Membrana subaortica quando indicar a cirurgia?

Dr. Gustavo Mello

Obstrução da via de saída do ventrículo esquerdo

Grau variável de obstrução a ejeção do ventrículo esquerdo, podendo ser em vários planos isolados ou associados. Representa 3-10% das cardiopatias congênitas.

Darcin OT, Yagdi T, Atay Y, et al. (2003) Discrete subaortic stenosis: surgical outcomes and follow-up results. Tex Heart Inst J 30, 286–292.

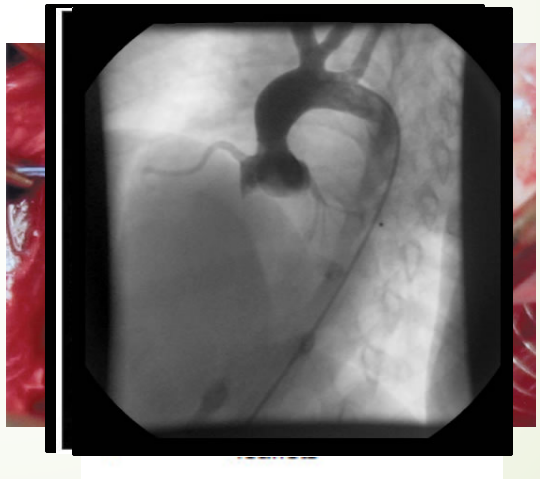
Obstrução da via de saída do ventrículo esquerdo

Grau variável de obstrução a ejeção do ventrículo esquerdo, podendo ser em vários planos isolados ou associados. Representa 3-10% das cardiopatias congênitas.

Sub-Valvar (60-75%)

Valvar (15-20%)

Supra-valvar (5-10%)

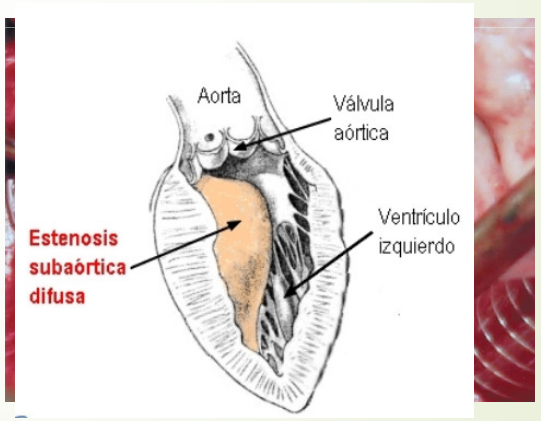


Kitchiner D, Jackson M, Malaiya N, et al. (1994) Incidence and prognosis of obstruction of the left ventricular outflow tract in Liverpool (1960–91): a study of 313 patients. Br Heart J 71, 588–595.

Obstrução da via de saída do ventrículo esquerdo

Estenose subvalvar

Discreta (membrana fibromuscular)

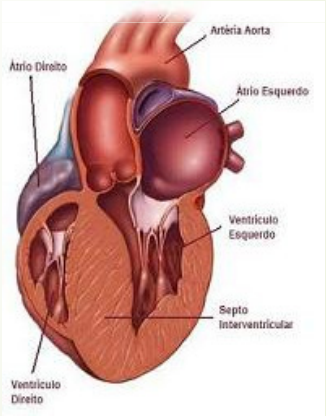


Difusa (túnel fibroso)

