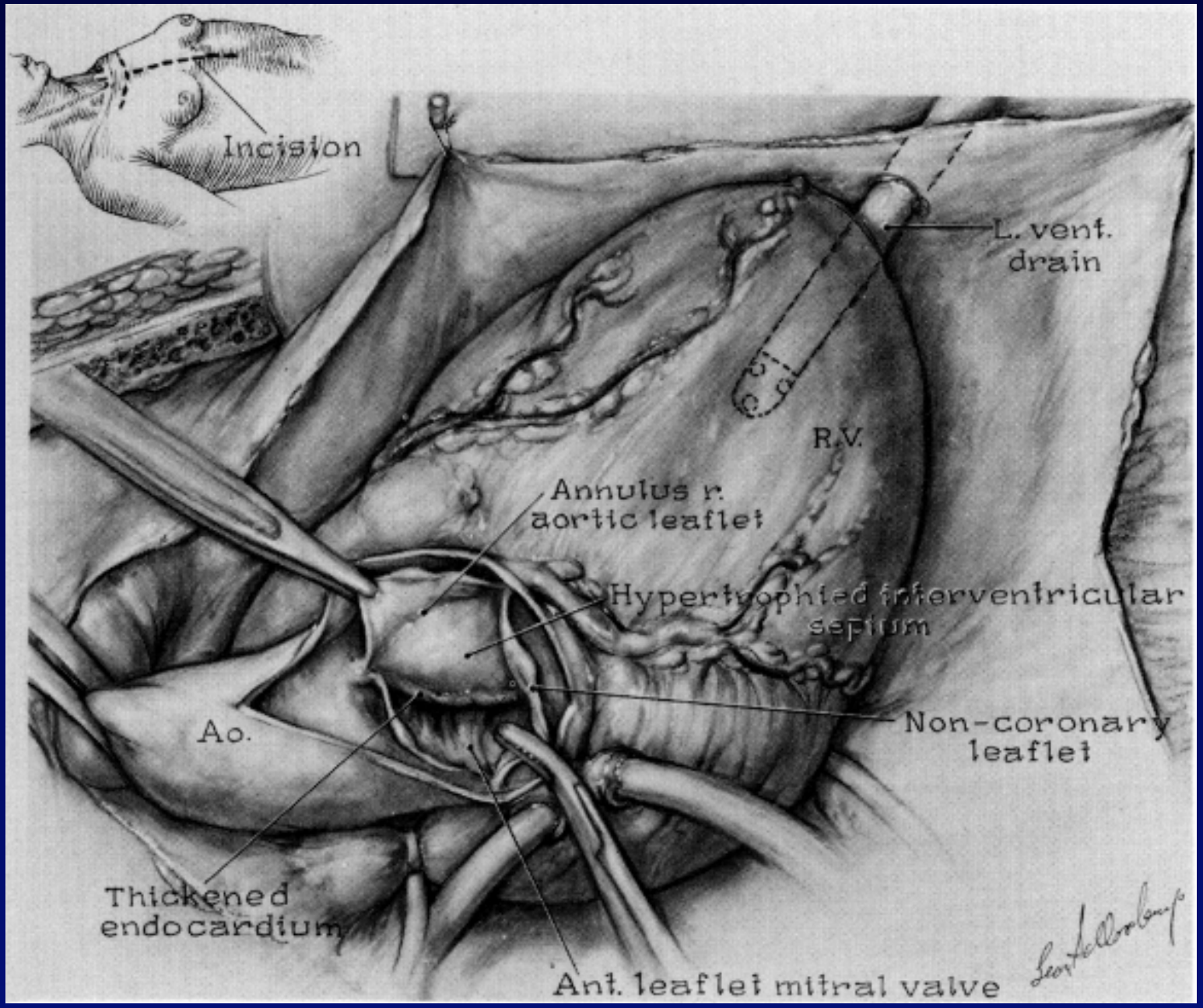
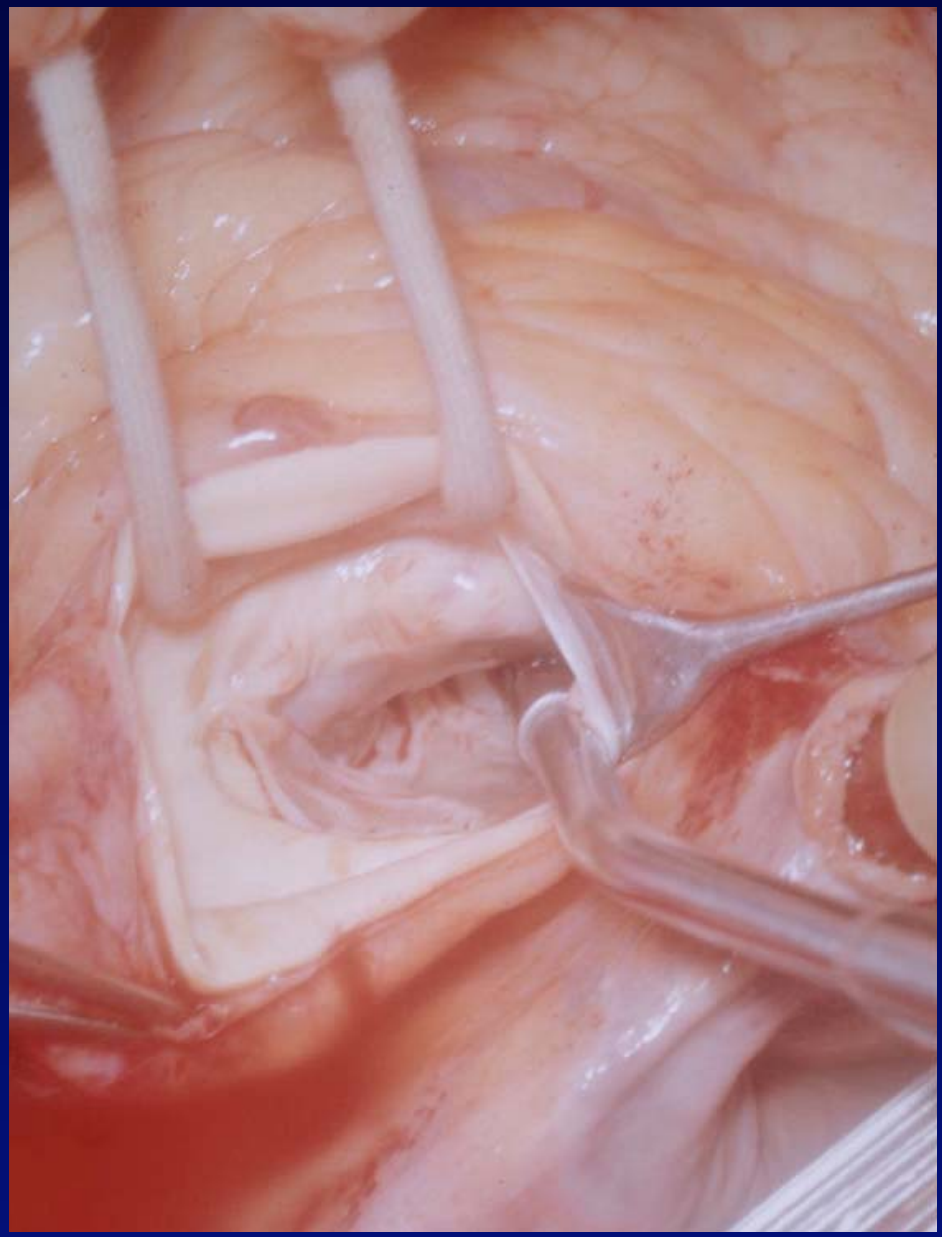
