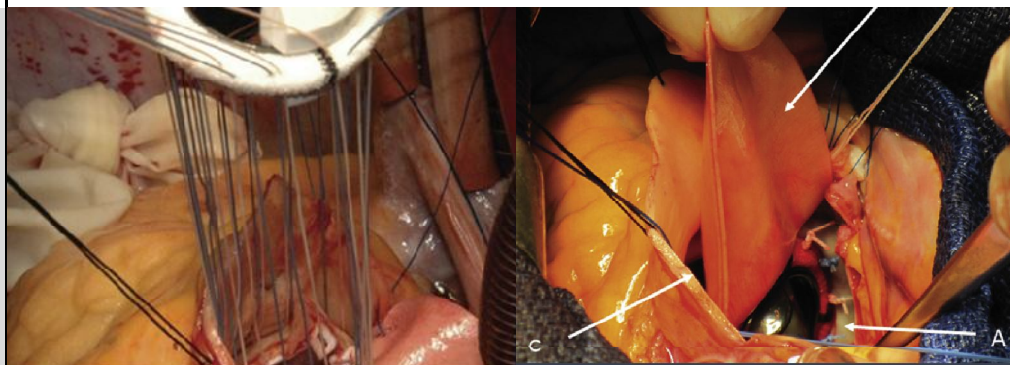


Reconstrucción de unión mitroaórtica con técnica David

Madrid, 16 de Noviembre 2019



Dr. Alberto Forteza Gil
Servicio de Cirugía Cardíaca.
Hospital Universitario Puerta de Hierro

VIII Congreso
SEICAV
2019 Sociedad Española
de Infecciones
Cardiovasculares



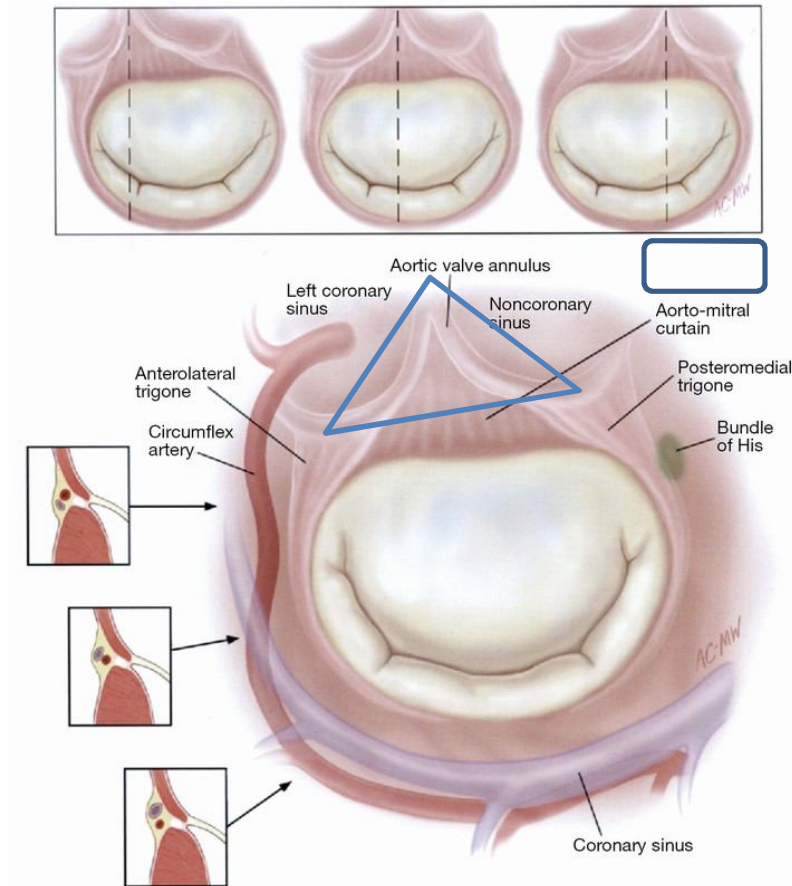
MADRID
15/16 NOVIEMBRE

Salón de Actos del
Hospital General Universitario
Gregorio Marañón

 **SEICAV** Sociedad Española
de Infecciones
Cardiovasculares

Introducción

Cuerpo fibroso o unión mitroaórtica



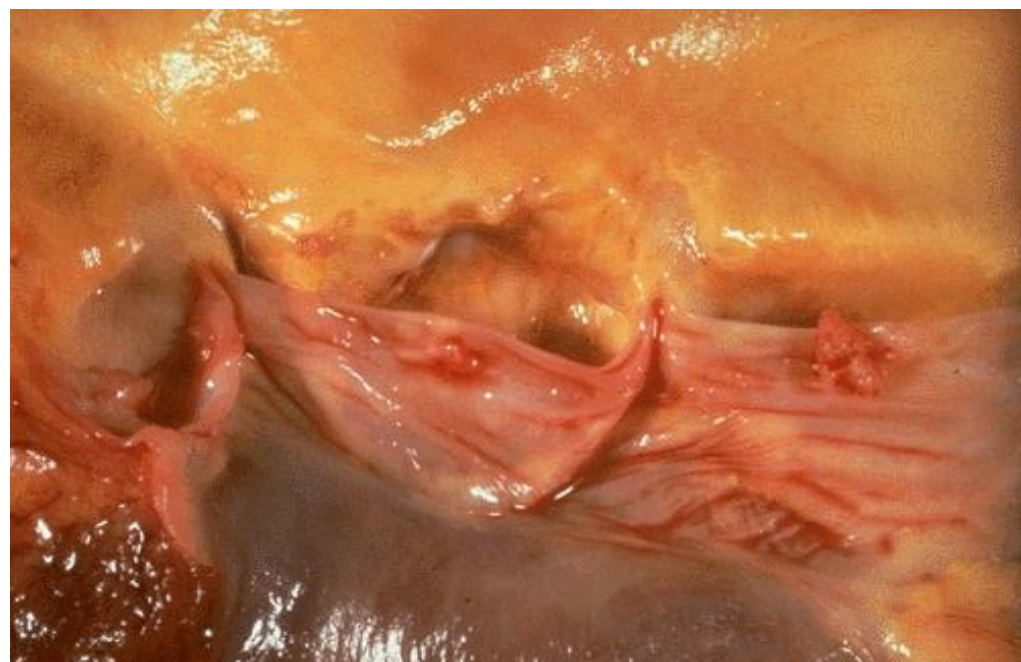
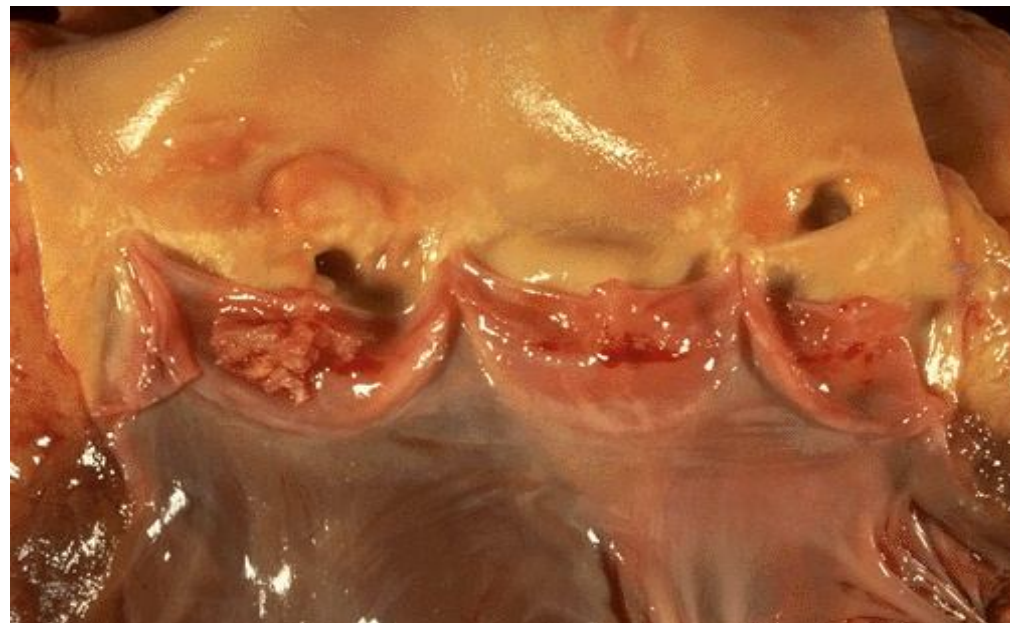
- La válvula mitral y aórtica están comunicadas por el cuerpo fibroso central, limitado por el trigono lateral y medial
- Estructuras asociadas:
 - Velo mitral anterior
 - Raíz aórtica (Seno no coronario).
 - Techo de la aurícula izquierda.

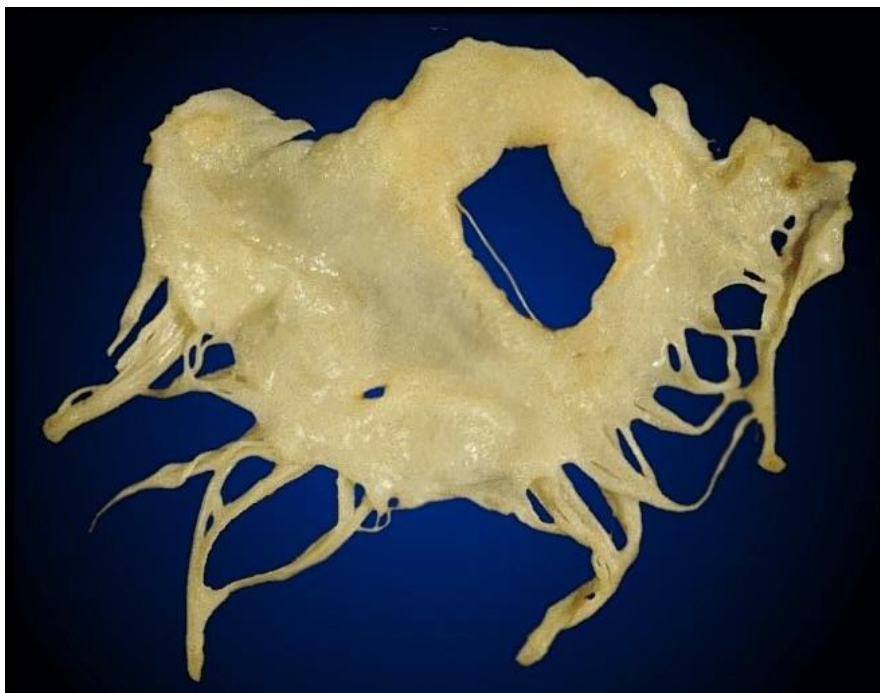
Carpentier A, Adams DH, Filsoufi F. Carpentier's Reconstructive Valve Surgery. Saunders Elsevier, 2010.

