

NEONATO COM ATRESIA
PULMONAR
DEVO COLOCAR STENT NO
CANAL OU CHAMAR O
CIRURGIÃO PARA FAZER UM
BLALOCK?

Patrícia Guedes de Souza

AP com SIV íntegro



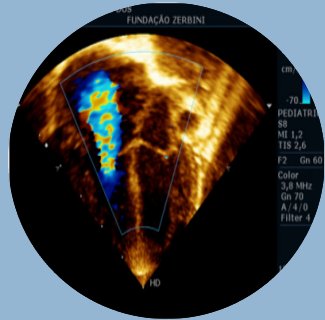
- Raiz pulmonar menor do que o diâmetro normal
- Valva com fusão dos folhetos
- Graus variados de displasia
- Hipoplasia variável do VD e VT
- Associação frequente com fístula coronária e sinusoides
- Artérias pulmonares com tamanho usualmente normal
- Fluxo pulmonar mantido pelo canal arterial

AP com SIV íntegro

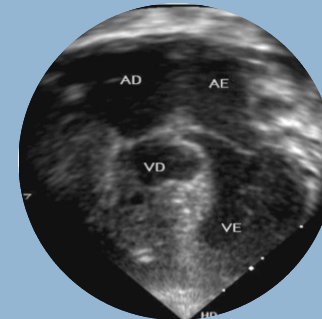
Ventrículo Direito

- 90% dos casos hipertrofia com cavidade pequena
- 45% dos casos com fístulas coronário - cavitária e 9% circulação coronária dependente do VD
- Menos comum VD dilatado secundário a obstrução de via de saída e regurgitação tricúspide

AP com SIV íntegro



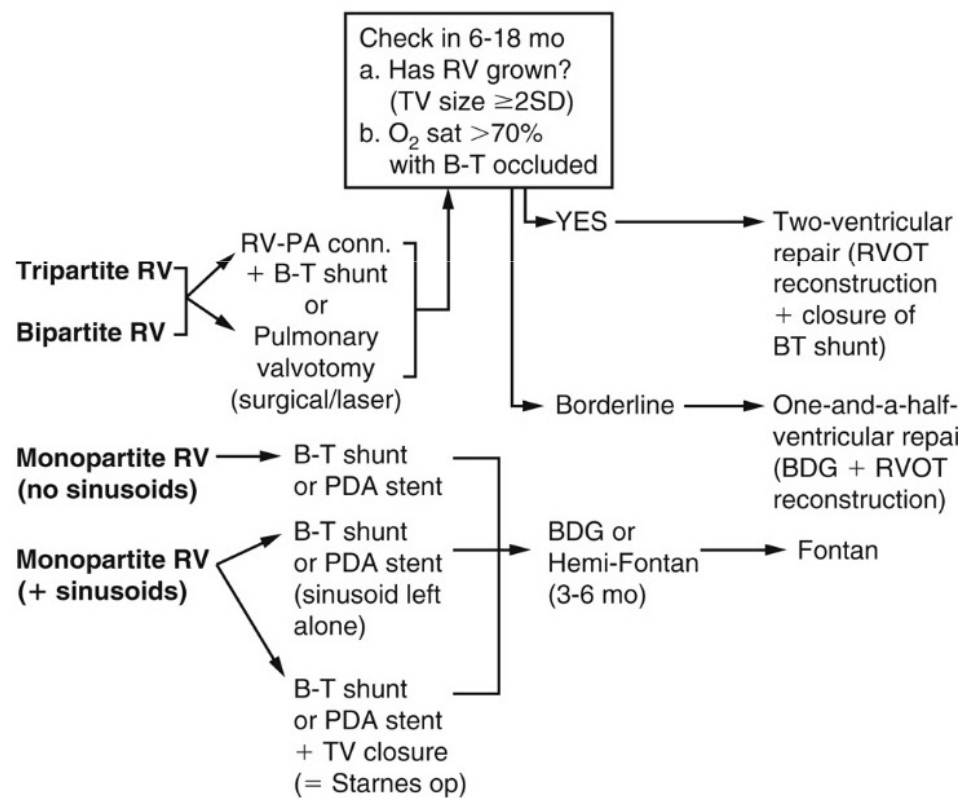
Atresia valvar
membranosa com VD
desenvolvido