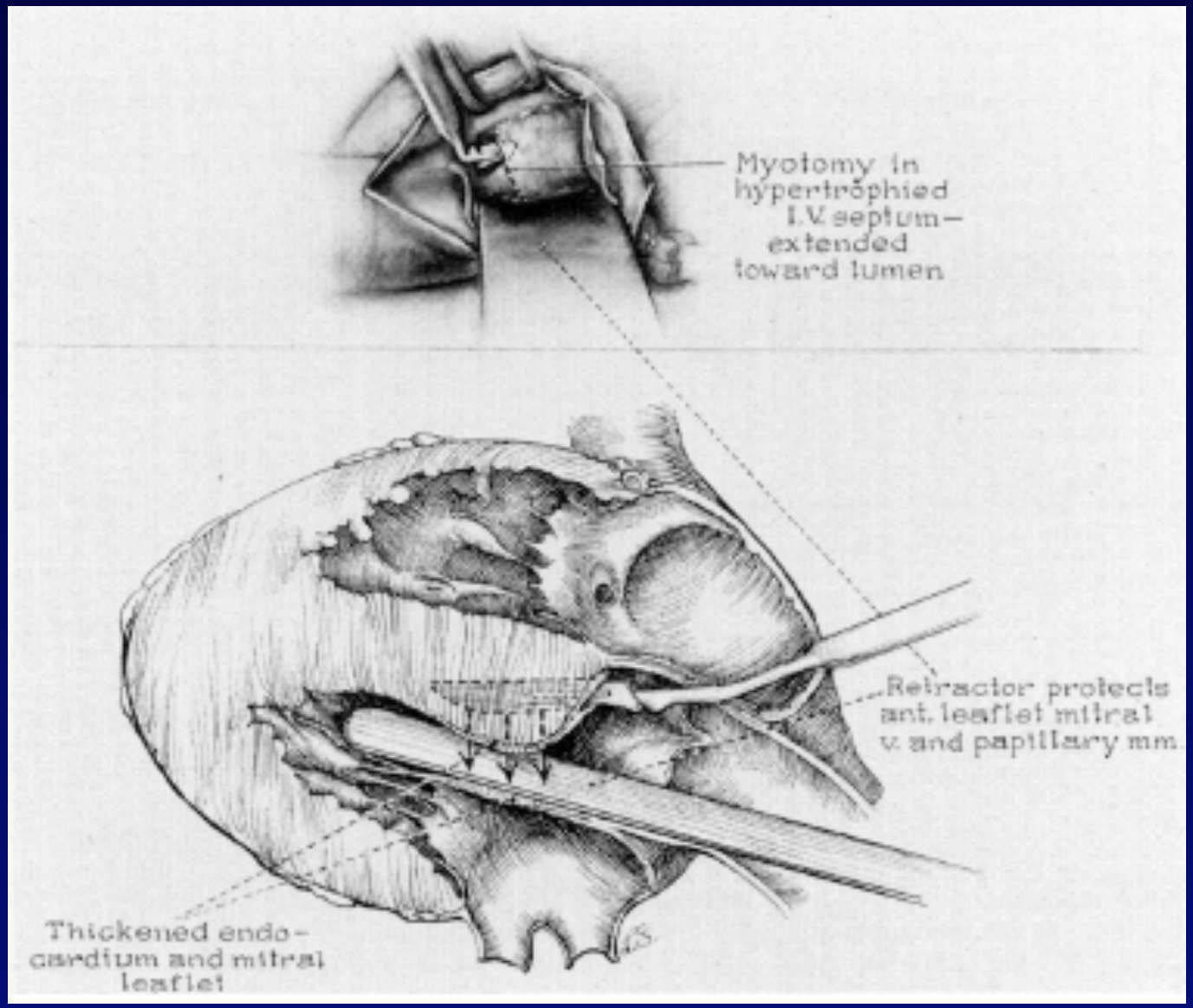
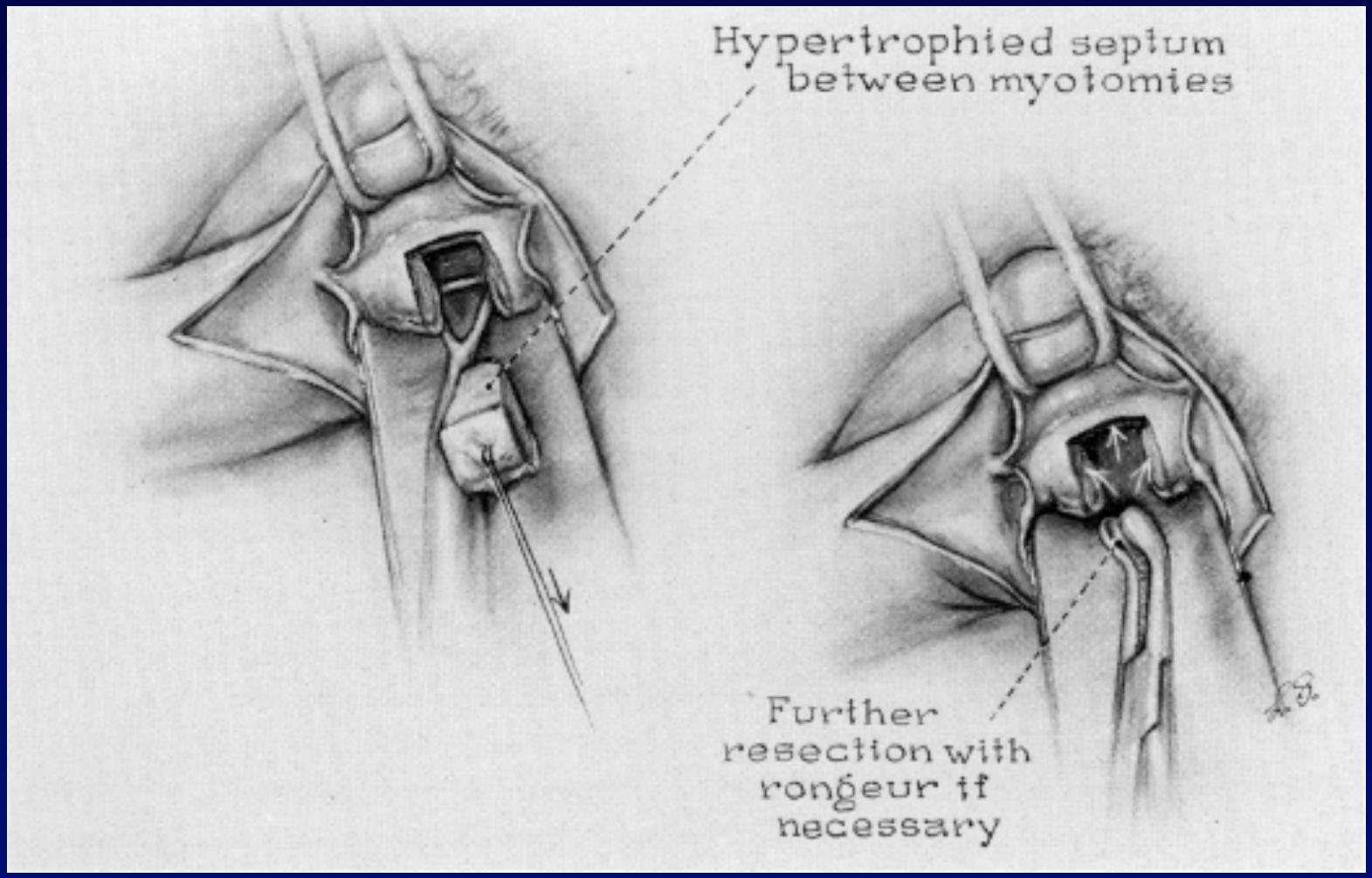