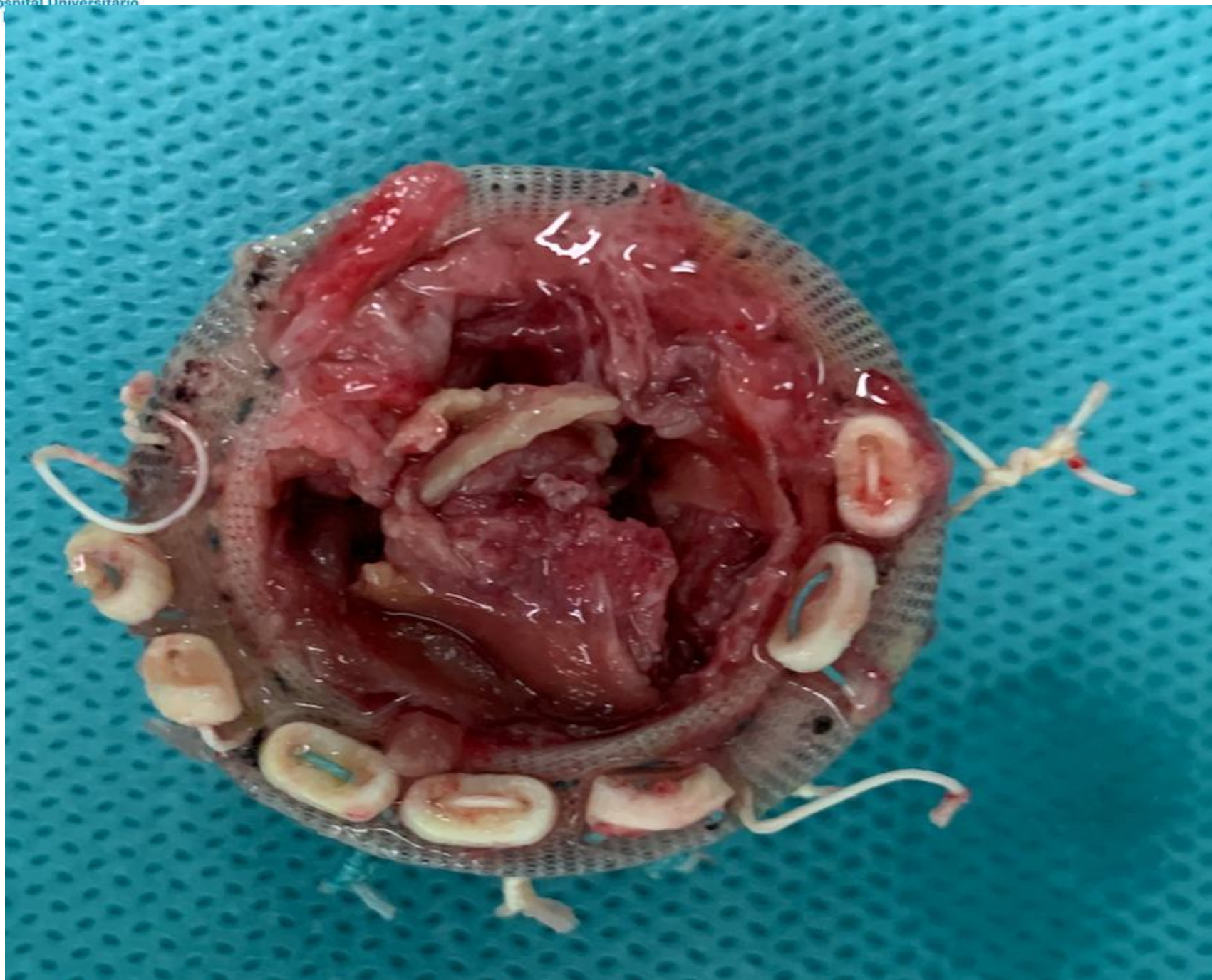
Introducción



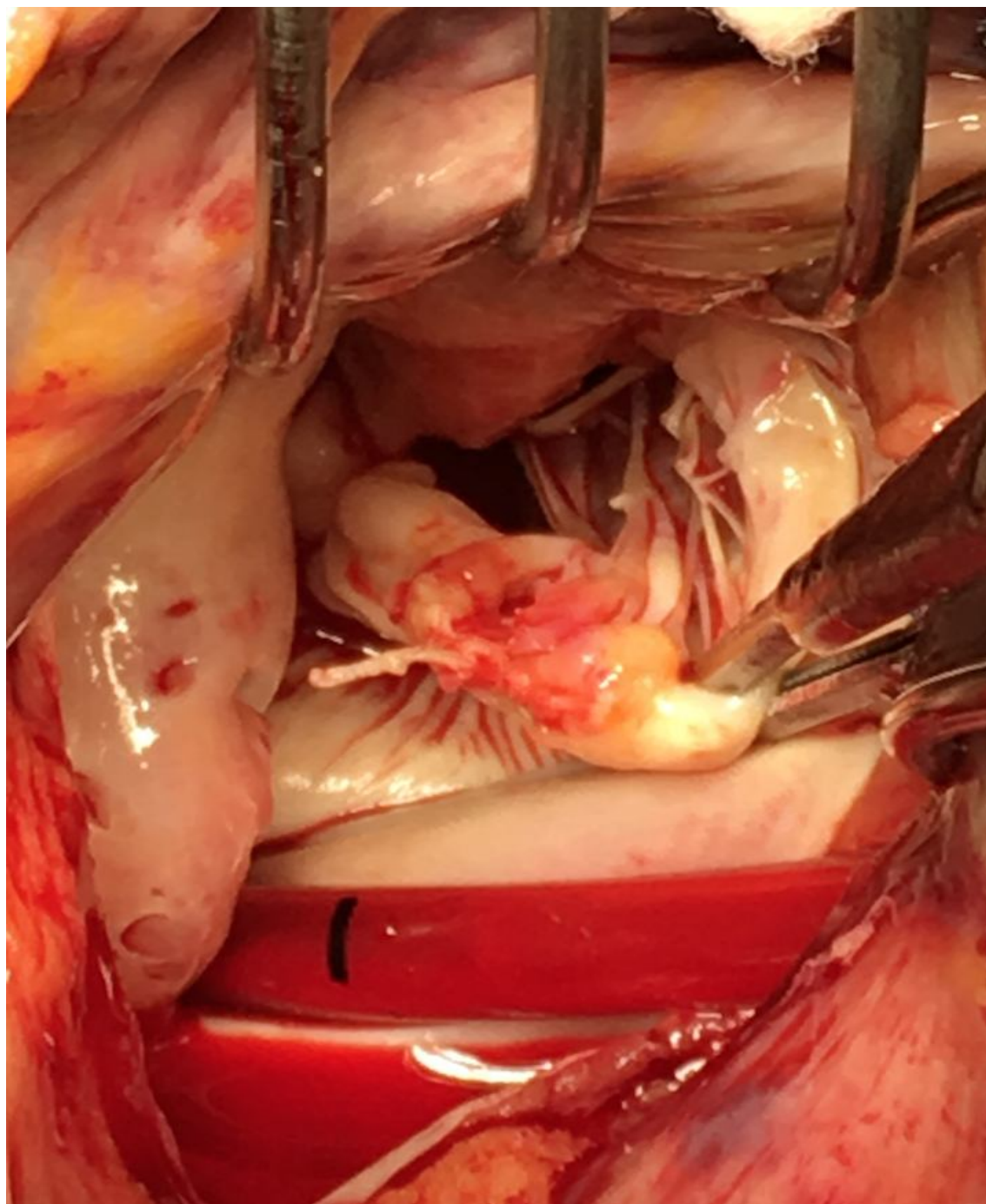
Rodriguez, Forteza et al. Rev Esp Cardiol 2001; 54: 289-293



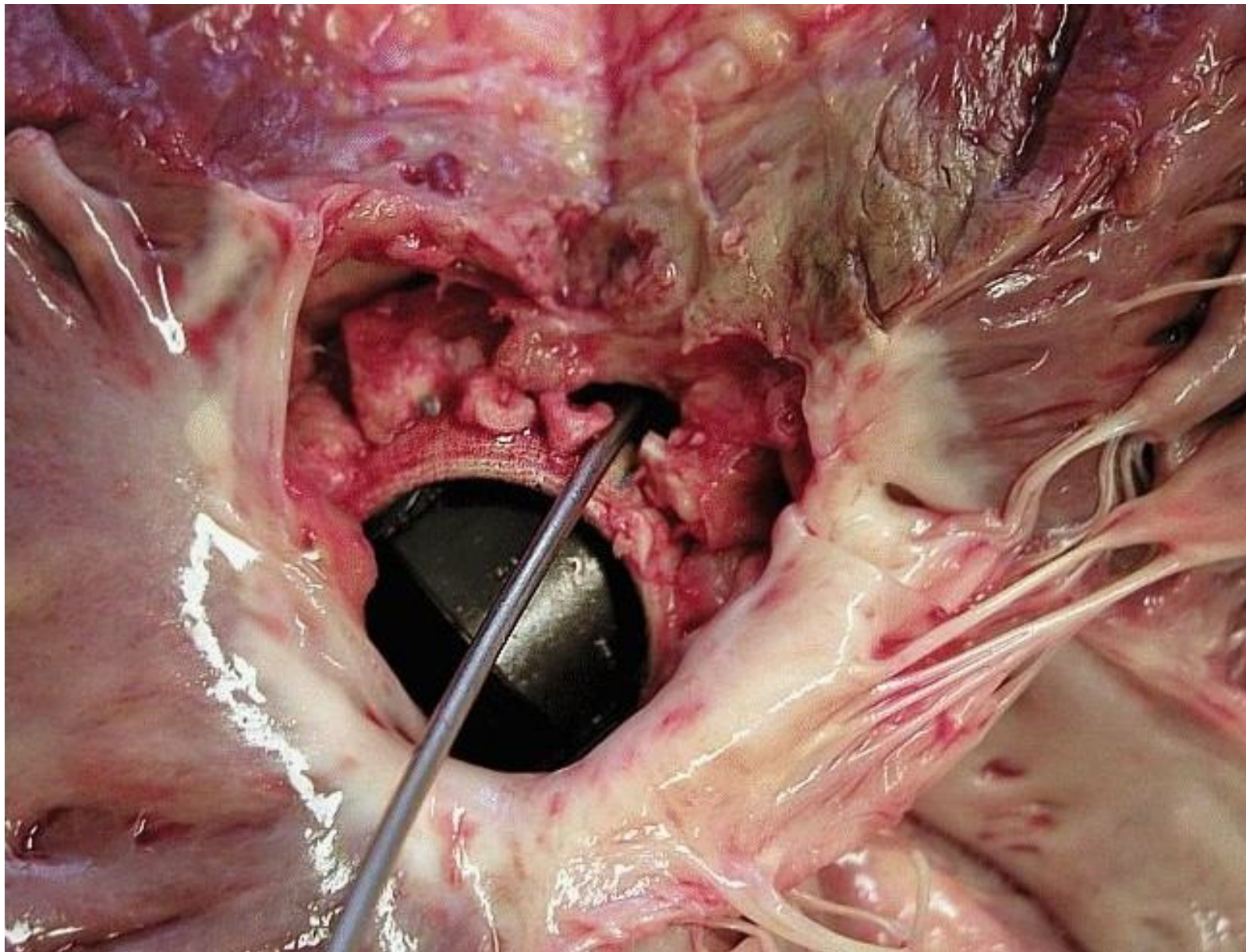




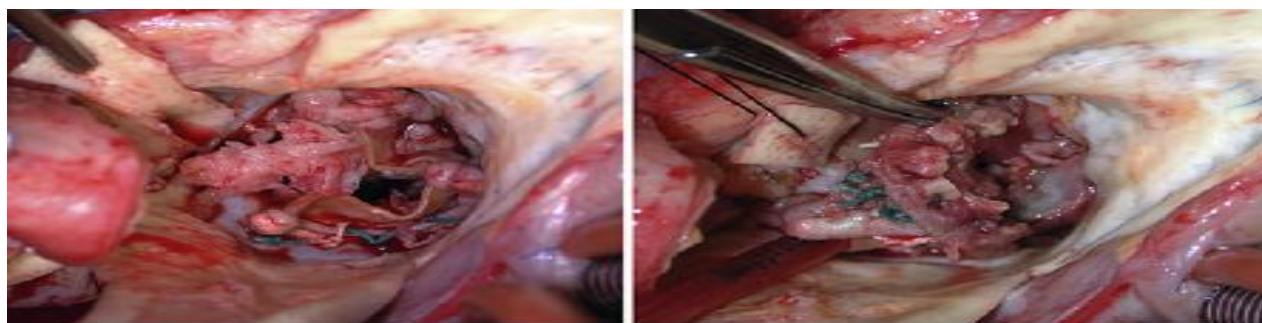








2016 The American Association for Thoracic Surgery (AATS) consensus guidelines: Surgical treatment of infective endocarditis: Executive summary