Obstrução da via de saída do ventrículo esquerdo

Estenose subvalvar

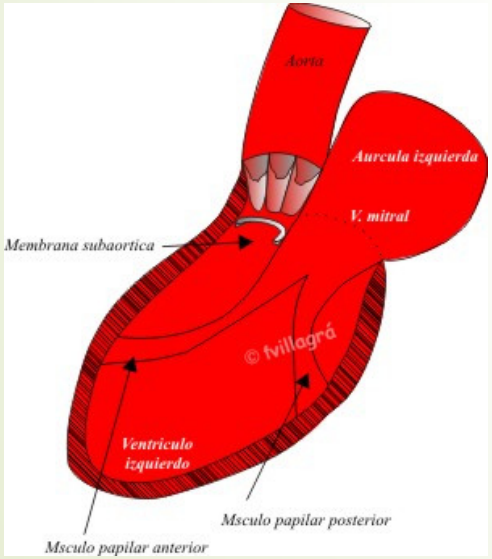
Hipertrofia septal assimétrica

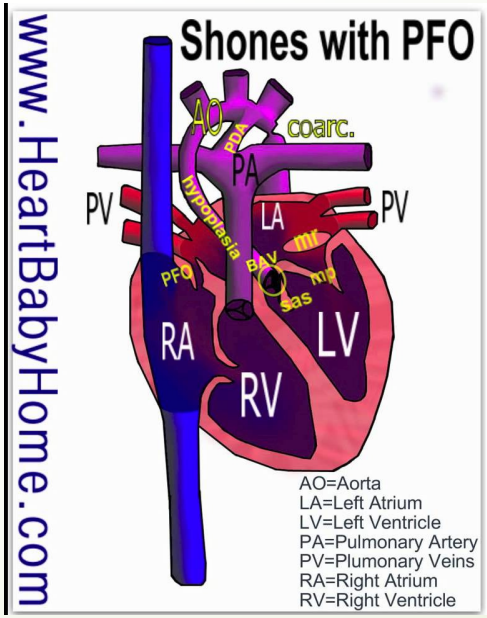


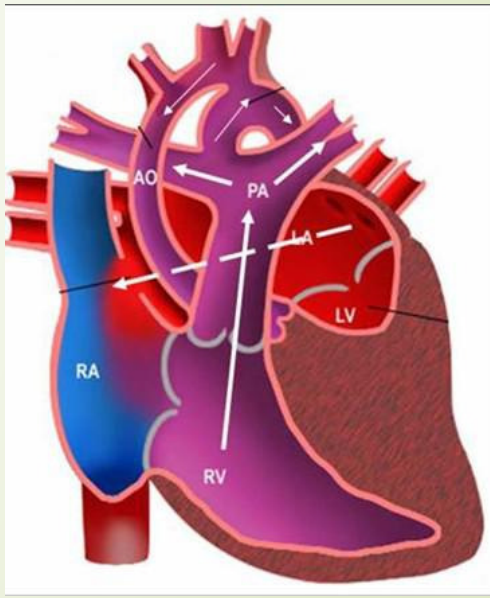
Alteração de músculos papilares

Obstrução da via de saída do ventrículo esquerdo

Complexidade variável

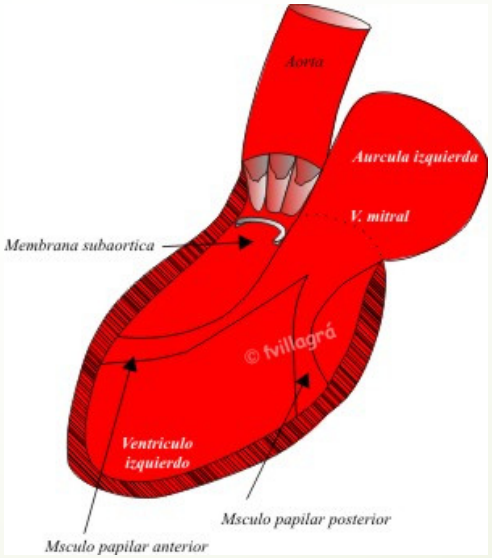






Obstrução da via de saída do ventrículo esquerdo

Membrana subaortica quando indicar a cirurgia?

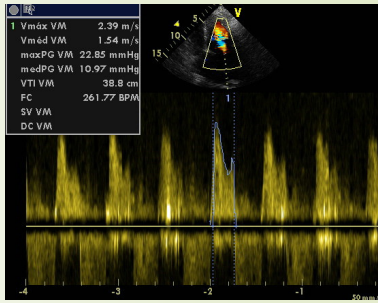


Membrana subaortica quando indicar a cirurgia?

1. Gradiente
2. HVE
3. Area
4. Sintomas
5. Insuficiência da valva aórtica

Membrana subaortica quando indicar a cirurgia?

Gradiente



40 MMHG

30 mmHg

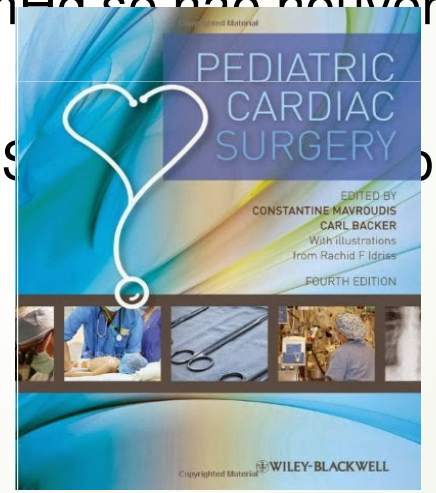
50 mmHg

Ao diagnóstico

Membrana subaortica quando indicar a cirurgia?