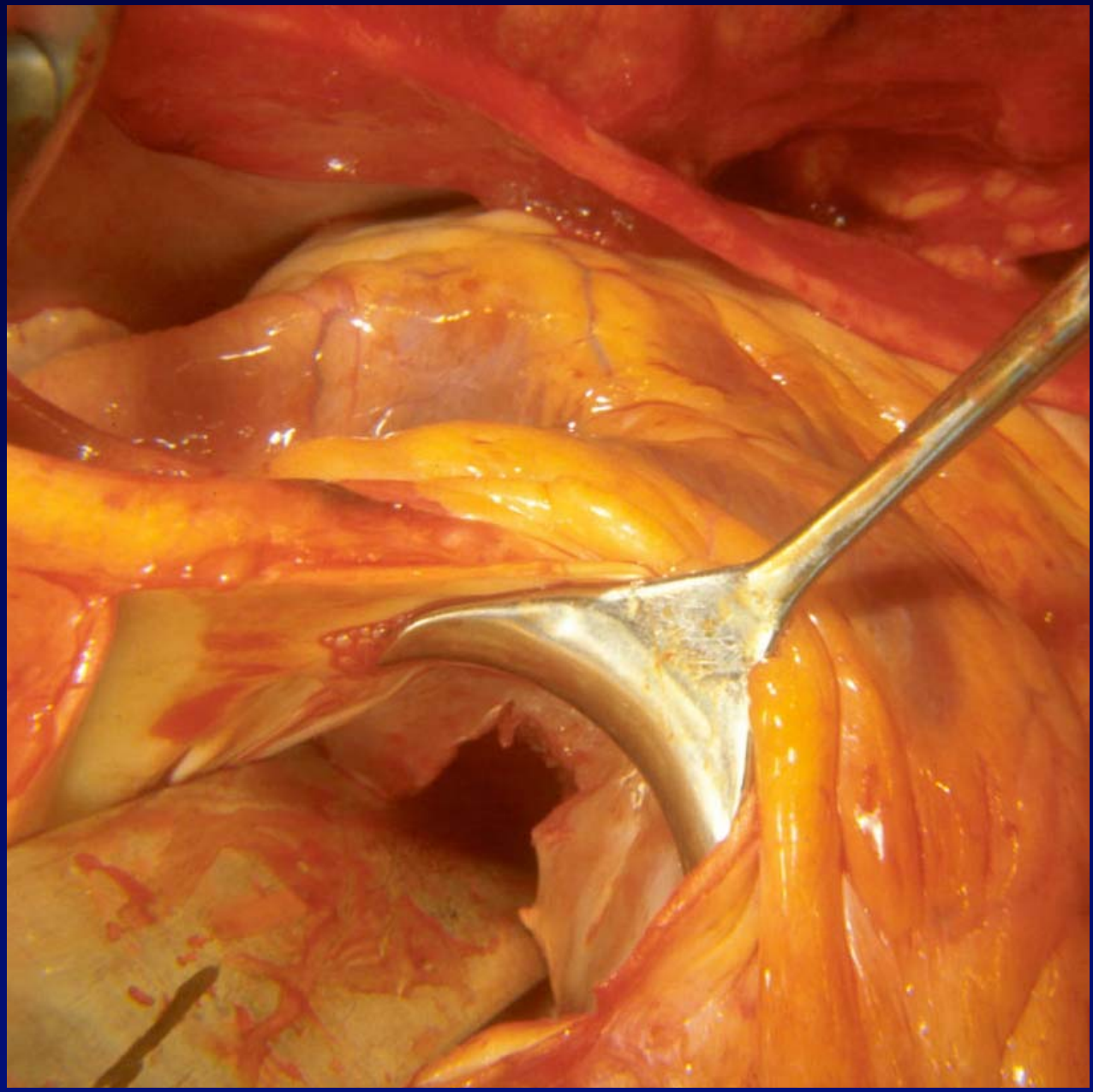
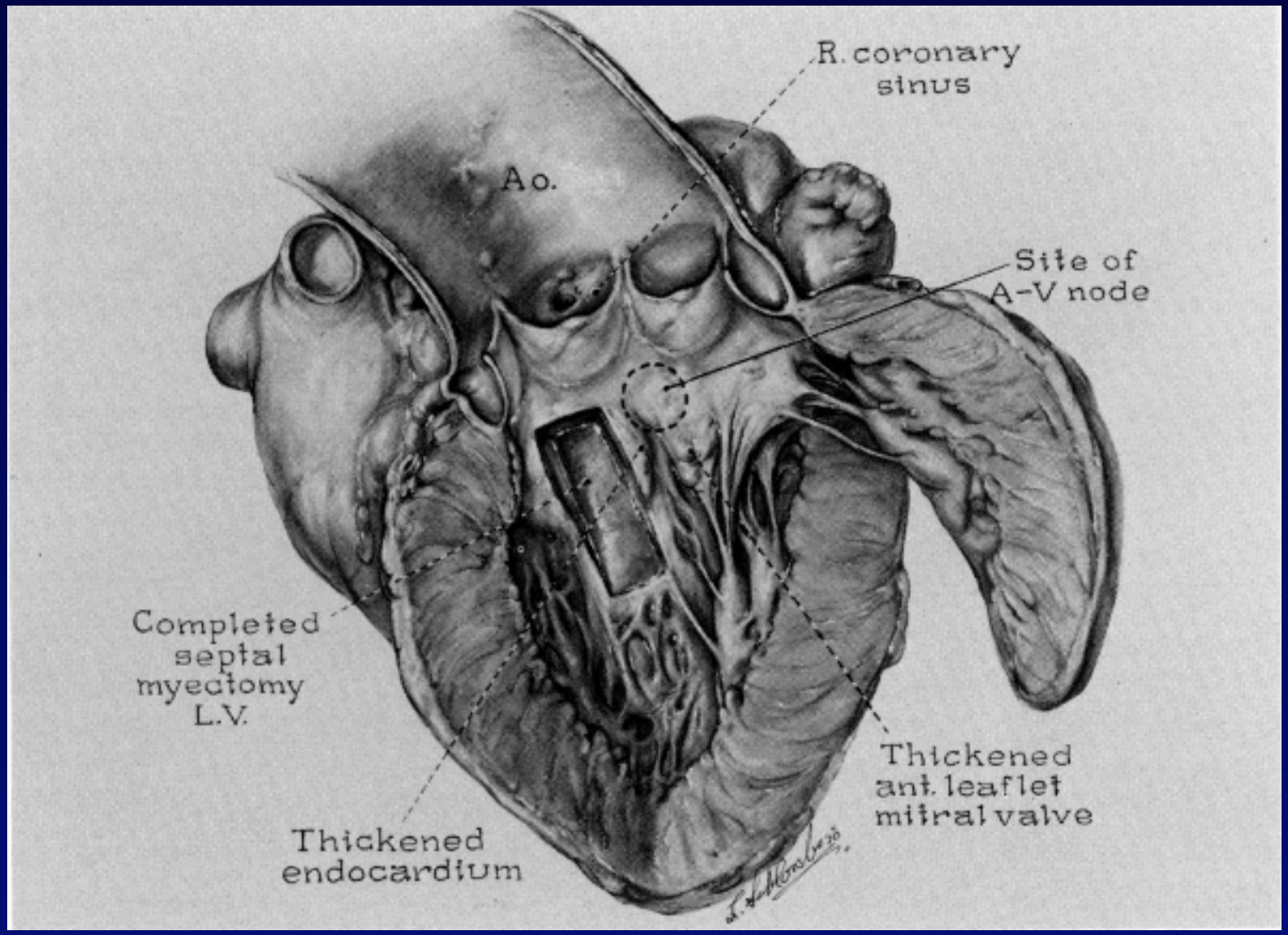