European Heart Journal (2015) **36**, 3075–3123
doi:10.1093/eurheartj/ehv319

ESC GUIDELINES



2015 ESC Guidelines for the management of infective endocarditis

The Task Force for the Management of Infective Endocarditis of the European Society of Cardiology (ESC)

1. What are the indications for surgery in patients with IE?

1. ICC por disfunción valvular	I	B	3-7,9,11,46,104-114
2. Microorganismo agresivo: s.aureus, fúngica, otro	I	B	3-5,7,9,18,31,40,105,110,115-121
3. Extensión: abscesos, destrucción (bloqueo...)	I	B	3-7,11,43,85,105,106,108-110,122-129
4. Bacteriemia persistente (> 5-7 días)	I	B	3-5,7,45,105,106,110,118,120,130
Surgery during initial hospitalization independently of completion of a full therapeutic course of antibiotics is indicated in patients with IE complicated by <u>heart block, annular or aortic abscess, or destructive penetrating lesions</u>	I	B	3-5,7,45,105,106,110,118,120,130
Surgery during initial hospitalization independently of the completion of a full therapeutic course of antibiotics for IE is indicated in patients with evidence of <u>persistent infection as manifested by persistent bacteremia</u> or fever lasting longer than 5 to 7 days after initiation of appropriate antimicrobial therapy	I	B	3-5,7,45,105,106,110,118,120,130
Surgery is recommended for patients with <u>PVE and relapsing infection</u> (defined as recurrence of bacteremia after a complete course of appropriate antibiotics and subsequently negative blood cultures) without other identifiable source for portal of infection	IIa	C	106
Surgery during initial hospitalization independently of the completion of a full therapeutic course of antibiotics is reasonable in patients with IE who present with <u>recurrent emboli and persistent vegetations</u> despite appropriate antibiotic therapy	IIa	B	3-6,47,61,63,91,131-134
Urgent or even emergency surgery may be considered in patients with NVE or PVE who exhibit <u>mobile vegetations greater than 10 mm in length</u> with clinical evidence of embolic phenomena despite appropriate antimicrobial treatment	IIb	B	31,47,63,91,135
In patients with <u>right-sided IE</u> in addition to symptomatic severe valve dysfunction, surgery should be considered for NVE or PVE when large vegetations are present and there is evidence of persistent infection manifested by persistent bacteremia or fevers lasting longer than 5 to 7 days after initiation of appropriate antimicrobial therapy, or in those with evidence of septic pulmonary embolism	IIb	B	4,7,136

Table 22 Indications and timing of surgery in left-sided valve infective endocarditis (native valve endocarditis and prosthetic valve endocarditis)

Indications for surgery	Timing ^a	Class ^b	Level ^c	Ref. ^d
1. Heart failure				
Aortic or mitral NVE or PVE with severe acute regurgitation, obstruction or fistula causing refractory pulmonary oedema or cardiogenic shock	Emergency	I	B	111,115, 213,216
Aortic or mitral NVE or PVE with severe regurgitation or obstruction causing symptoms of HF or echocardiographic signs of poor haemodynamic tolerance	Urgent	I	B	37,115, 209,216, 220,221
2. Uncontrolled infection				
Locally uncontrolled infection (abscess, false aneurysm, fistula, enlarging vegetation)	Urgent	I	B	37,209, 216
Infection caused by fungi or multidrug-resistant organisms	Urgent/elective	I	C	
Persisting positive blood cultures despite appropriate antibiotic therapy and adequate control of septic metastatic foci	Urgent	IIa	B	123
PVE caused by staphylococci or non-HACEK gram-negative bacteria	Urgent/elective	IIa	C	
3. Prevention of embolism				
Aortic or mitral NVE or PVE with persistent vegetations > 10 mm after one or more embolic episode despite appropriate antibiotic therapy	Urgent	I	B	9,58,72, 113,222
Aortic or mitral NVE with vegetations > 10 mm, associated with severe valve stenosis or regurgitation, and low operative risk	Urgent	IIa	B	9
Aortic or mitral NVE or PVE with isolated very large vegetations (> 30 mm)	Urgent	IIa	B	113
Aortic or mitral NVE or PVE with isolated large vegetations (> 15 mm) and no other indication for surgery ^e	Urgent	IIb	C	

HACEK = *Haemophilus parainfluenzae*, *Haemophilus aphrophilus*, *Haemophilus paraphrophilus*, *Haemophilus influenzae*, *Actinobacillus actinomycetemcomitans*, *Cardiobacterium hominis*, *Eikenella corrodens*, *Kingella kingae* and *Kingella denitrificans*; HF = heart failure; IE = infective endocarditis; NVE = native valve endocarditis; PVE = prosthetic valve endocarditis.

^aEmergency surgery: surgery performed within 24 h; urgent surgery: within a few days; elective surgery: after at least 1–2 weeks of antibiotic therapy.

^bClass of recommendation.

^cLevel of evidence.

Quién debe realizar esta cirugía?

Recommendations	COR	LOE	References
1. Who should care for and operate on patients with IE?			
Patients with suspected IE should ideally be cared for at centers with access to a complete team, including cardiology, infectious disease, cardiac surgery, and other services needed to handle IE complications	I	B	4,5,7,89
Surgeons operating on patients with IE should be well-trained, experienced valve surgeons who are well versed in the different reconstruction techniques needed by patients with advanced disease	I	C	4,5,31,89
2. Diagnosis of IE: What does the surgeon need to know?			
At the time of surgery the patient should be on an effective antimicrobial regimen (correct dosage and route of administration) to which the causative microorganism is sensitive, or be broadly covered when organism and sensitivity are unknown	I	B	3-5,7,55,58
For surgery planning, the surgeon should have the best possible understanding of the pathology. This will usually require advanced imaging techniques, such as TEE	I	B	3-5,7,90-98
Use of imaging modalities other than echocardiography may also be appropriate in selected cases	IIb	C	3-5,95,99-103

Cirujano/s entrenado en un hospital con un equipo completo

Introducción

9. Double-valve IE

If the aortic root and aortic and mitral annuli are preserved after radical debridement, it is reasonable to implant mechanical or biologic valves, with the choice based on normal criteria

Ila **B** 6,219,220

If there is aortic annulus destruction and invasion, and root reconstruction and replacement is required, an allograft or bioprosthesis may be preferable to a prosthetic valved conduit, and if the mitral annulus shows invasion and destruction, it should be reconstructed to anchor the valve prosthesis to the ventricular muscle or to the annulus reconstruction patch to avoid leakage and pseudoaneurysm development beneath the prosthesis

Ila **B** 124,126,219-224

Infection destroying the intervalvular fibrosa requires reconstruction of this structure, and it is preferable that surgeons taking on these cases master such techniques

Ila **C** 219,223,225-229

Pettersson et al, 2016 The American Association for Thoracic Surgery (AATS) consensus guidelines: Surgical treatment of infective endocarditis: Executive summary. J Thorac Cardiovasc Surg 2017;153:1241-58

INDICACION

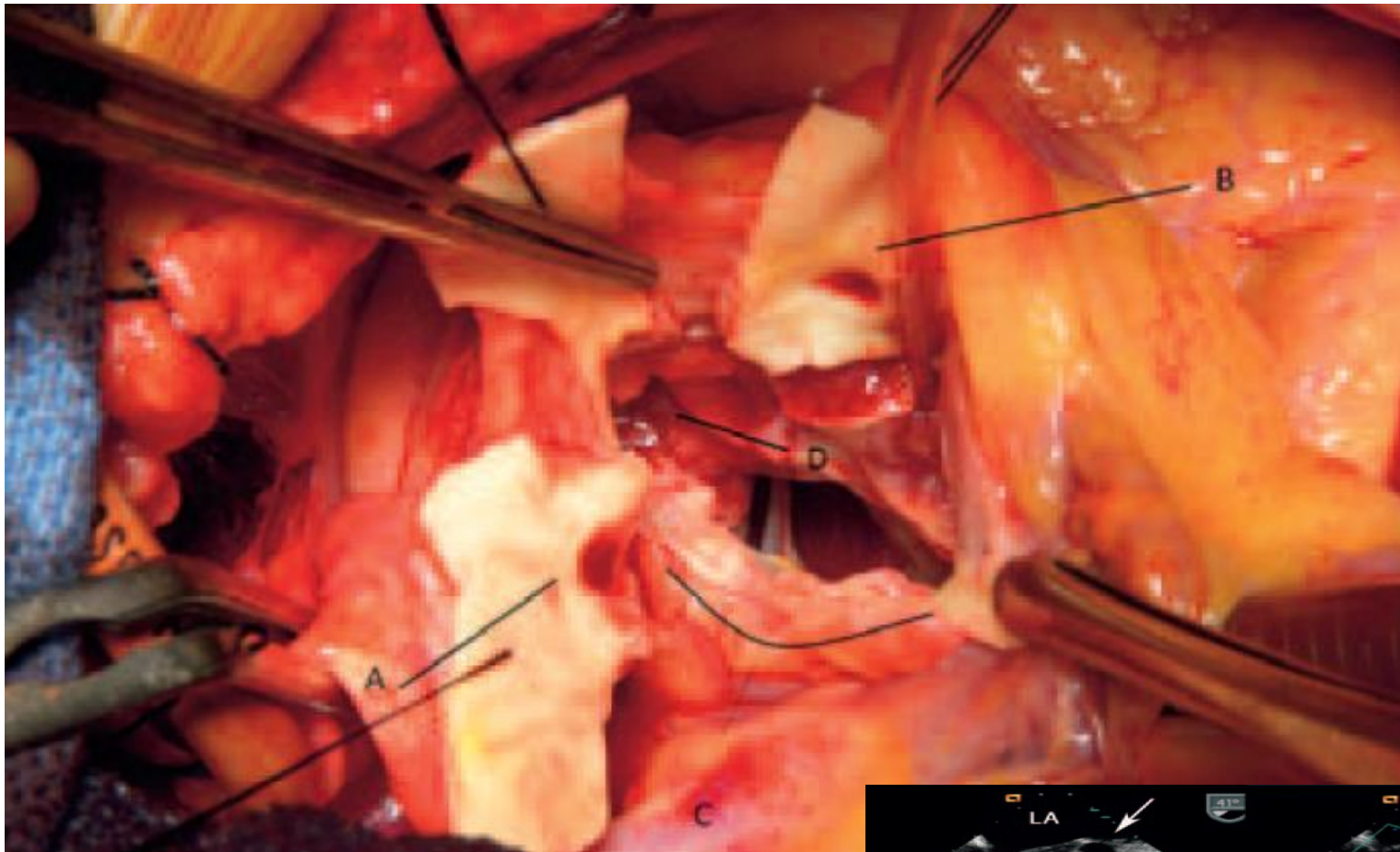
Endocarditis con abscesos en la continuidad mitroaórtica.