Gradiente

Gradiente maior que 30 mmHg se não houver sinais de HVE significativa



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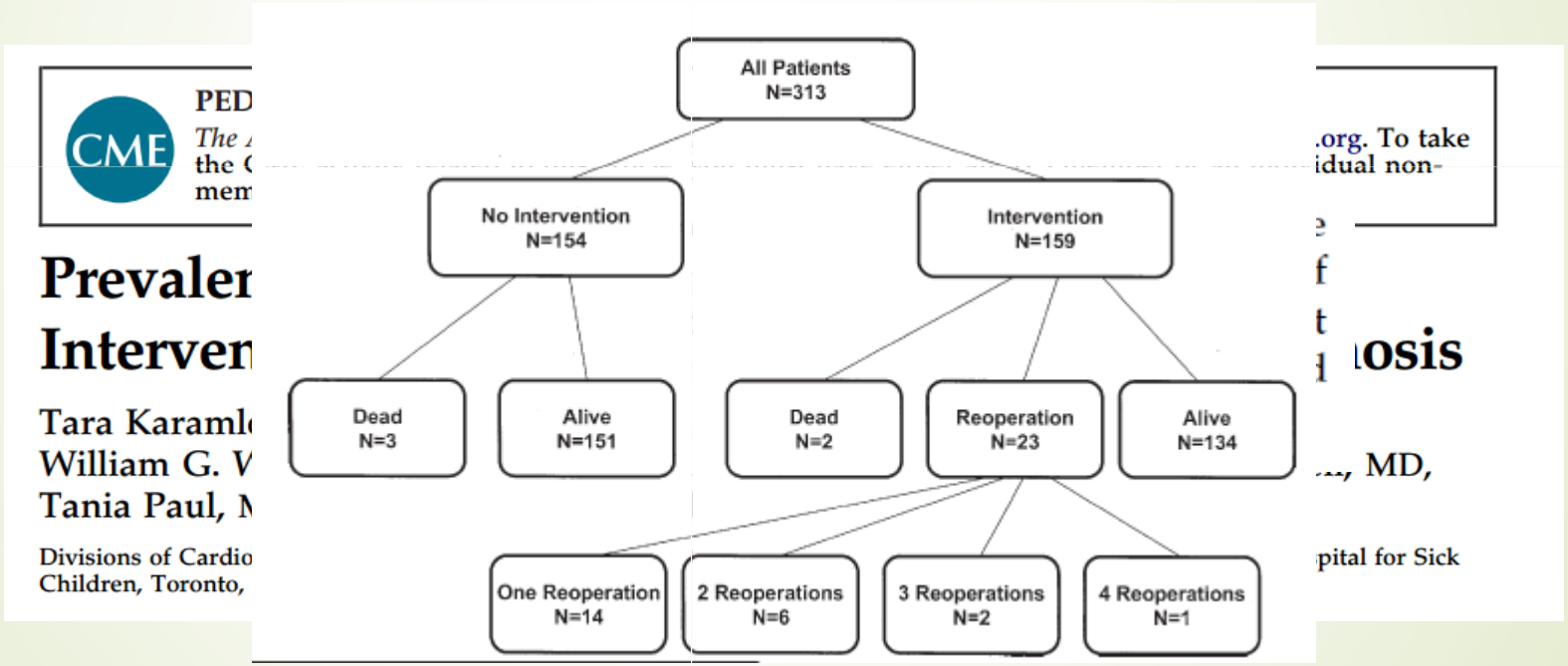
Membrana subaortica quando indicar a cirurgia?

Gradiente



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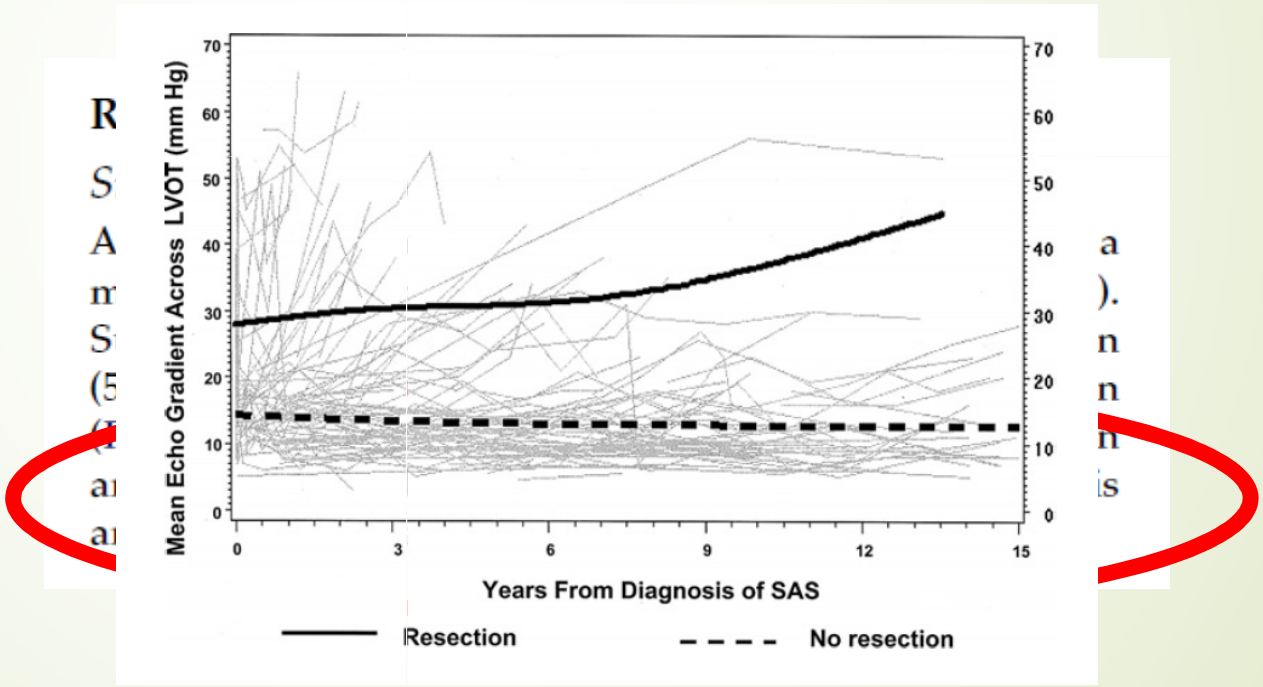
Membrana subaortica quando indicar a cirurgia?