Hipoplasia severa do VD
com fístulas coronaria –
VD e ausência de
infundíbulo



Pulmonary atresia with intact ventricular septum



Atresia Pulmonar com septo íntegro

- VD tripartide de bom tamanho



Perfuração + valvotomia por balão → definitivo 35%

- Operação de BT
- Stent PCA

Atresia Pulmonar com CIV



- CIV com dextroposição da aorta
- Extrema variação anatômica do tronco e ramos pulmonares
- Vasculatura pulmonar nutrida por PCA ou colaterais aorto - pulmonar

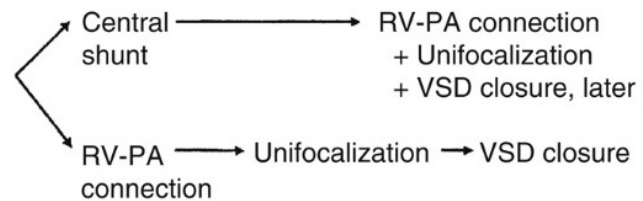
Tetralogy of Fallot with pulmonary atresia (or pulmonary atresia and VSD)

Confluent PAs with:

- **Favorable PA anatomy**
(True PAs providing most PBF with O_2 sat >75%)

→ Single-stage repair
(VSD closure + RV-to-unifocalized PA connection)

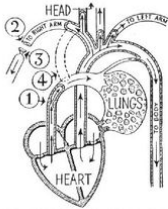
• **Hypoplastic PAs**



• **Nonconfluent PAs + MAPCAs**

→ RV-PA conduit → Unifocalization → VSD closure
(6-8 mm homograft)

Switching Arteries Sidetracks Blood and Oxygen to Otherwise Starved Lungs



The "Blue" Babies' Blood Locks Vital Oxygen Because the Artery (1) From the Heart to the Lung is Constricted. By Severing an Artery of the Arm (2), Tying It Off (3) and Attaching It to the Lung Artery (4) the Constriction is By-Passed.

By Robert D. Potter

Science Editor
WOMAN physicians' courageous research and imagination, and the skill of one of the world's great surgeons have combined to bring hope that many "blue" babies hitherto considered doomed to early death may be saved.

These babies are blue because they are suffering from a lack of oxygen in their blood stream, in a condition known as cyanosis. The artery from their heart to their lungs is so constricted that their blood never gets oxygen to make chesty rosy.

Their lips are blue, and they can walk only a few feet without exhaustion. Doctors used to give them only a few tortured years to live.

But some medicine can give hope . . . and now . . . for since Nov. 20, 1944, Dr. Blalock, Professor of Surgery at Johns Hopkins University in Baltimore, has been conquering the "blue" baby misery by re-routing an artery from the arm and making it carry blood to the lungs where it can receive its vital oxygen.

Nearly 70 operations have been performed on "blue" babies. In many cases almost miraculous recovery has come.

It is Dr. Blalock's fingers that wield the knife in the delicate operation that exposes the heart and transplants its vital arteries. But behind the brilliant operation he has perfected are years of painstaking research by Dr. Helen B. Dausig, daughter of the late Prof. F. W. Dausig, world-famous Harvard consultant. Dr. Dausig had watched "blue" babies come to her heart clinic at Johns Hopkins Hospital.

In many cases she discovered that the artery leading to the lung from the heart was narrowed so that an insufficient supply of blood was reaching the lungs to receive its vital oxygen. Dr. Dausig reasoned that a surgical operation might be able to short-circuit the constricted and sidetrack blood into the lungs. On paper, when the diagram of the ar-

Saving Our Doomed 'Blue' Babies

the blood would pick up its life-giving oxygen. Then it would go back to the heart again to move onward through the body.

But could it be done? It is one thing to have a plumber re-arrange a piping system and something quite different to lay bare the human heart, sever one of its main arteries, splice it to another main artery and sustain life in the patient in the process. Dr. Blalock said he would try.

Since the pioneer attempt the operation has been largely successful, although it is one filled with danger. Among the first 70 patients, 14 died. The odds are 5 to 1 for success.

Now that the news of Dr. Blalock's operation is known through the country the list of patients grows daily. Rose Marie, Bonnie Stewart of Florida, daughter of a daddy killed on Saipan, went to Baltimore with her grandmother. Today Bonnie walks and plays like other children.