- Mortalidad >60%
- Técnicamente “inoperable para muchos grupos quirúrgicos”
- Recidivas si no se es radical.

Vlais C et al. Circulation 2003;108:983-8

Ruel et al. J Thorac Cardiovasc Surg 2004

Introducción



A Modified David Technique in Endocardial Multiple Paravalvular Abscesses

Alberto Forteza, Gustavo Prieto, Jorge Centeno, Jose Cortina

Hospital Universitario 12 de Octubre, Cardiac Surgery Department, Avda de Andalucía s/n

The Journal of Heart Valve Disease 2010;19:

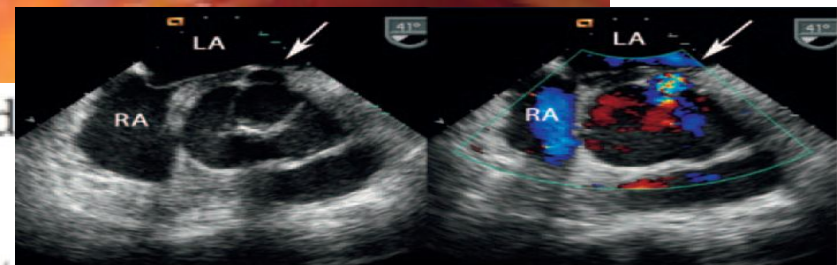
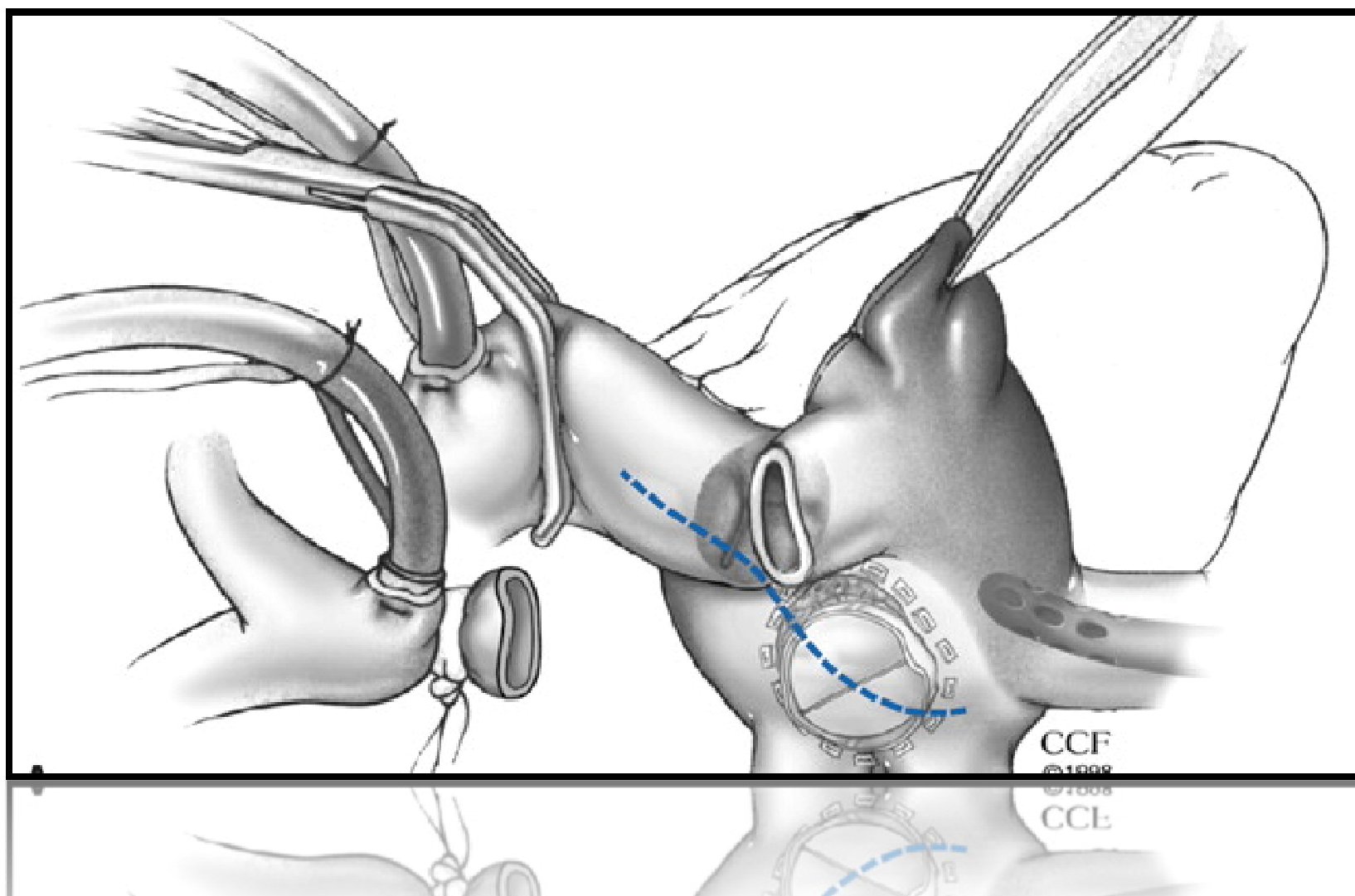


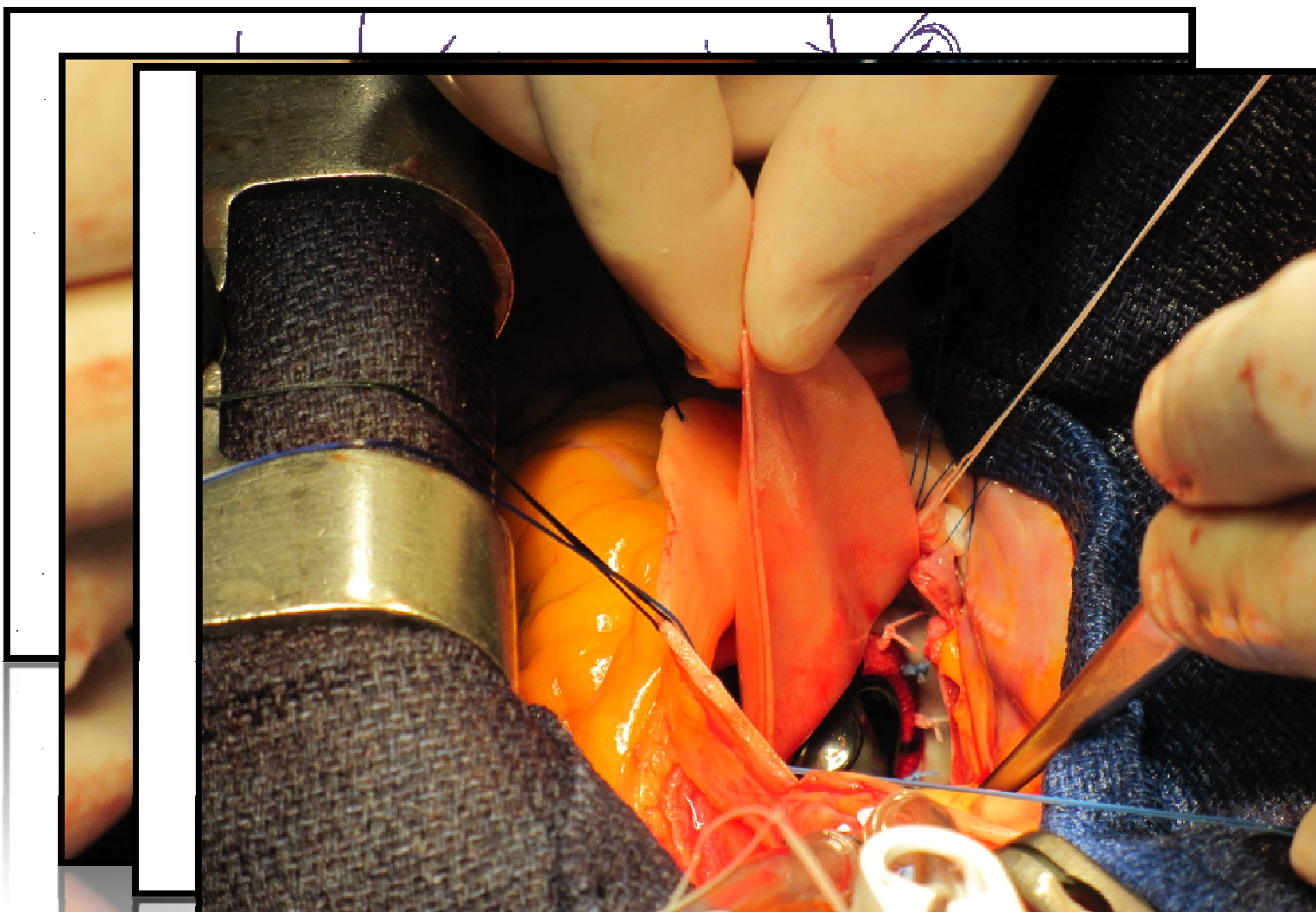
Figure 1: Transesophageal echocardiographic images showing an abscess in the mitral-aortic junction (arrow).
LA: Left atrium; RA: Right atrium.