Gradiente



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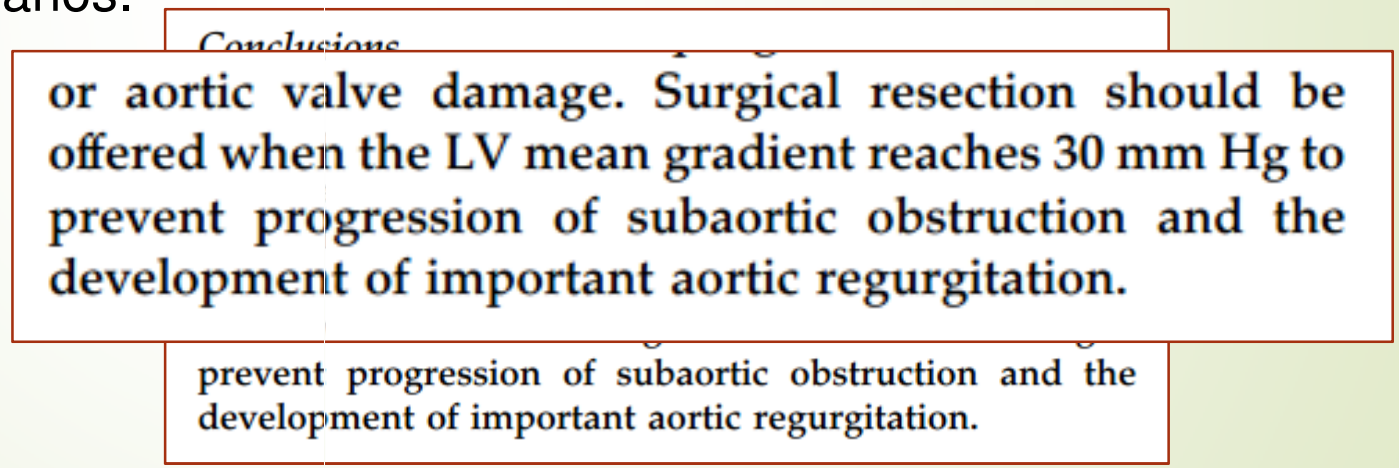
Gradiente

Gradiente de 30 mmHg para indicar cirurgia.

Baixa incidência de reoperação (9%)

Follow-up de 22 anos.



Conclusions

or aortic valve damage. Surgical resection should be offered when the LV mean gradient reaches 30 mm Hg to prevent progression of subaortic obstruction and the development of important aortic regurgitation.

prevent progression of subaortic obstruction and the development of important aortic regurgitation.

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Membrana subaortica quando indicar a cirurgia?

Gradiente

CARDIAC SURGE

Benefits of Early Surgical Repair in Fixed Subaortic Stenosis

RON BRAUNER, MD, HILLEL LAKS, MD, FACC, DAVIS C. DRINKWATER, JR., MD, FACC,
OLEG SHVARTS, MS, KOUROSH EGHBALI, MS, ALVARO GALINDO, MD

Los Angeles, California

RON BRAUNER, MD, et col. Benefits of Early Surgical Repair in Fixed Subaortic Stenosis. JACC Vol. 30, No. 7, December 1997:1835–42

Membrana subaortica quando indicar a cirurgia?

Gradiente

N= 83 pacts

Follow-up de 6.7 anos (9 meses até 14.6 anos)

Separou em dois grupos para análise de dados.

RON BRAUNER, MD, et col. Benefits of Early Surgical Repair in Fixed Subaortic Stenosis. JACC Vol. 30, No. 7, December 1997:1835–42

Membrana subaortica quando indicar a cirurgia?

Gradiente

Table 3. Late Surgical Outcome in Patients With a Low (Group I) or a High (Group II) Preoperative Left Ventricular Outflow Tract Gradient

	Group I (gradient ≤40 mm Hg, n = 40)	Group II (gradient >40 mm Hg, n = 35)	p Value
Patients	2 (5)	13 (37.1)	6 × 10
Reoperations			
For subaortic obstruction	1 (2.5)	10 (28.6)	0.002
Progressive AoV disease			
Regurgitation	5 (12.5)	14 (40)	0.014
Stenosis	0	3 (8.6)	NS
Re-reoperation	1 (2.5)	3 (8.6)	NS
Total	3 (7.5)	14 (40)	0.001

Data are presented as mean value ± SD or number (%) of patients. AoV = aortic valve; SAS = subaortic stenosis.

RON BRAUNER, MD, et col. Benefits of Early Surgical Repair in Fixed Subaortic Stenosis. JACC Vol. 30, No. 7, December 1997:1835–42

Membrana subaortica quando indicar a cirurgia?

Gradiente

Table 5. Clinical Outcome in Patients With a Low (Group I) or a High (Group II) Preoperative Left Ventricular Outflow Tract Gradient

	Group I (gradient ≤40 mm Hg, n = 40)	Group II (gradient >40 mm Hg, n = 35)	p Value
Gradient ≥15 mm Hg			
Subaortic	2 (5)	6 (17.6)	
On biscupid AoV	1 (2.5)	5 (14.7)	
Total	3 (7.5)	11 (32.3)	0.05
Functional class (NYHA)			
1	39 (97.5)	29 (85.3)	0.06
2	1 (2.5)	2 (5.9)	NS
3	0	3 (8.8)	
Late AoV regurgitation			
None	30 (75)	17 (48.6)	
Mild	7 (17.5)	7 (20)	
Moderate to severe	3 (7.5)	11 (31.4)	0.01

Data are presented as number (%) of patients. AoV = aortic valve; NYHA = New York Heart Association.