Incision
L. vent. drain
R.V.
Annulus r. aortic leaflet
Hypertrophied interventricular septum
Non-coronary leaflet
Ao.
Thickened endocardium
Ant. leaflet mitral valve




Myotomy in hypertrophied I.V. septum— extended toward lumen
Retractor protects ant. leaflet mitral v. and papillary mm.
Thickened endocardium and mitral leaflet


Hypertrophied septum
between myotomies
Further
resection with
rongeur if
necessary




R. coronary sinus
Ao.
Site of A-V node
Completed septal myectomy L.V.
Thickened ant. leaflet mitral valve
Thickened endocardium

Hypertrophe Specimen

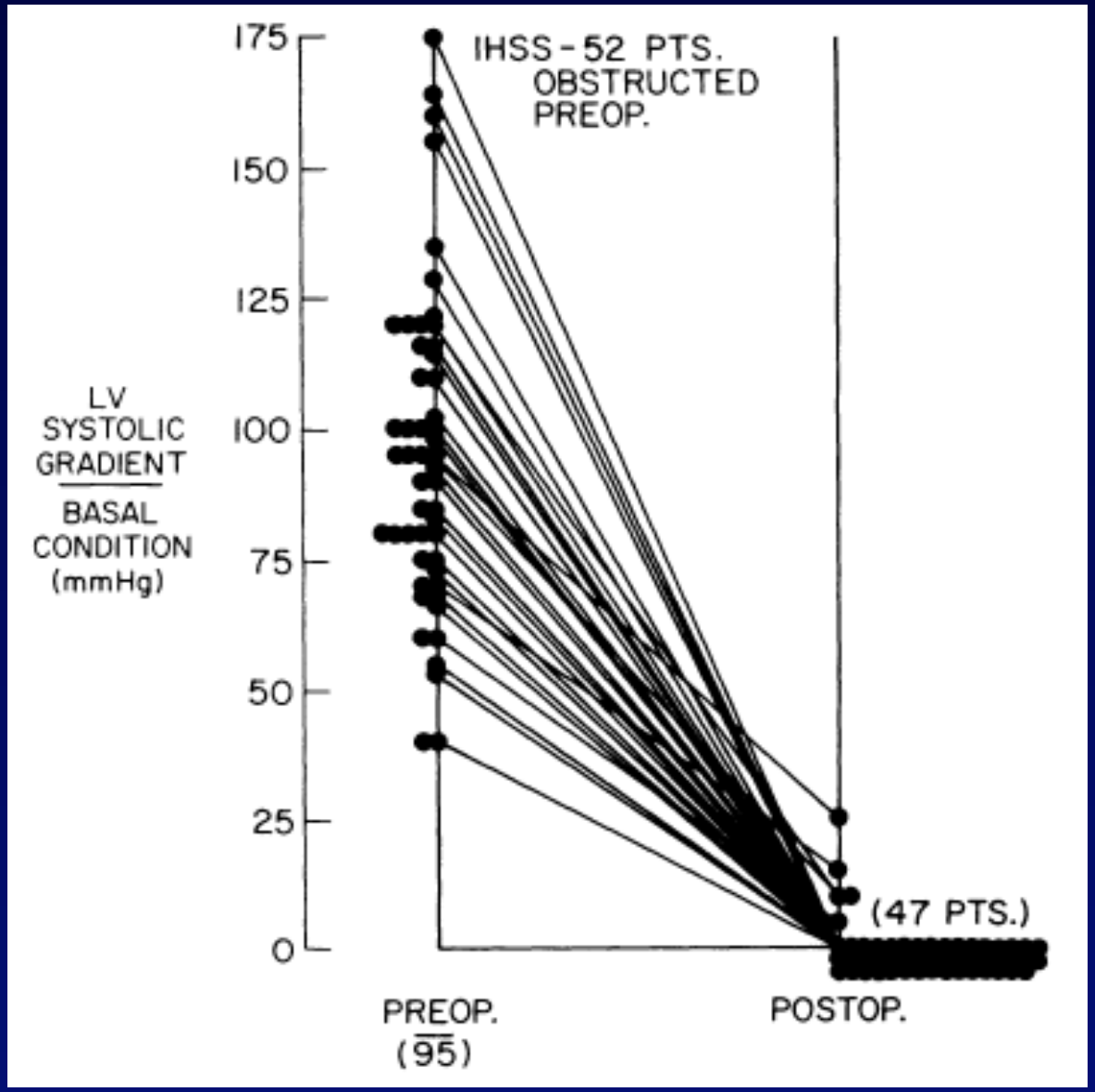
Approximately

1 X 1 X 3 CM

From Lytle, B CCF

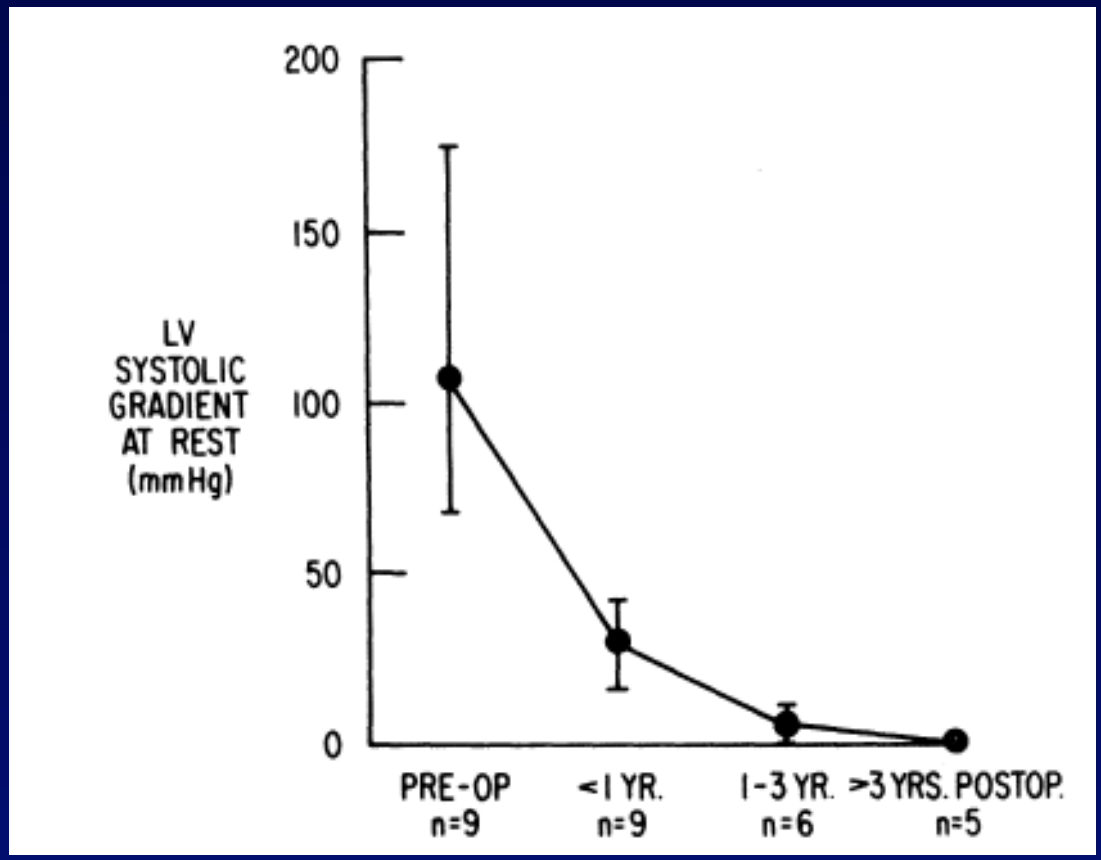
From Smedira, N. CCF

Systolic Gradients Preop and most recent Cath Postop



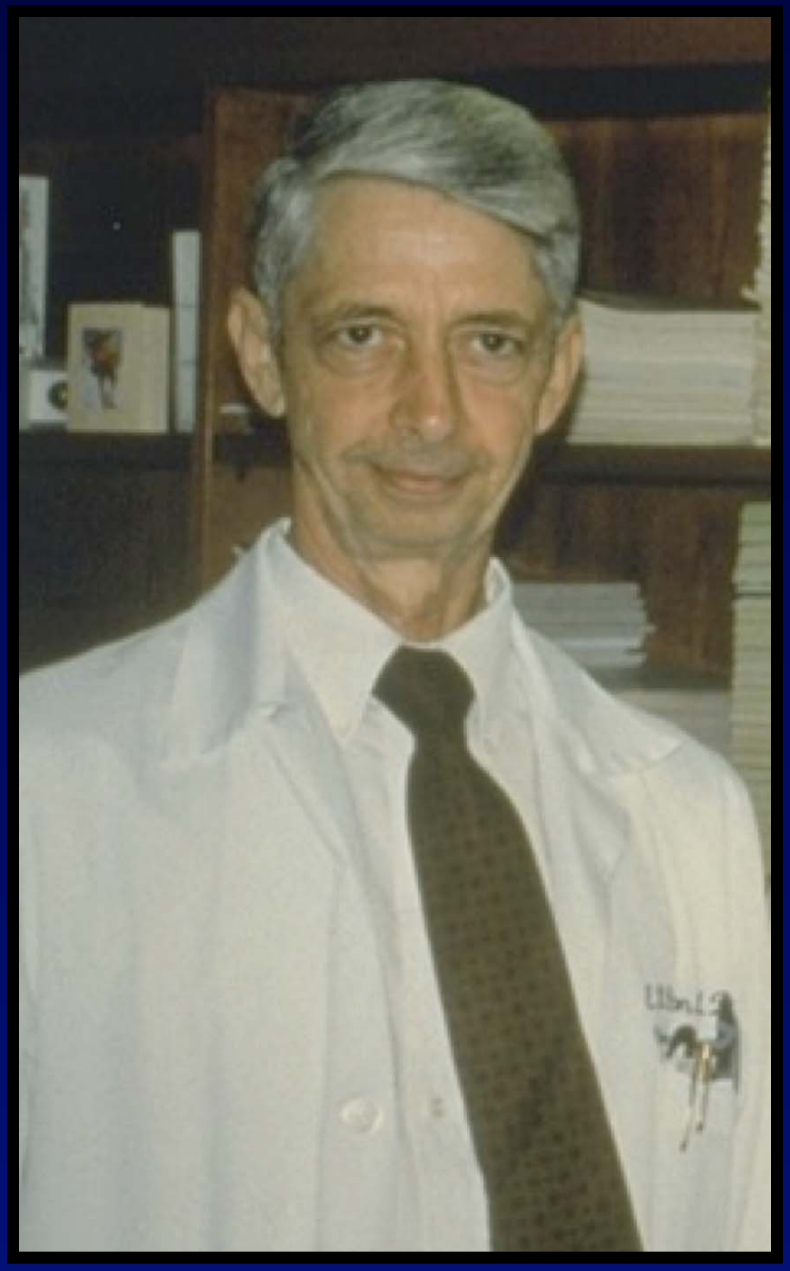
Systolic Gradients Postop over time

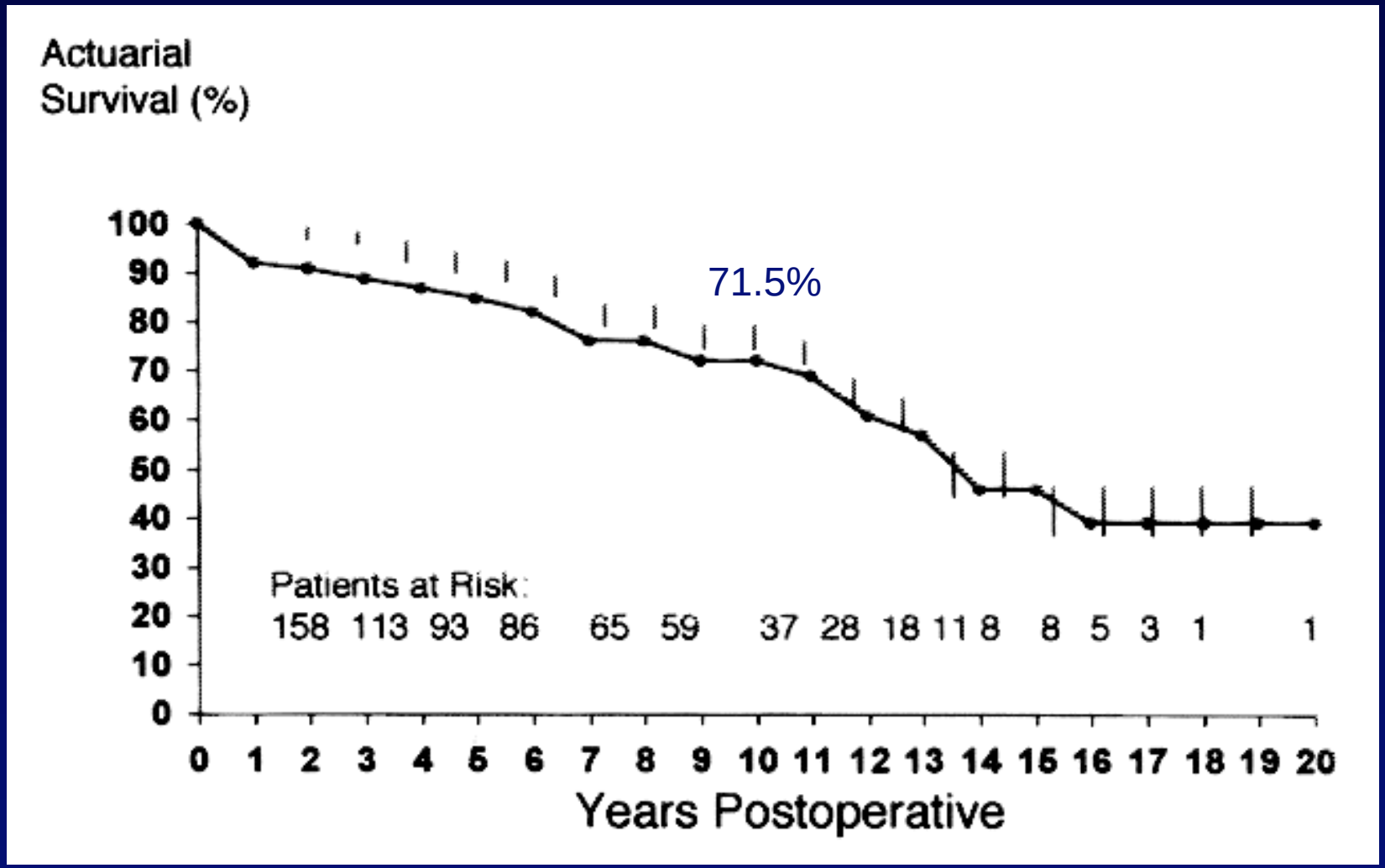
Patients with residual gradients at initial catheterization, followed over time, showed further reduction