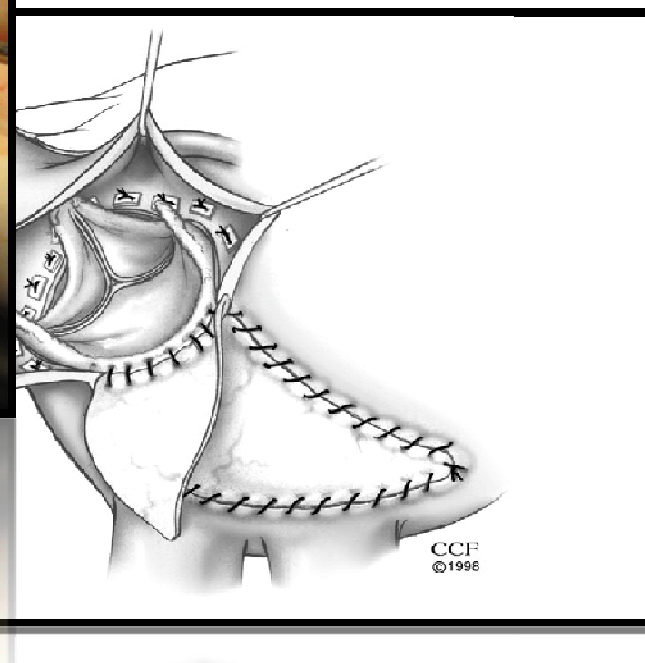
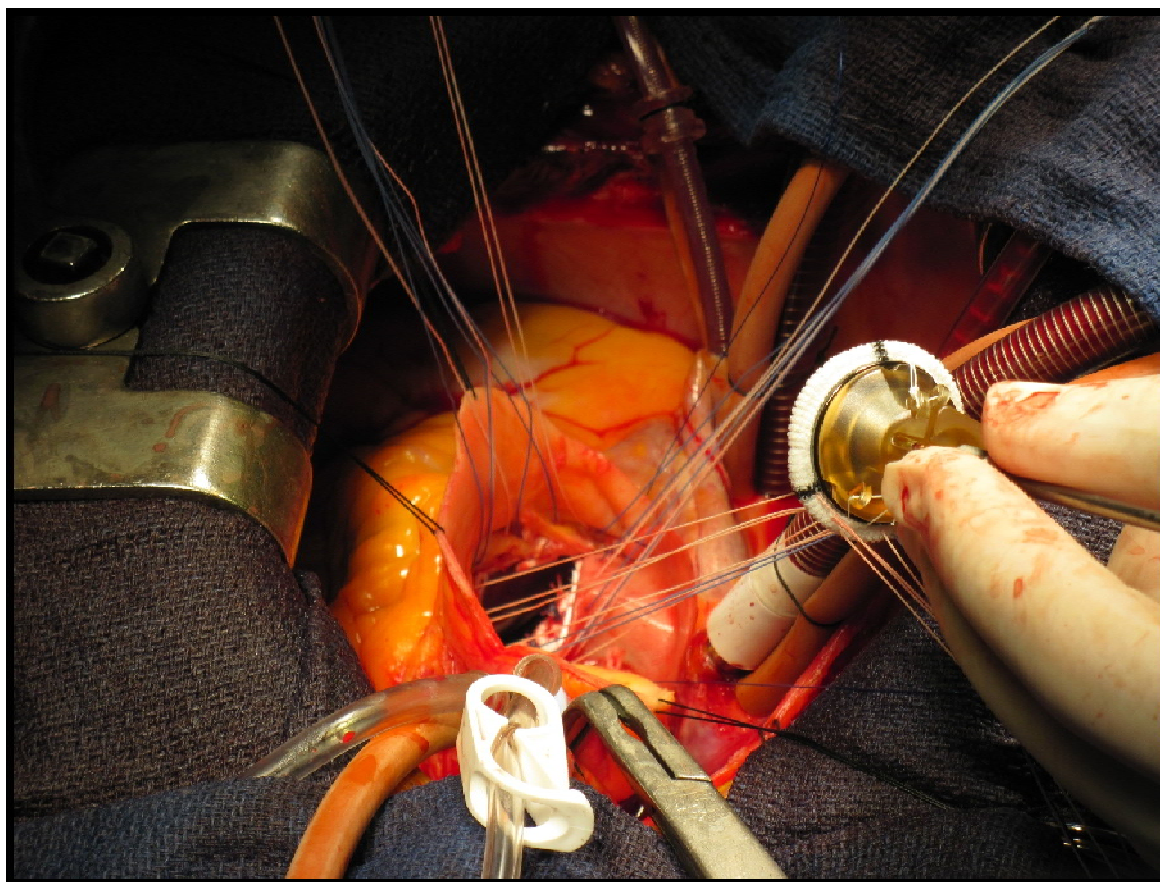
TÉCNICA QUIRÚRGICA



TÉCNICA QUIRÚRGICA



TÉCNICA QUIRÚRGICA



Principios quirúrgicos

- Resección radical de todo tejido infectado
- Lavado con alcohol yodado
- Antibióticos tópicos controvertido
- Cambio de material empleado en resección
- Reconstrucciones con pericardio
- Reparación posible en defectos muy localizados
- Prótesis mecánica / biológica

Aortic and mitral valve replacement with reconstruction of the intervalvular fibrous body: An analysis of clinical outcomes

Nilton C. De Oliveira, MD
Tirone E. David, MD
Susan Armstrong, MSc
Joan Ivanov, PhD

N = 76 (15 EI)

Mortalidad 10 %

Supervivencia 10 a. 50%

Objective: This study was undertaken to evaluate the late outcomes of reconstruction of the intervalvular fibrous body during aortic and mitral valve replacement.

Methods: Seventy-six consecutive patients underwent reconstruction of the intervalvular fibrous body with replacement of the mitral and aortic valves. There were 35 men and 41 women whose mean age was 58 ± 12 years. Additional procedures were circumferential reconstruction of the mitral annulus in 27 patients, tricuspid valve repair in 21, coronary artery bypass in 15, and aortic root replacement in 4. Indications for the operation were active infective endocarditis with abscess in 15 patients, extensive calcification of the mitral annulus and interventricular fibrous body in 24, lack of fibrous tissue to secure a prosthetic valve in 17, and treatment or prevention of patient-prosthesis mismatch in 20. Fifty-five patients had undergone one or more previous valve operations, and 52 (68%) were in functional class IV. The mean follow-up was 47 ± 47 months, and it was complete.

Results: There were 8 (10%) operative and 18 (24%) late deaths. The 10-year survival was $50\% \pm 9\%$. There were 15 reoperations in 12 patients: 7 for prosthetic valve endocarditis (5 early, 2 late), 7 for patch or valve dehiscence (3 early, 4 late), and 1 for structural valve deterioration. All but 2 reoperations were re-reconstruction of the intervalvular fibrous body and double valve replacement. The 10-year freedom from reoperation was $73\% \pm 7\%$.

Conclusion: Reconstruction of the intervalvular fibrous body during double valve replacement is a technically challenging operation, but it is useful in patients with complex valve pathology for whom no alternative procedure is available.

Double valve replacement and reconstruction of the intervalvular fibrous body in patients with active infective endocarditis

Piroze M. Davierwala^{a,*†}, Christian Binner^{a,†}, Sreekumar Subramanian^{a,b}, Maximilian Luehr^a,
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Received 9 December 2012; received in revised form 11 March 2013; accepted 19 March 2013

OBJECTIVES: Destruction of the intervalvular fibrous body, though uncommon, occurs due to paravalvular abscess formation following active infective endocarditis. This warrants a highly complex operation involving double valve (aortic and mitral) replacement with patch reconstruction of the left ventricular outflow tract and the left atrial roof. The objective of this study was to review the results of this operation.

N = 25 (99-2012) ES 55
Mortalidad 32%

METHODS: A total of 25 patients underwent double valve replacement with reconstruction of the intervalvular fibrous body for extensive infective endocarditis between January 1999 and March 2012. The mean age was 64.3 ± 10.5 years. Most of the patients (60%) were in New York Heart Association Class III–IV, 12% and in cardiogenic shock. Associated comorbidities like acute renal insufficiency and cerebrovascular accidents were observed in 40 and 20% of patients, respectively. Twenty patients had previous heart valve surgeries. The logistic EuroSCORE predicted risk of mortality was $55.1 \pm 22.9\%$.

RESULTS: Overall, 30-day mortality was 32%. Postoperative complications like low cardiac output, stroke and acute renal failure developed in 16, 28 and 56%, respectively. Thirty-two percent of patients required re-exploration for bleeding. Nine patients were alive at a mean follow-up of 406 days (0–8 years). The 2- and 5-year survivals were 37.0 ± 11.1 and $24.6 \pm 12.5\%$, respectively.

CONCLUSIONS: Double valve replacement with reconstruction of the intervalvular fibrous body for infective endocarditis is a complex, technically challenging operation associated with high perioperative morbidity and mortality. Nevertheless, being the only option available for such complex disease, it should be performed in these patients who, otherwise, face 100% mortality.

Long-term Outcomes of Surgery for Invasive Valvular Endocarditis Involving the Aortomitral Fibrosa

José L. Navia, MD, Haytham Elgharably, MD, Ali H. Hakim, BA, James C. Witten, BA, Michael J. Haupt, BA, Emidio Germano, MD, Penny L. Houghtaling, MS, Faisal G. Bakaeen, MD, Gösta B. Pettersson, MD, PhD, Bruce W. Lytle, MD, Eric E. Roselli, MD, A. Marc Gillinov, MD, and Lars G. Svensson, MD, PhD

Department of Thoracic and Cardiovascular Surgery, Cleveland Clinic, Cleveland, Ohio; School of Medicine, Case Western Reserve University, Cleveland, Ohio; Cleveland Clinic Lerner College of Medicine of Case Western Reserve University, Cleveland, Ohio; Department of Quantitative Health Sciences, Cleveland Clinic, Cleveland, Ohio; Baylor Scott & White, The Heart Hospital, Plano, Texas

Background. Reconstruction of the intervalvular fibrosa (IVF) for invasive double-valve infective endocarditis (IE) is a technically challenging operation. This study presents the long-term outcomes of two surgical techniques for IVF reconstruction.

Methods. From 1988 to 2017, 138 patients with invasive double-valve IE underwent surgical reconstruction of the IVF, along with double-valve replacement (Commando procedure, $n = 86$) or aortic valve replacement with mitral valve repair (hemi-Commando procedure, $n = 52$). Mean follow-up was 41 ± 5.9 months.

Results. Reoperation was required in 82% of patients, and 34% underwent emergency surgery. Pathologic features included positive blood cultures (90%), prosthetic valve IE (75%), aortic root abscess (78%), mitral annular abscess (24%), and intracardiac fistula (12%). There were 28 hospital deaths: 21 (24%) in the Commando group and 7 (14%) in the hemi-Commando group ($P = .12$). Overall

survival was 86% at 1, 5, and 8 years, respectively. Coronary artery disease, native valve IE, and causative organism (*Staphylococcus aureus*, coagulase-negative *Staphylococcus*, and viridans streptococci) were risk factors for late mortality. Freedom from reoperation at 1, 5, and 8 years was 87%, 74%, and 55%, respectively. Freedom from recurrent IE at 1, 5, and 8 years was 90%, 78%, and 67%, respectively.

Conclusions. Although it is technically demanding, surgery for invasive IE involving IVF, which provides the only chance for cure, can be performed with reasonable clinical outcomes. In cases of IE invading the IVF and limited to the anterior mitral valve leaflet, a hemi-Commando procedure that includes mitral valve repair has improved early outcomes.