RON BRAUNER, MD, et col. Benefits of Early Surgical Repair in Fixed Subaortic Stenosis. JACC Vol. 30, No. 7, December 1997:1835–42

Membrana subaortica quando indicar a cirurgia?

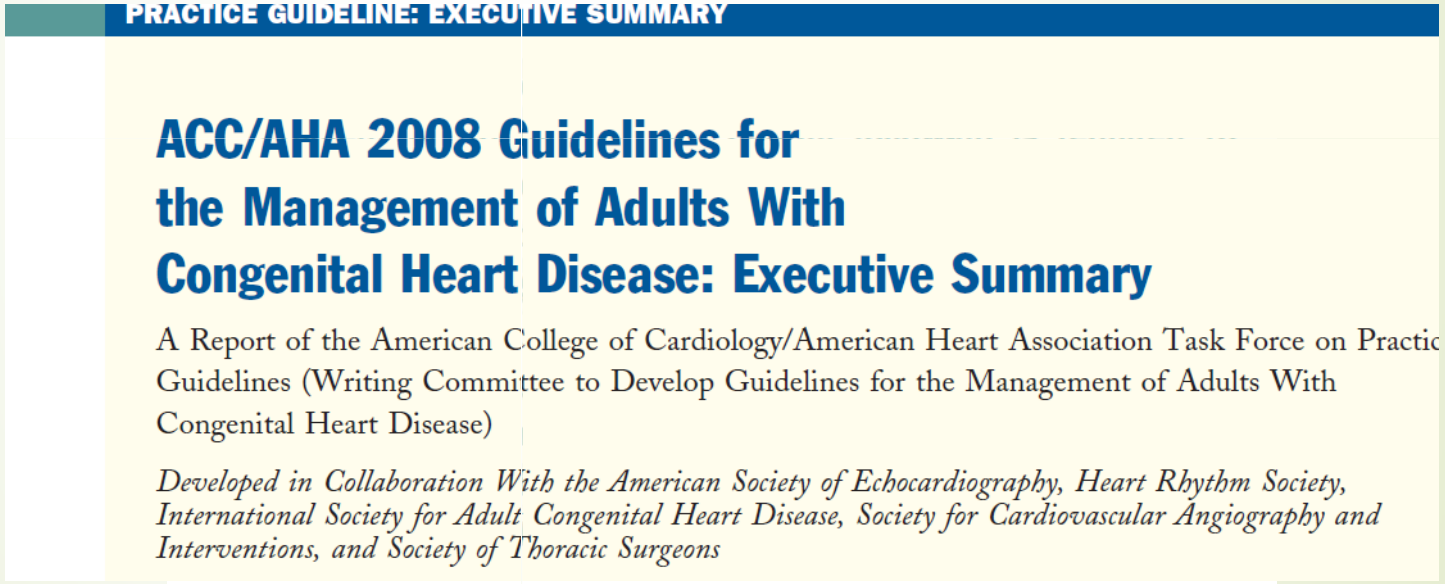
Gradiente

Conclusions. The data suggest that surgical resection of fixed subaortic stenosis before the development of a significant (>40 mm Hg) outflow tract gradient may prevent recurrence, reoperation and secondary progressive aortic valve disease.

RON BRAUNER, MD, et col. Benefits of Early Surgical Repair in Fixed Subaortic Stenosis. JACC Vol. 30, No. 7, December 1997:1835–42

Membrana subaortica quando indicar a cirurgia?

Gradiente


PRACTICE GUIDELINE: EXECUTIVE SUMMARY

ACC/AHA 2008 Guidelines for the Management of Adults With Congenital Heart Disease: Executive Summary

A Report of the American College of Cardiology/American Heart Association Task Force on Practic Guidelines (Writing Committee to Develop Guidelines for the Management of Adults With Congenital Heart Disease)

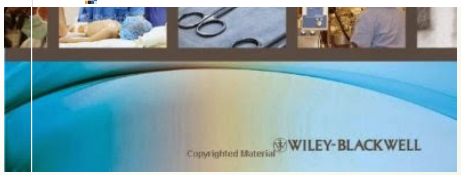
Developed in Collaboration With the American Society of Echocardiography, Heart Rhythm Society, International Society for Adult Congenital Heart Disease, Society for Cardiovascular Angiography and Interventions, and Society of Thoracic Surgeons

RACC/AHA 2008 Guidelines for Adults With CHD. JACC Vol. 52, No. 23, December 2, 2008:1890–947

Membrana subaortica quando indicar a cirurgia?

HVE

surgery. Patients with gradients less than 30 mmHg and no significant left ventricular hypertrophy may be followed, but must be monitored for evidence of disease progression, particularly in the first years of life [156]. For asymptomatic



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Membrana subaortica quando indicar a cirurgia?

AREA

Não encontrada referência na literatura quanto a indicação por cálculo de área.

Membrana subaortica quando indicar a cirurgia?

Sintomas

Treatment

Indications for Intervention

Surgery is indicated for any patient with symptoms attributable to subaortic stenosis, including shortness of breath, angina, syncope, or diminished exercise tolerance. In addition, evidence of progressive decompensation based on serial noninvasive studies is also an indication for surgery.