The case of six-year-old Mike Schirmer—the boy with the "ticky zipper"—shows what can be done.



Six-Year-Old Mike Schirmer of Baltimore Could Walk Only Five Feet Without Resting Before the Operation. He Shows His "Ticky Zipper"—the Incision for the Operation.



Little Bonnie Stewart of Florida Is Another of the 70 Children Saved by the New Johns Hopkins Surgery.

was no hope that Mike could grow up. But then came new hope, for Dr. Mauderfer told us about the operation of Dr. Blalock.

"They took him to the operating room and brought him back two hours later. It was a miracle.

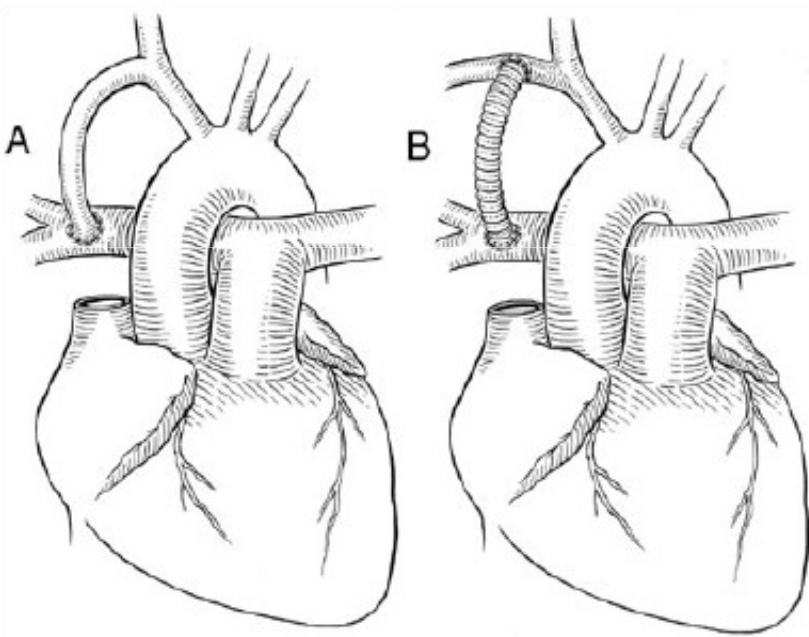
"After only two weeks of convalescence he came home and he has been on the go ever since. If anyone wants anything he'll run and get it. He's up and down stairs 75 times a day. He climbs on bureaus and tables just for the joy of jumping off. He wears me out. But I love it."

The Blalock-Dausig operation is not a simple one. It takes from an

branches of the pulmonary artery (to the lungs) are two large blood vessels. One connects the heart and the arm, the other the heart and the head. Dr. Blalock chooses the most convenient—usually the arm artery—and severs it. One end is clamped off and the other closed permanently.

The end nearest the heart is then spliced to the nearest branch of the pulmonary artery. The clamps are removed and the blood that would ordinarily flow to the arm goes into the lung. There it becomes enriched with vital oxygen and the baby's blue lips quickly begin to turn red.

Nature has provided other blood vessels which take up the blood lost



Complicações cirúrgicas do BT

- Relacionadas ao material ou técnica
 - “Kinking”
 - Trombose
- Relacionadas a anatomia
 - Quilotorax
 - Lesão de nervos frênico ou vago
- Sequelas da cirurgia
 - Estenose de ramo pulmonar

Risk Factors for Mortality and Morbidity After the Neonatal Blalock-Taussig Shunt Procedure

Orlando Petrucci, MD, PhD, Sean M. O'Brien, PhD, Marshall L. Jacobs, MD, Jeffrey P. Jacobs, MD, Peter B. Manning, MD, and Pirooz Eghtesady, MD, PhD

Division of Cardiac Surgery, Faculty of Medical Science, State University of Campinas, UNICAMP, Campinas, São Paulo, Brazil; Duke Clinical Research Institute, Durham, North Carolina; Center for Pediatric and Congenital Heart Disease, Cleveland Clinic Foundation, Cleveland, Ohio; The Congenital Heart Institute of Florida, University of South Florida, All Children's Hospital and Children's Hospital of Tampa, Saint Petersburg, Florida; and The Heart Institute, Division of Cardiothoracic Surgery, Cincinnati Children's Hospital Medical Center and University of Cincinnati, Cincinnati, Ohio