Edward B Stinson MD

Stanford student, Cardiac Surgery Resident on First Heart Transplant, Heart Transplant Team leader for 30 years, spent 2 years with Dr Morrow at NIH from 1970-72, and was probably the most skilled surgeon who performed Myotomy and Myectomy with the "Morrow" technique





Operative mortalty of 3.2%; Pts less than 65 = 0.8%

Additional Issues for Operative Consideration

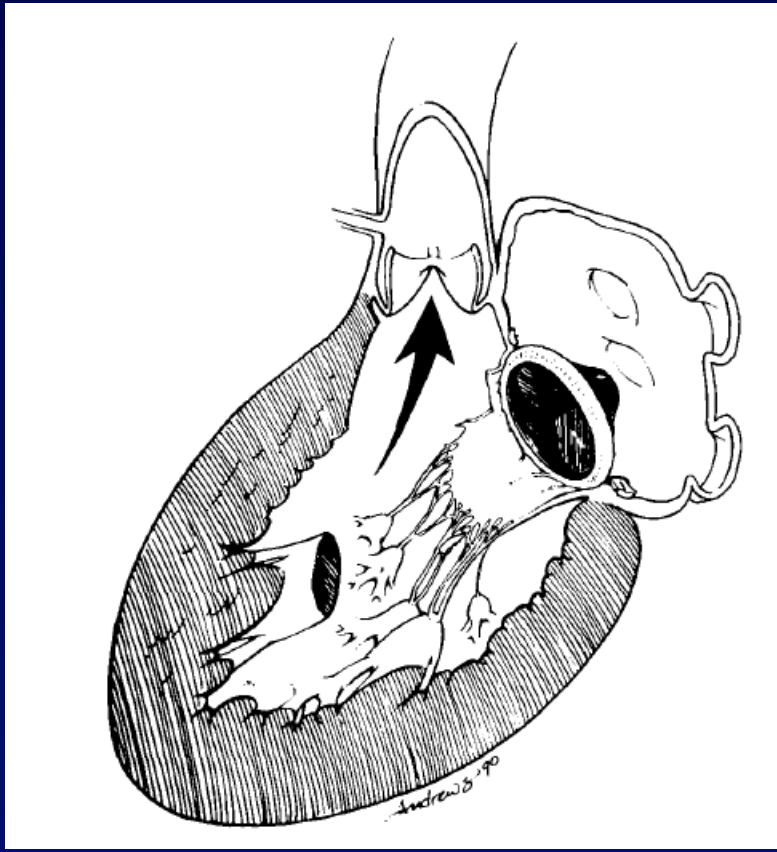
- Mid-cavity obstruction
- Mitral regurgitation

Mitral Valve Replacement for HCM

Advocated by D Cooley, relieves the obstruction, and will treat the Mitral regurgitation which is often seen in HCM.

Useful in patients who have not responded to previous septal myectomy.

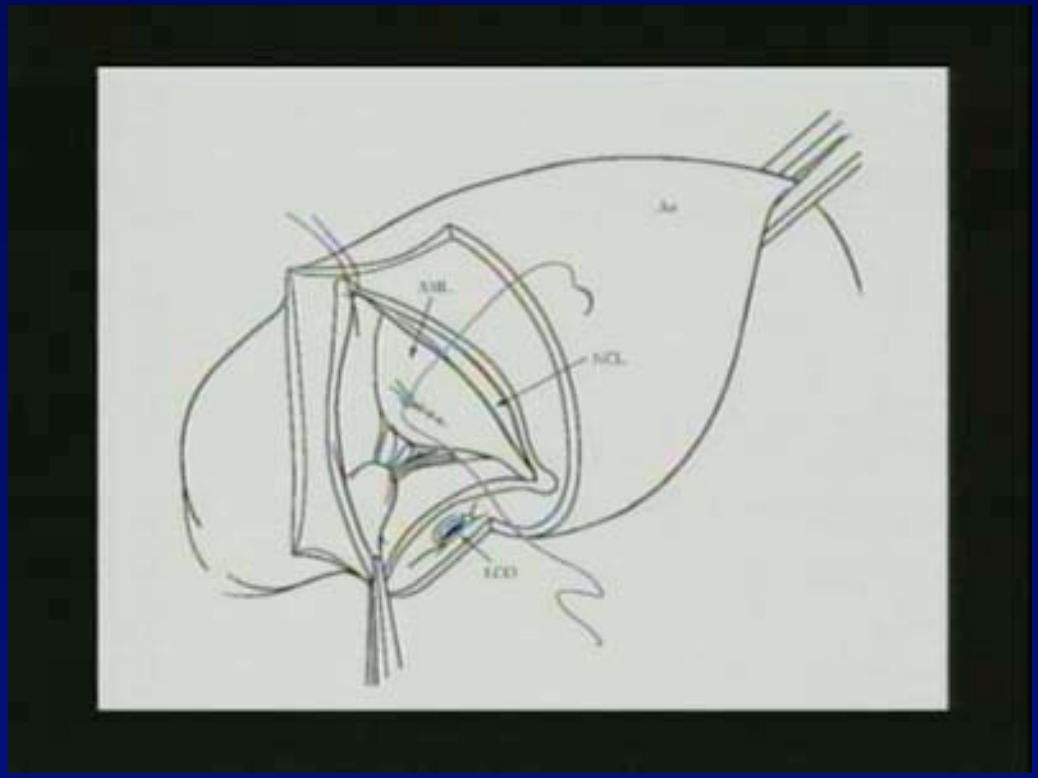
Introduces the morbidities of a prosthetic MV