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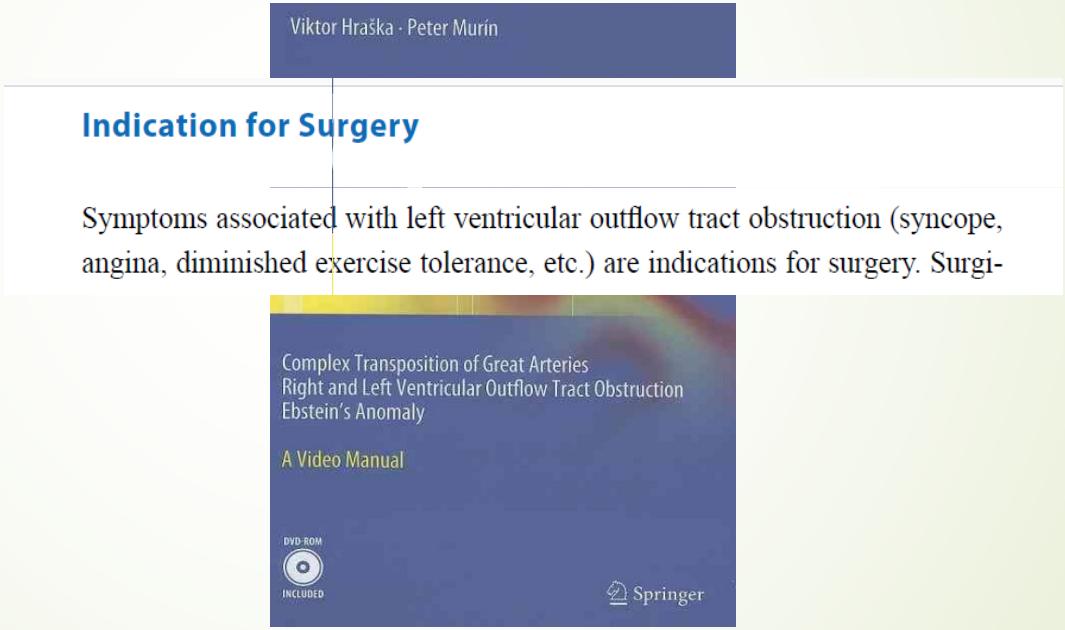
Membrana subaortica quando indicar a cirurgia?

Sintomas



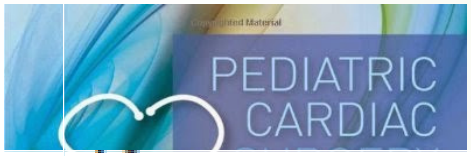
Surgical Management of Congenital Heart Disease I by Viktor Hraska, 2012.

Membrana subaortica quando indicar a cirurgia?

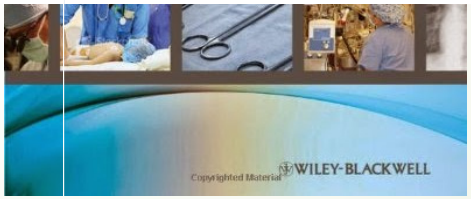
Insuficiência da válvula aórtica

Membrana subaortica quando indicar a cirurgia?

Insuficiência da válvula aórtica



than 50 mmHg is used. The presence of aortic insufficiency, even with a lesser gradient, is also considered an indication for surgery. Because of the progressive nature of the disease



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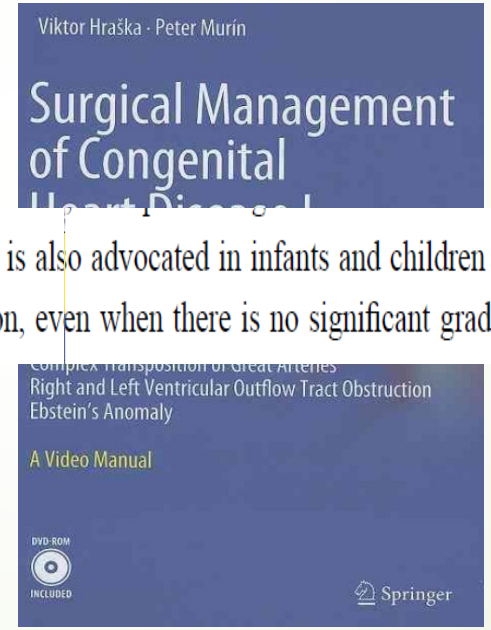
Membrana subaortica quando indicar a cirurgia?