(Ann Thorac Surg 2019;■:■-■)

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N = 86 (98-2017)
Mortalidad 24%

Table 4. Follow-up Data

	Overall Cohort (N = 83)	Hemi- Commando (n = 33)	Commando (n = 50)
Outcome	n (%)	n (%)	n (%)
Recurrent infective endocarditis	17 (20)	4 (12)	13 (26)
Stroke	11 (13)	9 (27)	2 (4.0)
Reoperation	23 (28)	4 (12)	19 (38)
Death after discharge	20 (24)	6 (18)	14 (28)
Echocardiogram (available data)	(n = 64)	(n = 23)	(n = 41)
Aortic regurgitation			
None	43 (67)	13 (56)	30 (71)
Mild	13 (20)	6 (26)	7 (17)
Moderate	6 (9.4)	3 (13)	3 (7.3)
Severe	2 (1.4)	1 (3.0)	1 (2.4)
Mitral regurgitation			
None	39 (61)	9 (39)	30 (73)
Mild	13 (20)	8 (35)	5 (12)
Moderate	9 (14)	4 (17)	5 (12)
Severe	3 (4.7)	2 (8.7)	1 (2.4)

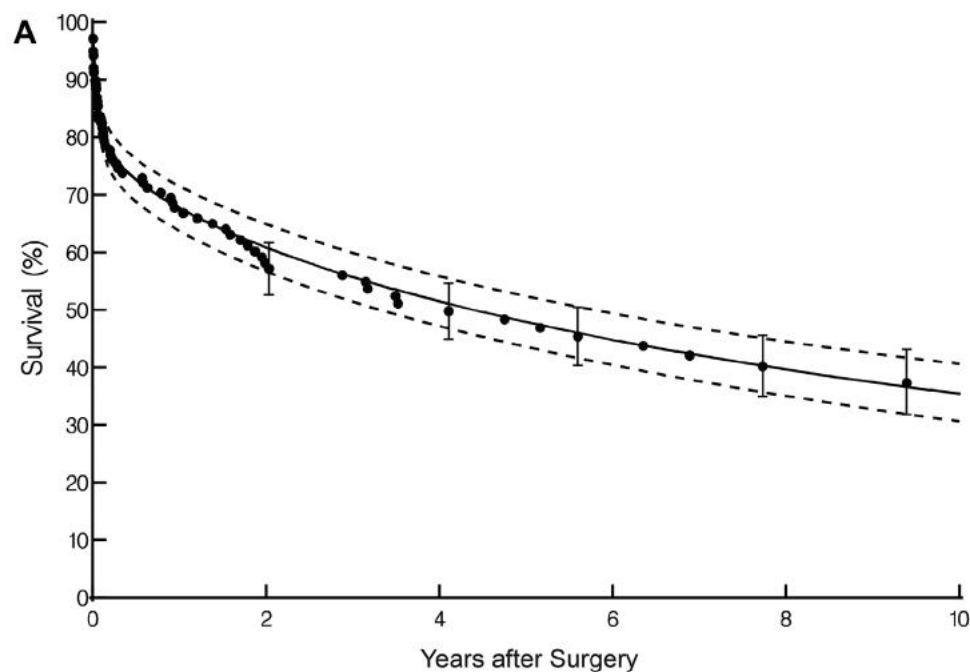
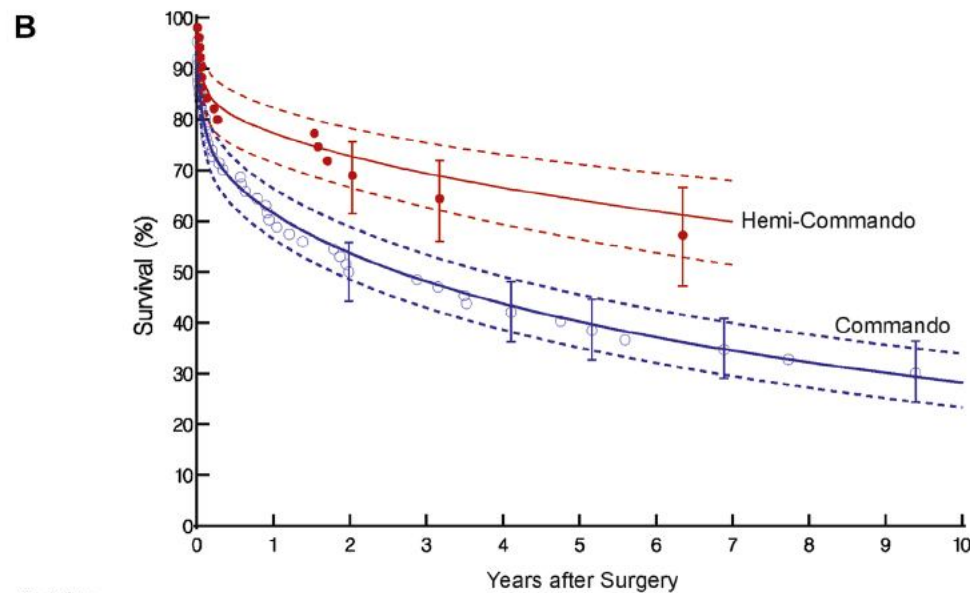


Figure 3. Survival after surgery. Each symbol represents a death positioned according to Kaplan-Meier estimator and vertical bars are 68% confidence limits equivalent to ± 1 SD. Solid lines represent parametric survival estimates enclosed within a 68% confidence band. (A) Overall cohort. (B) Stratified by group: filled red circles represent the hemi-Commando patients and open blue circles denote the Commando patients. Numbers at risk are shown beneath the horizontal axis for each group.



at risk

Commando	86	34	27	21	16	10
Hemi-Commando	52	25	13	10	3	2

The incorporated aortomitral homograft for double-valve endocarditis: the 'hemi-Commando' procedure. Early and mid-term outcomes[†]

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Abstract

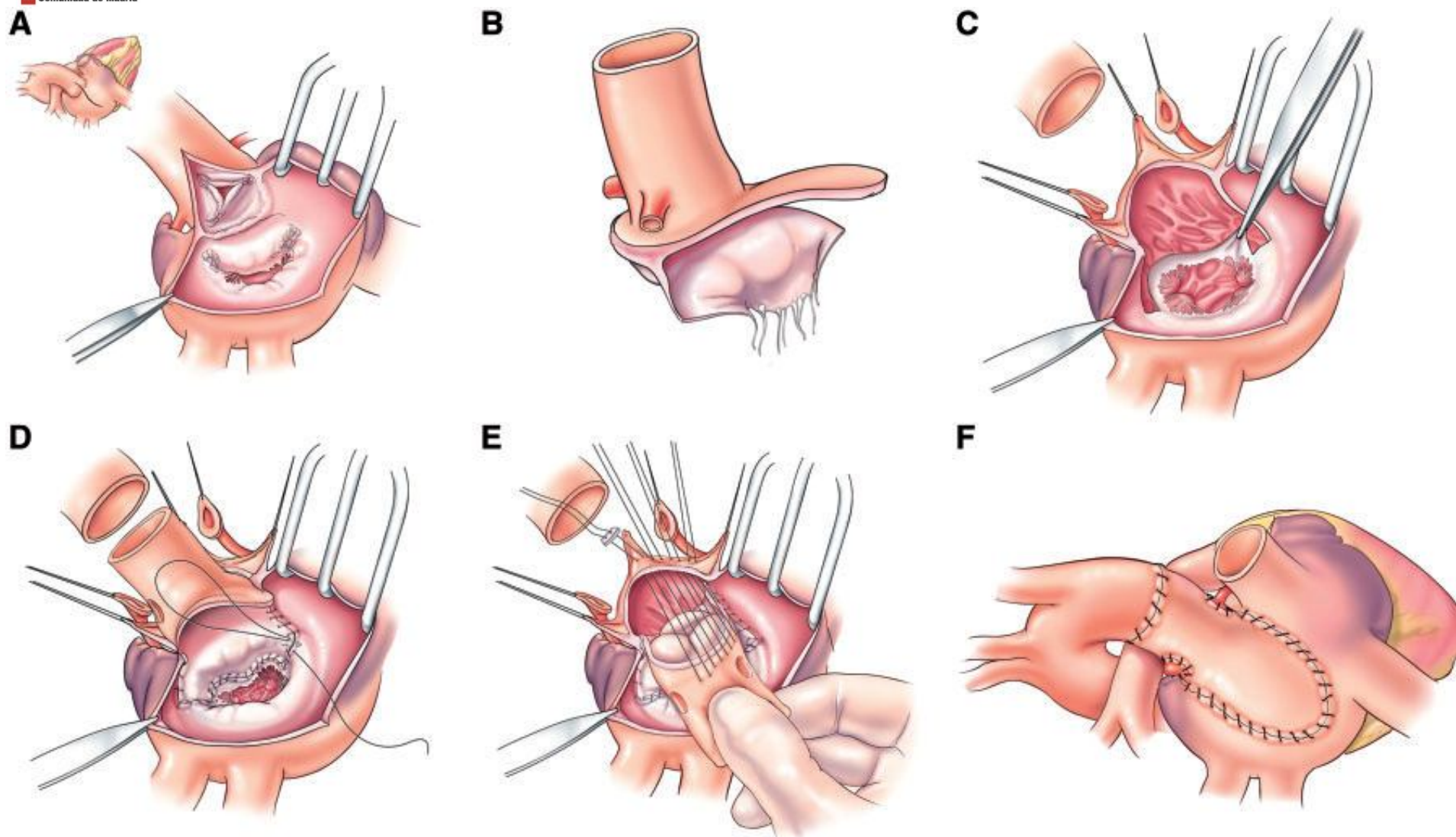
OBJECTIVES: Surgical management of invasive double-valve infective endocarditis (IE) involving the intervalvular fibrosa (IVF) is a technical challenge that requires extensive debridement followed by complex reconstruction. In this study, we present the early and mid-term outcomes of the hemi-Commando procedure and aortic root replacement with reconstruction of IVF using an aortomitral allograft.

METHODS: From 2010 to 2017, 37 patients with IE involving the IVF underwent the hemi-Commando procedure. Postoperative clinical data and echocardiograms were reviewed for the assessment of cardiac structural integrity and clinical outcomes.

RESULTS: Twenty-nine (78%) cases were redo surgery and 15 (41%) were emergency surgery. Preoperatively, 70% ($n = 26$) of patients were admitted to the intensive care unit and 11% ($n = 4$) of patients were in septic shock. Ten (27%) patients had native aortic valve IE, while 27 (73%) patients had prosthetic valve IE. Hospital death occurred in 8% ($n = 3$) of patients due to multisystem organ failure. Postoperative echocardiogram showed no aortic regurgitation in 86% ($n = 32$) and mild regurgitation in 14% ($n = 5$) of patients, while mitral regurgitation prevalence was none/trivial in 62% ($n = 23$), mild in 32% ($n = 12$) and moderate in 5%. Intact IVF reconstruction was confirmed in all patients with no abnormal communication between the left heart chambers. One-year survival was 91%, while 3-year survival was 82%. Mid-term follow up revealed 1 death secondary to recurrent IE.

CONCLUSIONS: Compared to double-valve replacement with IVF reconstruction ('Commando operation'), the early and mid-term outcomes of the hemi-Commando procedure proved to be a feasible treatment option for IVF reconstruction, enabling preservation of the mitral valve and the subvalvular apparatus in high-risk patients with invasive double-valve IE.