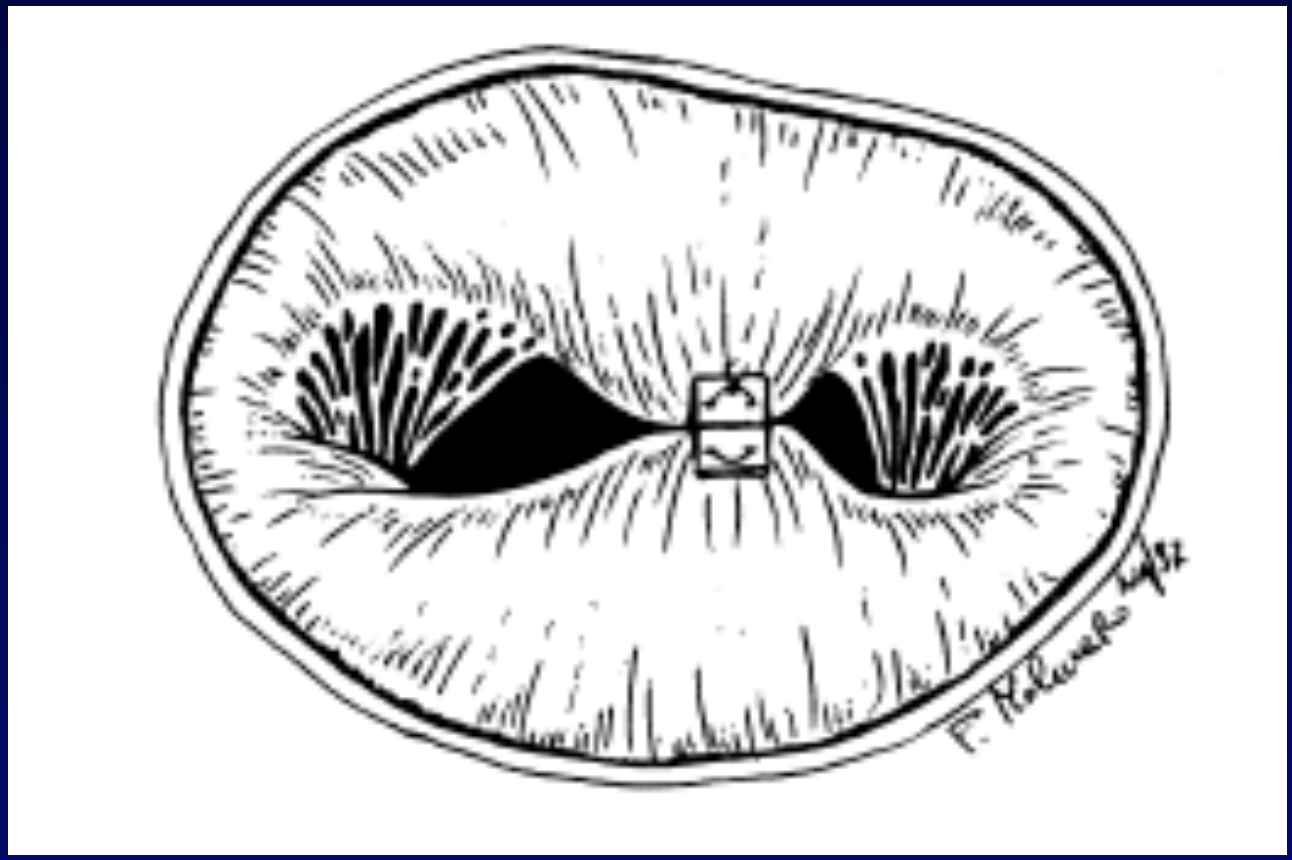


Resection-Plication-Release for Hypertrophic Cardiomyopathy: Clinical and Echocardiographic Follow-Up

Sandhya K. Balaram, MD, PhD, Leslie Tyrie, MD, Mark V. Sherrid, MD, John Afthinos, MD, Zak Hillel, MD, PhD, Glenda Winson, RN, and Daniel G. Swistel, MD

Division of Cardiothoracic Surgery, Department of Surgery, Hypertrophic Cardiomyopathy Program, Division of Cardiology, and Department of Anesthesia, St. Luke's-Roosevelt Hospital Center, Columbia University College of Physicians and Surgeons, New York, New York





From Alfieri, O Brescia, Italy

Comparison of Surgical Septal Myectomy and Alcohol Septal Ablation With Cardiac Magnetic Resonance Imaging in Patients With Hypertrophic Obstructive Cardiomyopathy

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James F. Glockner, MD,† Jerome F. Breen, MD,† Steve R. Ommen, MD,*
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Objectives This study sought to describe the acute morphologic differences that result from septal myectomy and alcohol septal ablation using cardiac magnetic resonance (CMR) imaging.

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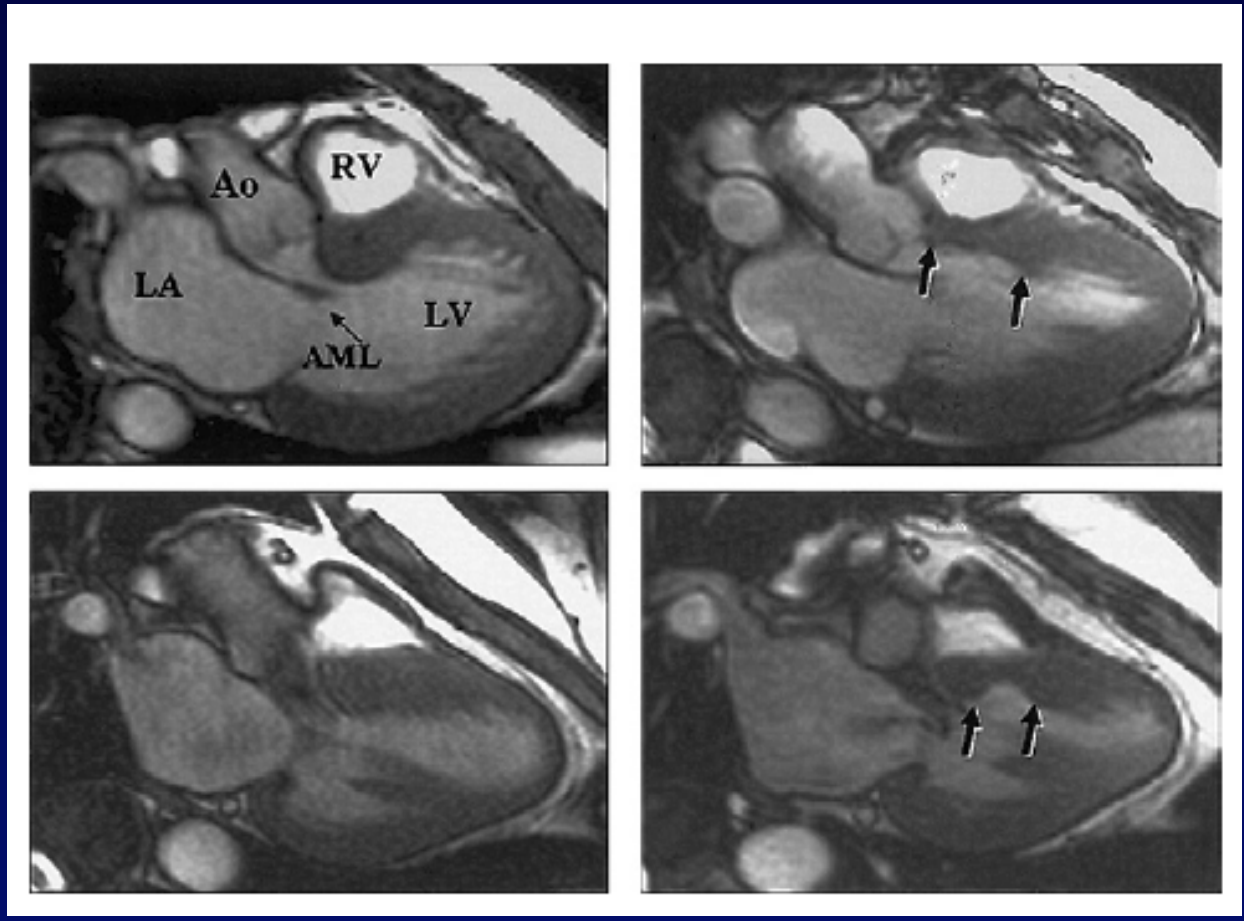
Myectomy