Insuficiência da válvula aórtica

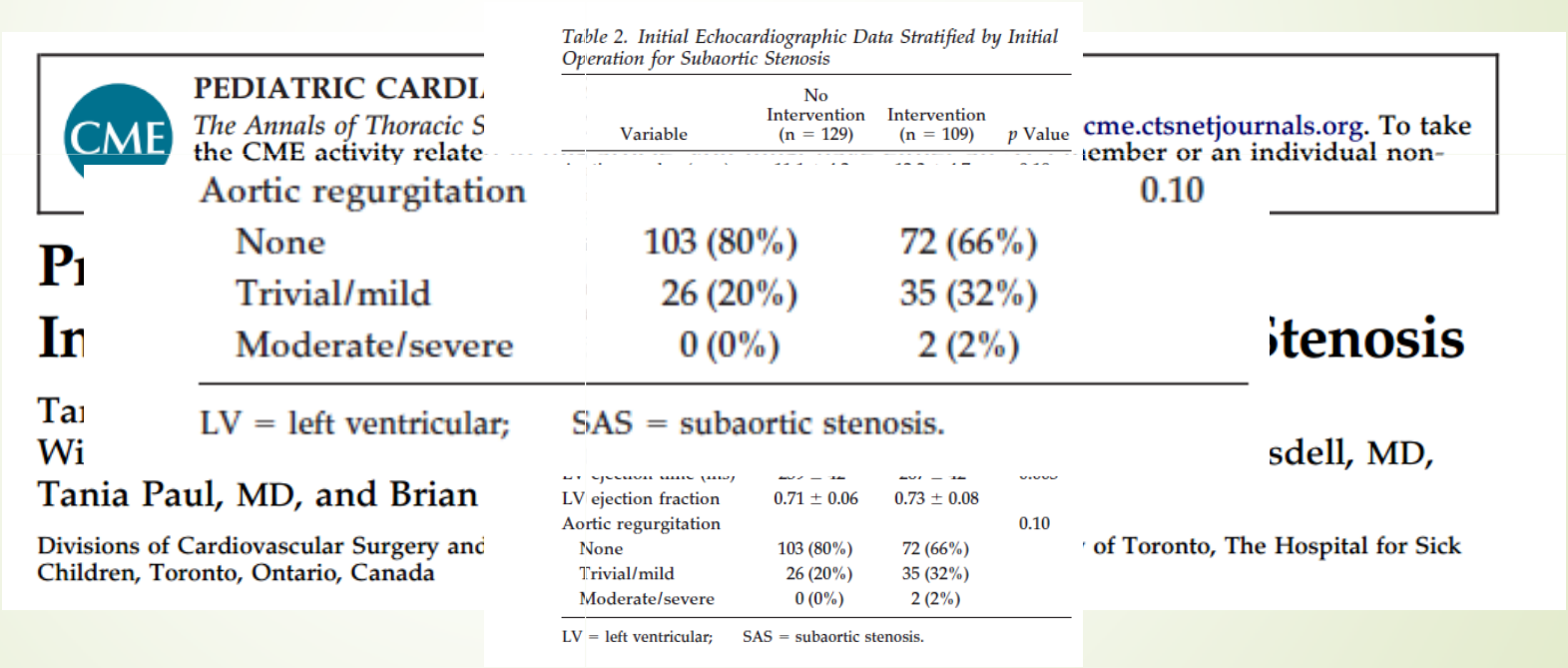


function. Surgery is also advocated in infants and children in the presence of aortic regurgitation, even when there is no significant gradient. Patients with

Surgical Management of Congenital Heart Disease I by Viktor Hraska, 2012.

Membrana subaortica quando indicar a cirurgia?

Insuficiência da válvula aórtica



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Ir **Stenosis**

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Tania Paul, MD, and Brian sdell, MD,

Divisions of Cardiovascular Surgery and Children, Toronto, Ontario, Canada
of Toronto, The Hospital for Sick

Table 2. Initial Echocardiographic Data Stratified by Initial Operation for Subaortic Stenosis

Variable	No Intervention (n = 129)	Intervention (n = 109)	*p* Value
Aortic regurgitation			0.10
None	103 (80%)	72 (66%)	
Trivial/mild	26 (20%)	35 (32%)	
Moderate/severe	0 (0%)	2 (2%)	
LV ejection fraction	0.71 ± 0.06	0.73 ± 0.08	

LV = left ventricular; SAS = subaortic stenosis.

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Membrana subaortica quando indicar a cirurgia?

Insuficiência da válvula aórtica

Table 3. Incremental Risk Factors for Initial Subaortic Resection and Longitudinal Echocardiographic Outcomes

For higher LV mean gradient		
Longer time interval (per year)[a]	0.47 ± 0.69	<0.001
Initial LV mean gradient ≥ 30 mm Hg	24.87 ± 0.68	<0.001
Initial thickened aortic valve leaflets	6.04 ± 1.68	<0.001
Attachment of SAS to mitral valve	3.56 ± 1.25	0.004
For worse aortic regurgitation grade		
Longer time interval (per year)[a]	0.02 (95% CI, 0.01–0.04)	<0.001
Initial LV mean gradient ≥ 30 mm Hg	0.42 (95% CI, 0.20–0.64)	<0.001

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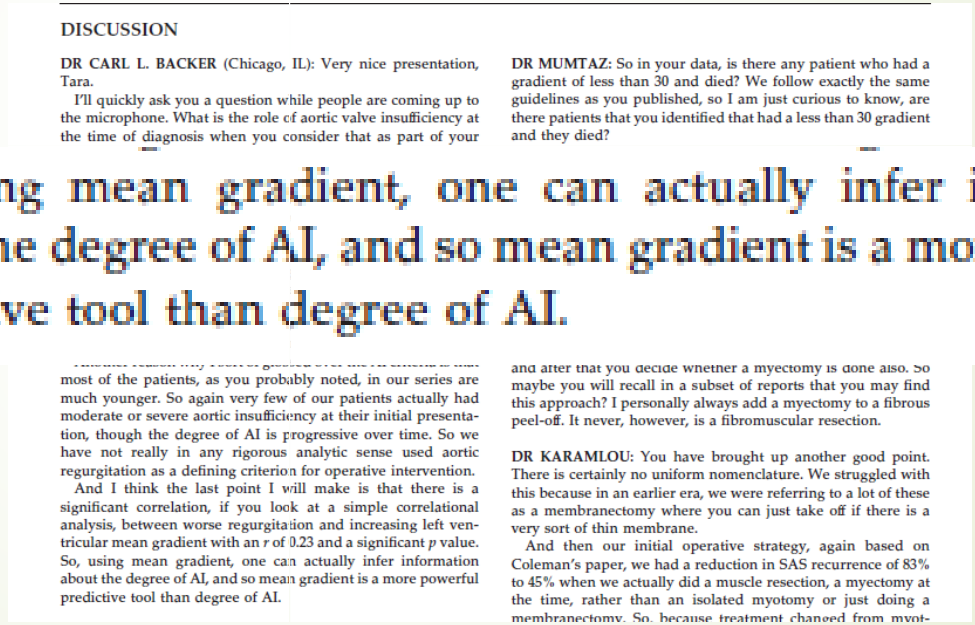
Insuficiência da válvula aórtica