Keywords: Endocarditis • Intervalvular fibrosa • Mitral valve • Hemi-Commando



Outcomes in Aortic and Mitral Valve Replacement With Intervalvular Fibrous Body Reconstruction

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Background. Surgery for intervalvular fibrous body reconstruction in aortic and mitral valve replacement is a complex operation, although mandatory in some circumstances. The long-term result of this operation remains unknown. The objective of this study was to analyze the outcomes of this technique.

Methods. A descriptive and retrospective study was carried out to analyze operative morbidity and mortality in fibrous body reconstruction with the “David technique” and to evaluate the midterm and long-term results regarding durability and survival.

Results. A total of 40 consecutive patients underwent the David technique between 1997 and 2014. The mean age was 58 ± 15 years and 62.5% were male. The indications were active endocarditis with paravalvular and fibrous body abscesses in 26 patients (group A) and massive calcification of

N = 26 (97-2014)

Mortalidad 15%

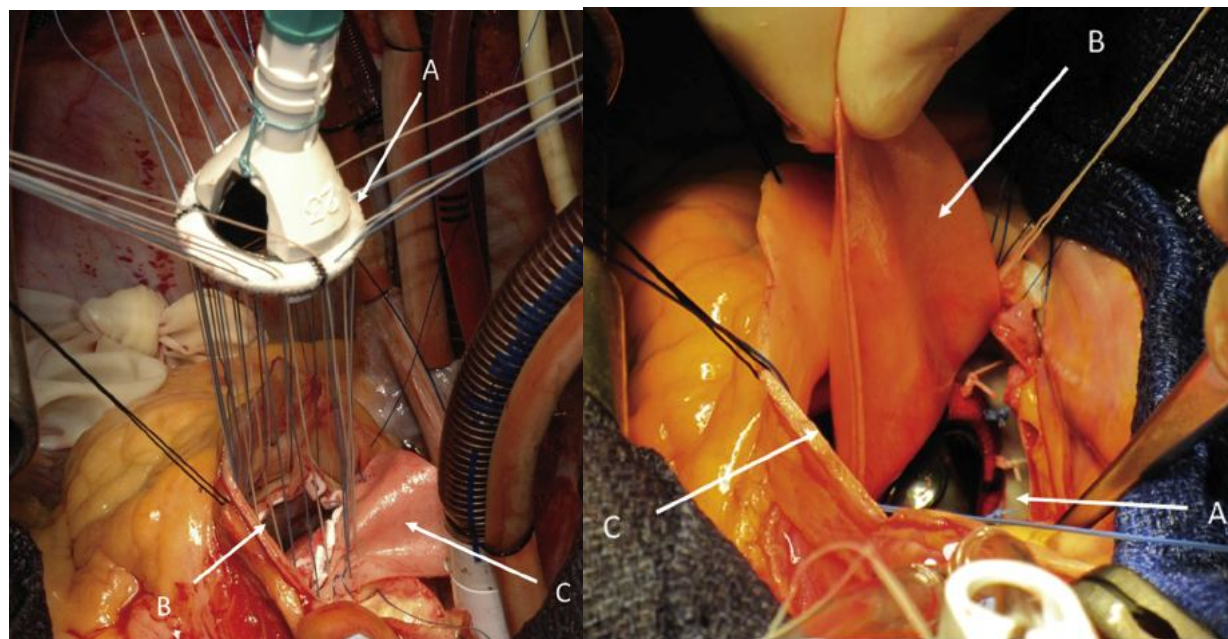
group B). Mean predicted risk of mortality was 36 ± 24 and 16 ± 15 , respectively. The hospital mortality rate was 15.3% in group A and 7.1% in group B. Survival rate after 1, 5, and 10 years was 65.4%, 57.7%, and 50% for group A and 92.9%, 85.7%, and 78.6% for group B. Freedom from reoperation at 1, 5, and 10 years was 92.3%, 84.6%, and 76.9% for group A and 90.9%, 90.9%, and 90.9% for group B. Mean follow-up was 53 ± 8 months.

Conclusions. Although this complex operation is associated with high perioperative mortality, the long-term results are acceptable in patients where there are not suitable alternative procedures.

(Ann Thorac Surg 2015;99:838–46)
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Table 3. Postoperative Outcomes

Variable	Group A (n = 26)	Group B (n = 14)	p Value
Thirty-day mortality	4 (15.4)	1 (7.1)	0.640
Reexploration for bleeding	4 (15.4)	0 (0)	0.278
Low output syndrome	4 (15.4)	0 (0)	0.278
Prolonged mechanical ventilation	5 (19.2)	0 (0)	0.143
Postoperative pacemaker implantation	4 (15.4)	4 (28.6)	0.416
Postoperative neurologic complications			
Stroke	2 (7.7)	1 (7.1)	1.000
Convulsions	1 (3.8)	0 (0)	1.000
Postoperative dialysis	1 (3.8)	0	1.000
Mean intensive care unit stay (days)	13.3 ± 18	7.1 ± 8	0.051
Mean hospital stay (days)	47 ± 17	19 ± 15	0.042



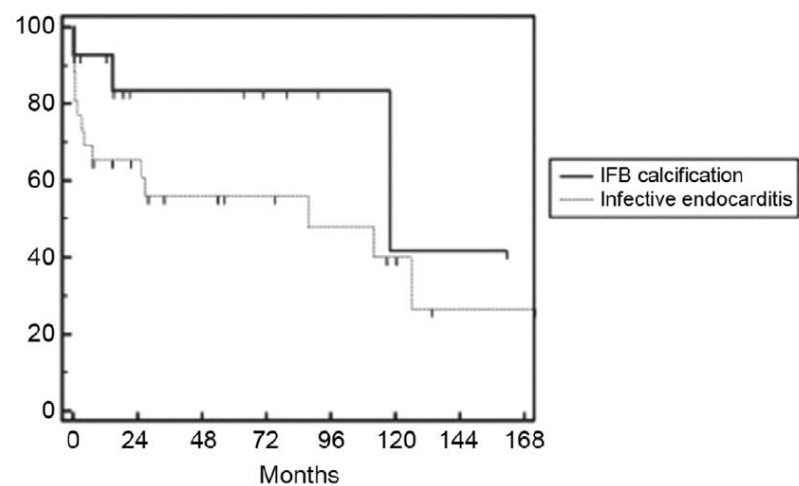


Fig 3. Cumulative survival curve. (IFB = intervalvular fibrous body.)

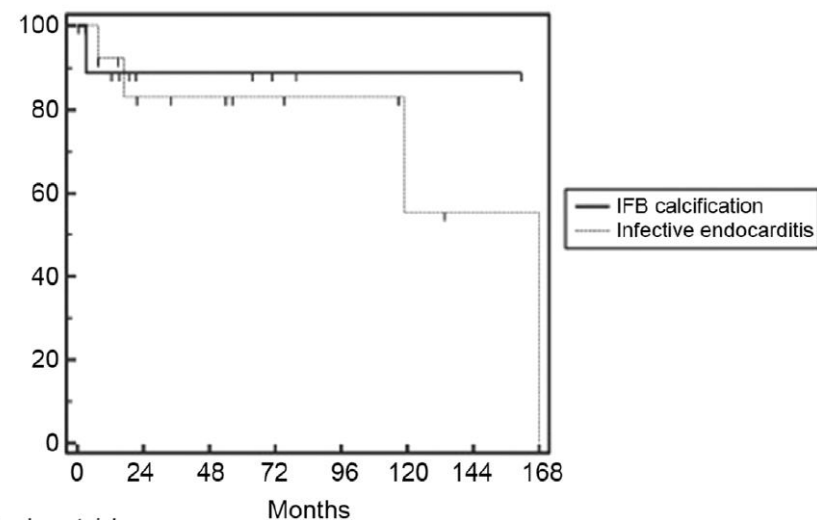


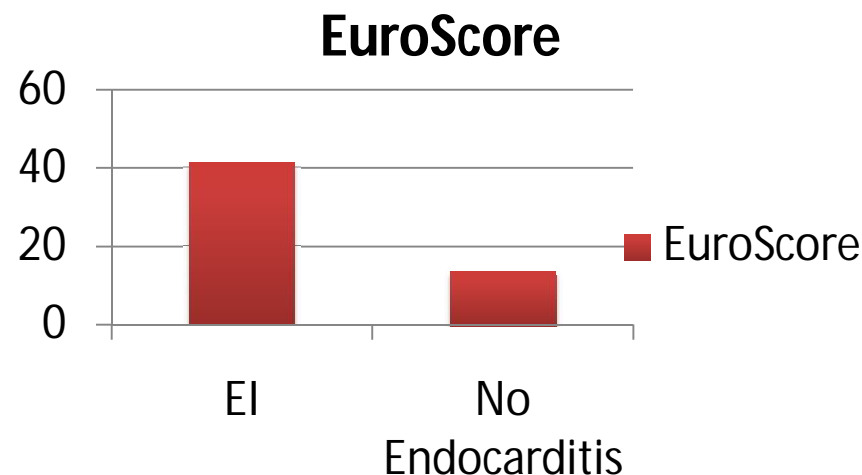
Fig 4. Freedom for reoperation curve. (IFB = intervalvular fibrous body.)

Series publicadas.

Estudio	Tamaño muestral	Mortalidad Hospitalaria		1 año	5 años	10 años
Toronto DAVID (1979-2004)	90	15,6	SPV	68%	59%	49%
			REOP	79%	68%	49%
Liepzig MOHR (1999-2012)	25	32% (8)	SPV	52%	24,6%	
			REOP	-	83,3%	
Madrid, Forteza (1997-2014)	40 (26 EI)	15,3%	SPV	64,4%	57,7%	50%
			REOP	92,3%	84,6%	79,6%
Cleveland NAVIA (1968-2017)	138	24% (Com) 14% (HC)	SPV	67%	48%	37%
			REOP	87%	74%	55%

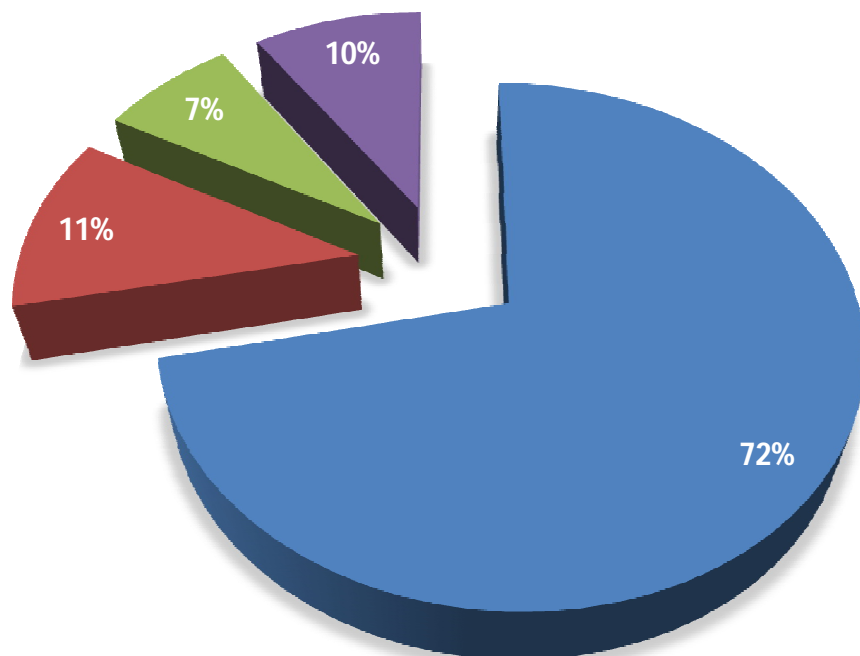
Nuestra Serie.