Alcohol Septal Ablation



Before

After

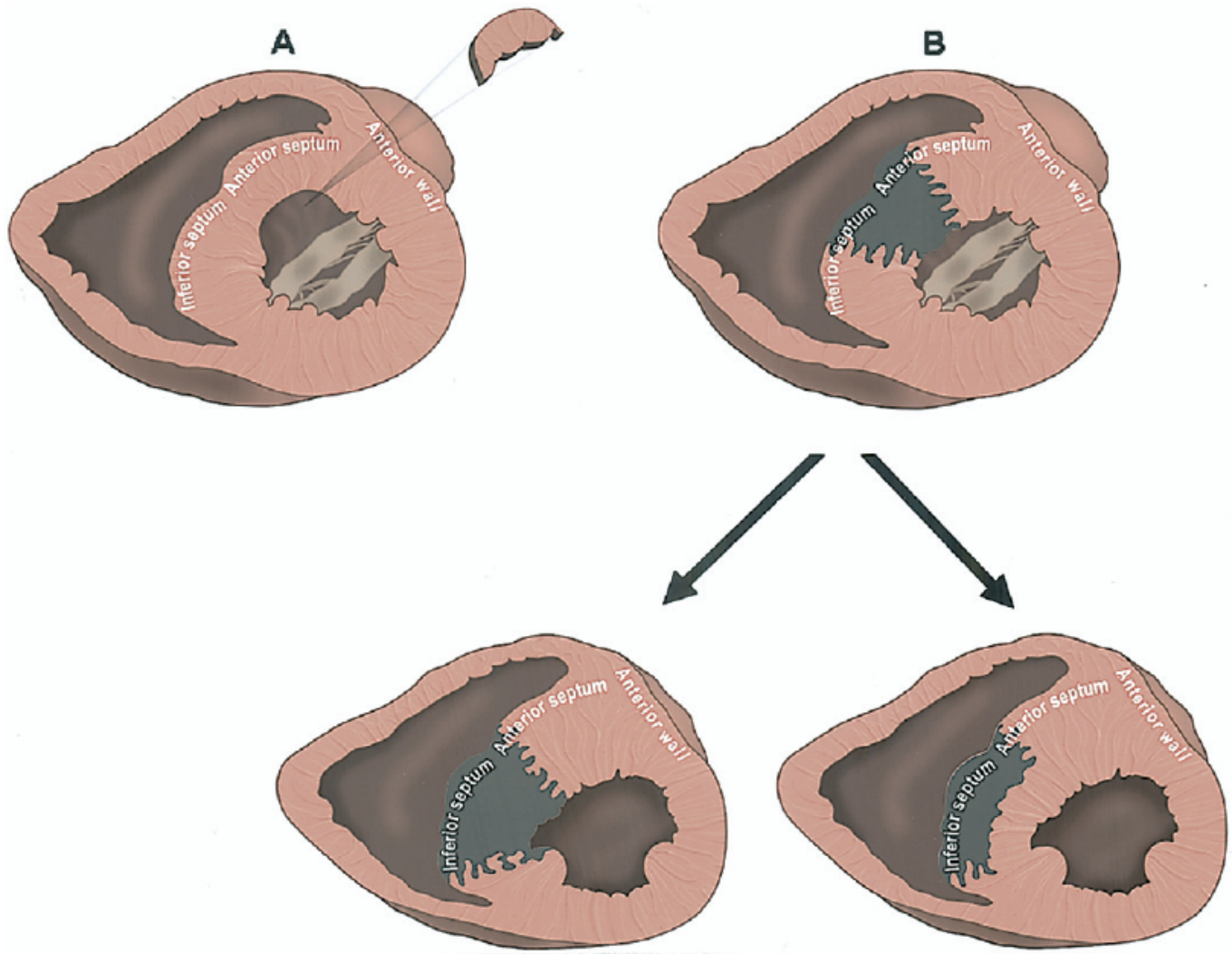


Figure 1 **Schematic Representation of the Differing Effects of Septal Reduction Therapies**

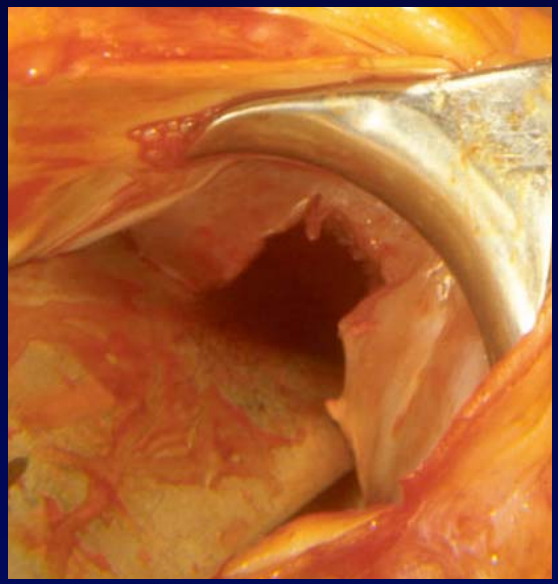
Contrasting anatomical consequences of extended surgical septal myectomy shown in the short-axis plane **(A)** and alcohol septal ablation **(B)**. **(A)** The tissue resected at myectomy is from the left ventricular side of the basal anterior septum. **(B)** The tissue necrosis resulting from alcohol ablation is usually transmural and located more posteriorly and inferiorly in the basal anterior septum than is the case for myectomy. At midventricular level **(lower row of B)**, the tissue necrosis involves the inferior septum either with transmural distribution or predominantly the right ventricular portion of the septum.

Table 2 Comparison of Anatomical Differences Between Surgical Myectomy and Alcohol Septal Ablation

	Septal Myectomy	Alcohol Septal Ablation
Site of septal reduction	Left ventricular side of the septum at basal and midventricular level	More inferior location in basal and midventricular septum, usually extends into right ventricular side of septum at midventricular level
Depth of resection/ablation	Average depth = 10 mm	Predominantly transmural in basal septum; usually nontransmural in midventricular septum
Mass of resection/ablation	6 ± 4 g	16 ± 7 g
Resection/ablation of protruding basal septum	All patients	Most proximal basal septum spared in 25% of patients

The location of the septal reduction by myectomy and ablation explains the differential effects on the conduction system (11,21). The course of the right bundle branch is along the right ventricular side of the inferior septum, and thus is frequently damaged by the transmural region of tissue necrosis produced by septal ablation, as occurred in about one-half of our patients who developed RBBB. Complete heart block has been reported in 10% to 20% of patients after septal ablation when additional segments of the left bundle branch are affected. In contrast, septal myectomy interrupts the left bundle branch coursing in the anterior septum. Complete heart block is particularly uncommon in the absence of pre-existing RBBB (<1%)

Conclusion



- Myotomy and Myectomy has been established over the last 30 years as an excellent treatment for HCM, with reasonable, reliable, and durable results.

ATHLETES HEART
SUDDEN DEATH
HYPERTROPHIC
CARDIOMYOPATHY
STANFORD