DISCUSSION

DR CARL L. BACKER (Chicago, IL): Very nice presentation, Tara.

I'll quickly ask you a question while people are coming up to the microphone. What is the role of aortic valve insufficiency at the time of diagnosis when you consider that as part of your

DR MUMTAZ: So in your data, is there any patient who had a gradient of less than 30 and died? We follow exactly the same guidelines as you published, so I am just curious to know, are there patients that you identified that had a less than 30 gradient and they died?

So, using mean gradient, one can actually infer information about the degree of AI, and so mean gradient is a more powerful predictive tool than degree of AI.

most of the patients, as you probably noted, in our series are much younger. So again very few of our patients actually had moderate or severe aortic insufficiency at their initial presentation, though the degree of AI is progressive over time. So we have not really in any rigorous analytic sense used aortic regurgitation as a defining criterion for operative intervention.

And I think the last point I will make is that there is a significant correlation, if you look at a simple correlational analysis, between worse regurgitation and increasing left ventricular mean gradient with an r of 0.23 and a significant p value. So, using mean gradient, one can actually infer information about the degree of AI, and so mean gradient is a more powerful predictive tool than degree of AI.

and after that you decide whether a myectomy is done also. So maybe you will recall in a subset of reports that you may find this approach? I personally always add a myectomy to a fibrous peel-off. It never, however, is a fibromuscular resection.

DR KARAMLOU: You have brought up another good point. There is certainly no uniform nomenclature. We struggled with this because in an earlier era, we were referring to a lot of these as a membranectomy where you can just take off if there is a very sort of thin membrane.

And then our initial operative strategy, again based on Coleman's paper, we had a reduction in SAS recurrence of 83% to 45% when we actually did a muscle resection, a myectomy at the time, rather than an isolated myotomy or just doing a membranectomy. So, because treatment changed from myot-

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Membrana subaortica quando indicar a cirurgia?

Insuficiência da válvula aórtica

European Journal of Cardio-Thoracic Surgery 48 (2015) 212–220
doi:10.1093/ejcts/ezu423

REVIEW

last 15 years (1 January 1997–31 December 2012) a

Cite this article as: Etnel JRG, Takkenberg JJM, Spaans LG, Bogers AJJC, Helbing WA. Paediatric subvalvular aortic stenosis: a systematic review and meta-analysis of natural history and surgical outcome. Eur J Cardiothorac Surg 2015;48:212–20.

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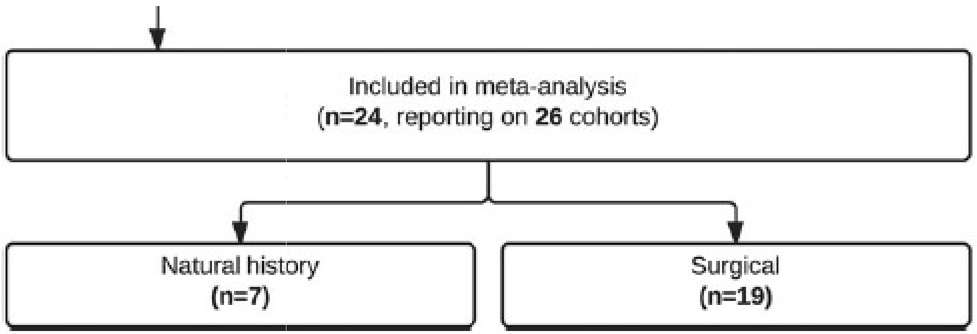

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Membrana subaortica quando indicar a cirurgia?

Insuficiência da válvula aórtica

Aortic regurgitation. One study [20] showed that the presence of AR, regardless of severity, in SAS patients, either at diagnosis, preoperatively or at early or late follow-up, was a significant predictor of AR at a later point in the follow-up.

European Journal of Cardio-Thoracic Surgery 48 (2015) 212–220

Membrana subaortica quando indicar a cirurgia?

Considerações finais

1. Parece haver um consenso de indicar com gradiente de 30 mmHg, podendo tolerar gradientes maiores em pacts com idade maior ou adultos.
2. Sintomas indicam intervenção.
3. HVE pode ser considerado como ferramenta para indicar cirurgia.
4. Presença de insuficiência aórtica moderada a grave é consenso de indicar cirurgia.
5. Insuficiência aórtica discreta-leve com gradiente menor que 30 mmHg tem respaldo para indicar, contudo não é universalmente aceito como indicação.