- 54 pacientes intervenidos.
- 87,5% (35) varones
- Edad media **55,3 ± 13,1** años.
- EuroScore medio **30,5 ± 25,9**.
 - EuroScore Endocarditis: **41,4 ± 25,1**
 - EuroScore No-endocarditis: **14,4 ± 16,7**
- El **68 %** de los pacientes presentaban al menos una cirugía previa.
 - 23 Pacientes tienen una cirugía previa.
 - 5 pacientes tienen dos cirugías previas.



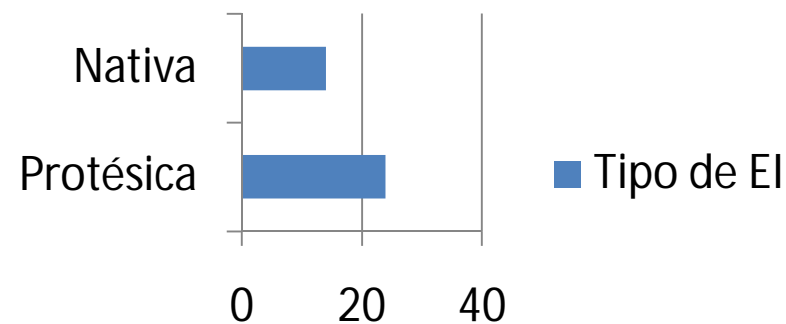
Nuestra Serie.

Indicación Qx



■ Endocarditis ■ Calcificación ■ Mistmatch ■ otras

Tipo de EI



72% pacientes intervenidos por EI

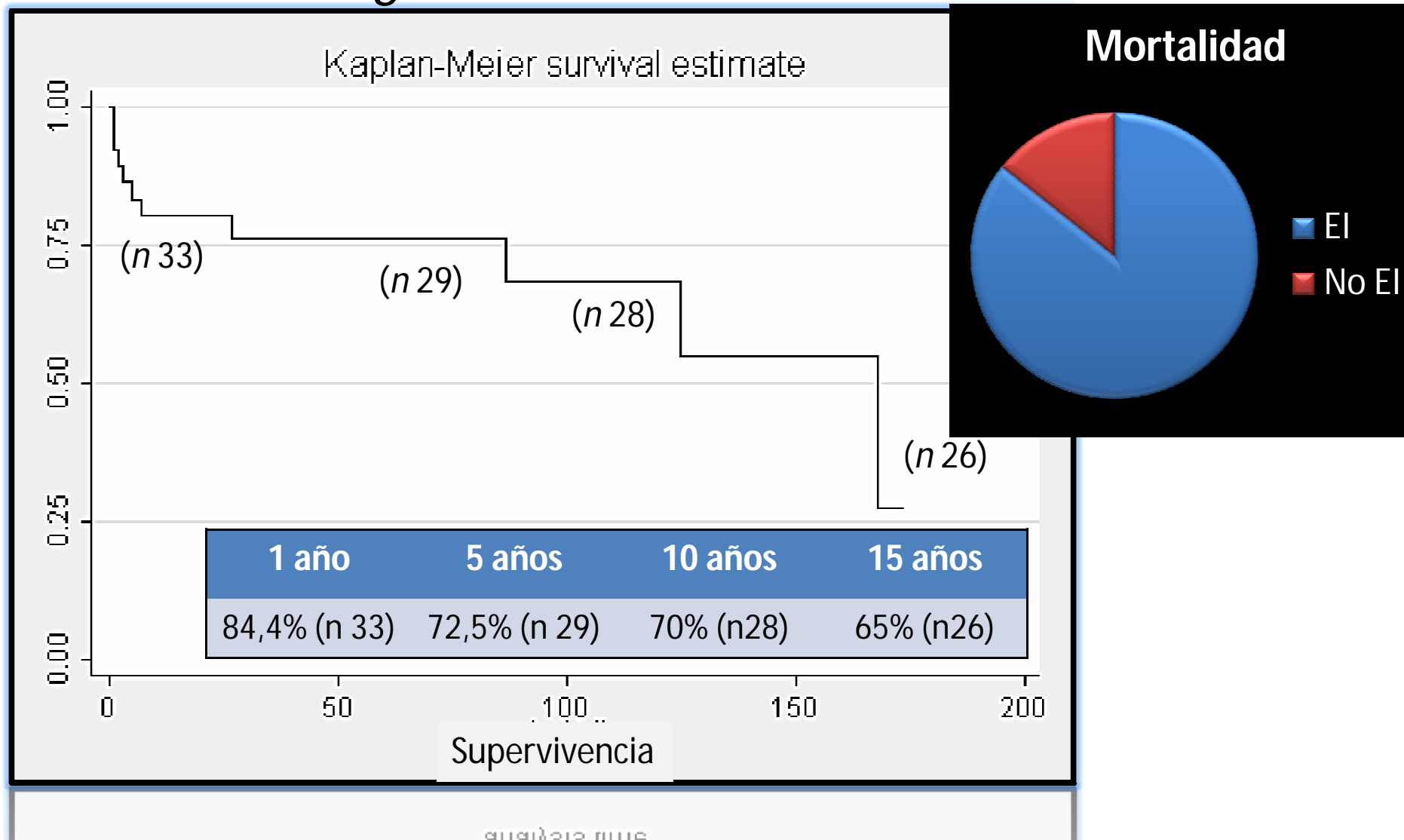
Nuestra Serie.

- Mortalidad perioperatoria (30 días): **20% (11/54).**

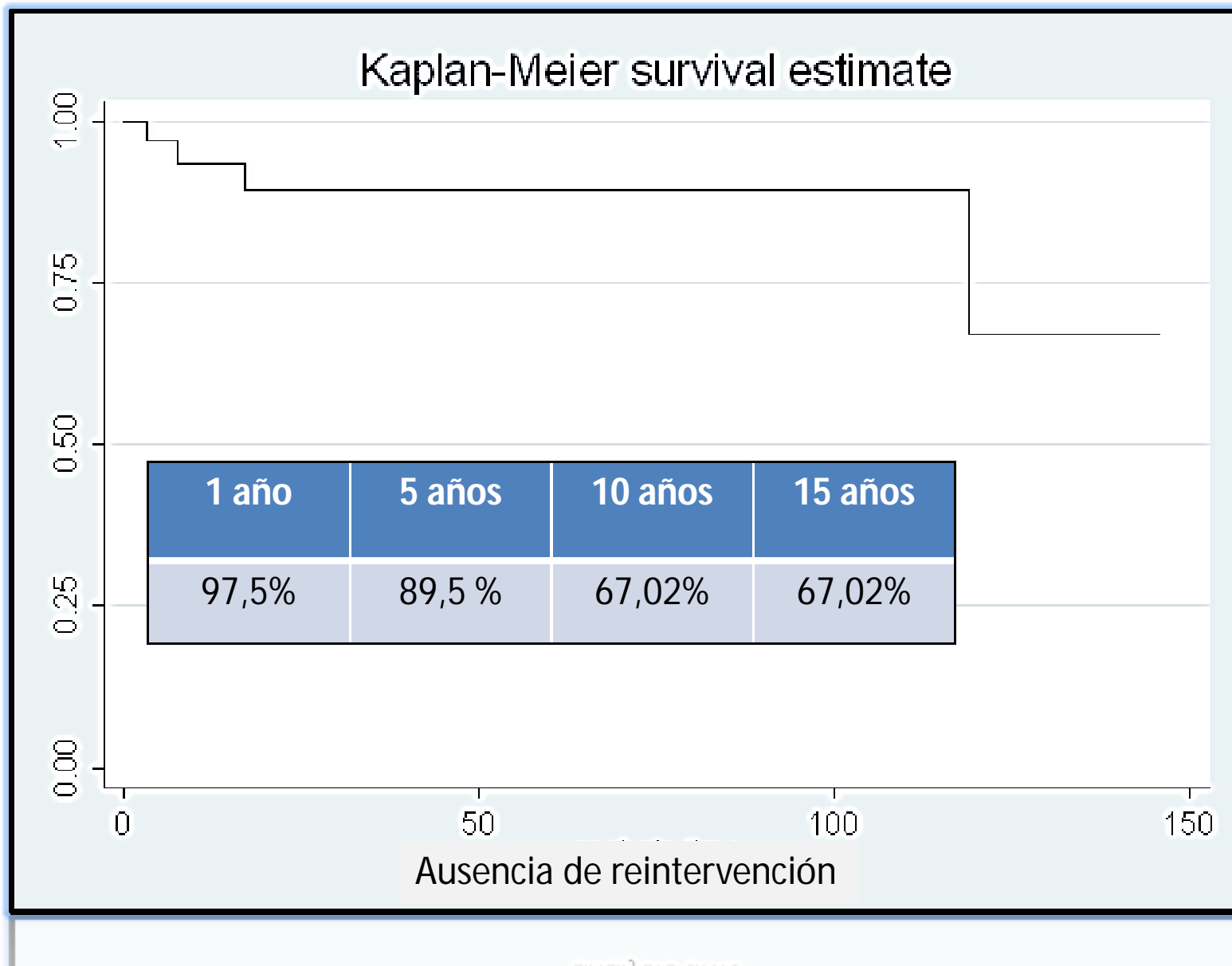
Complicaciones	Total	Endocarditis	No endocarditis
ACVA	3,7%	5%	-
IRA	7,4%	10%	-
IAM	3,7%	5%	-
BCIAo	11,1%	10%	14,3%
<u>Re-intervención</u>	<u>10%</u>	20%	-
<u>MP definitivo</u>	<u>22,2%</u>	15%	42%
Estancia media	42 +/-42 días (mediana 36)	53 +/- 41 días (mediana 41)	12 +/- 5 días (mediana 14)

RESULTADOS

Seguimiento medio de 53 meses



RESULTADOS



Very contemporary surgical outcomes

- Variants of Commando – survival for destruction of fibrous skeleton

OUTCOMES OF IVF RECONSTRUCTION (2015 - now)	n
Dr. Alberto Forteza teams (Puerta de Hierro and Quirón)	20
Dr. Eduard Quintana teams (Hospital Clínic Barcelona and BarnaClínic)	20
Survival (in-hospital and 30 days)	92.5 %

Conclusiones

- El cuerpo fibroso infección muy grave
- Morbimortalidad alta
- Equipo multidisciplinar
- Cirujano muy experimentado
- Elegir momento “oportuno”
- Cirugía muy radical. Amplios desbridamientos.
Reconstrucciones complejas

Discusión

- Quién debe operar
- Cuando se debe operar
- Prótesis mecánicas o biológicas ?
- Centros de referencia ?
- Cesur de esta patología dentro de la EI ?
- Materiales : pericardio, dacron ?