- ↑ mortalidade e morbidade
- Revisão de 1 273 casos de cirurgia neonatal
 - mortalidade imediata = 7,2%
- Fatores de risco para mortalidade
 - Peso < 3kg
 - AP com septo íntegro

Ann Thorac Surg 2011;92:642–52)

Stent no PCA



- Alternativa a cirurgia de shunt sistêmico – pulmonar
- Relativo baixo risco
- Critérios de exclusão
 - Morfologia do canal – extrema tortuosidade
 - Estenose importante de ramo pulmonar

AP com CIV e PCA



Intervention in Patients with Critical Pulmonary Stenosis in the Ductal Stenting Era

Ilker Kemal Yucel¹ · Mustafa Orhan Bulut¹ · Mehmet Kucuk¹ · Sevket Balli¹ · Ahmet Celebi¹

- 55 recém nascidos com EPV crítica submetidos a valvuloplastia por balão
- 20 (38%) necessitaram aumento de fluxo pulmonar pós valvuloplastia → stent no canal
- Excelente resultado imediato

PHILIPS

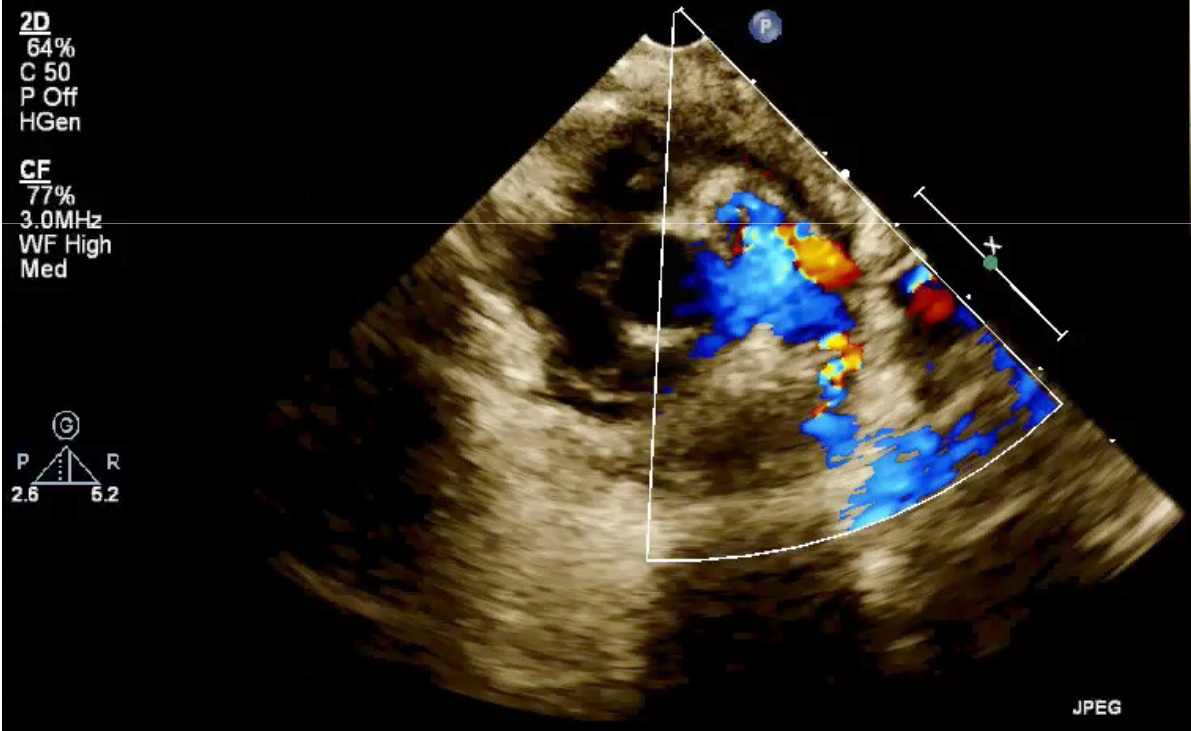
TIS1.3 MI 1.2

S8-3/ISABEL

FR 28Hz
7.0cm

2D
64%
C 50
P Off
HGen

CF
77%
3.0MHz
WF High
Med



JPEG

*** bpm

PHILIPS

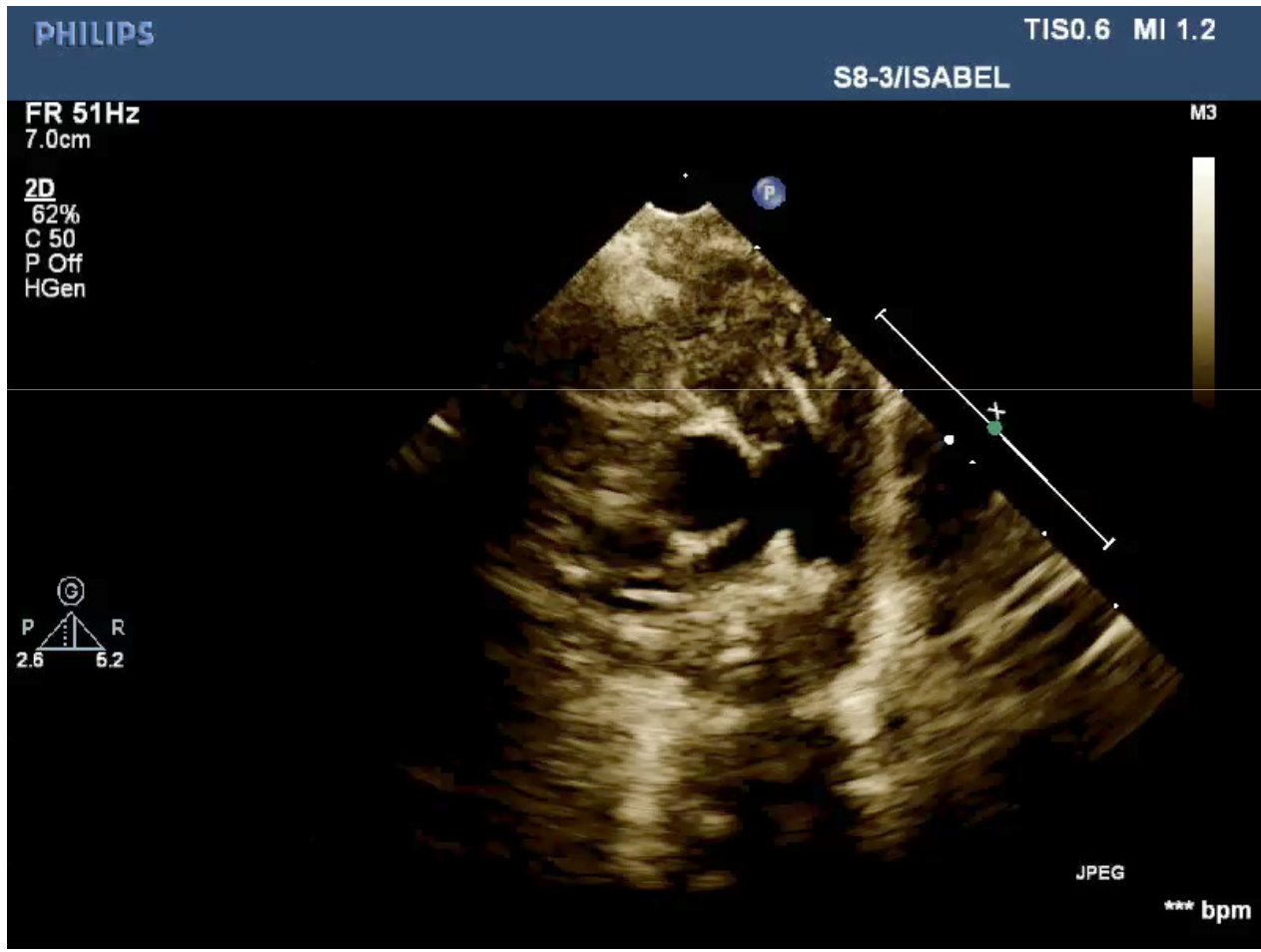
TIS0.6 MI 1.2

S8-3/ISABEL

FR 51Hz
7.0cm

M3

2D
62%
C 50
P Off
HGen



JPEG

*** bpm

PHILIPS

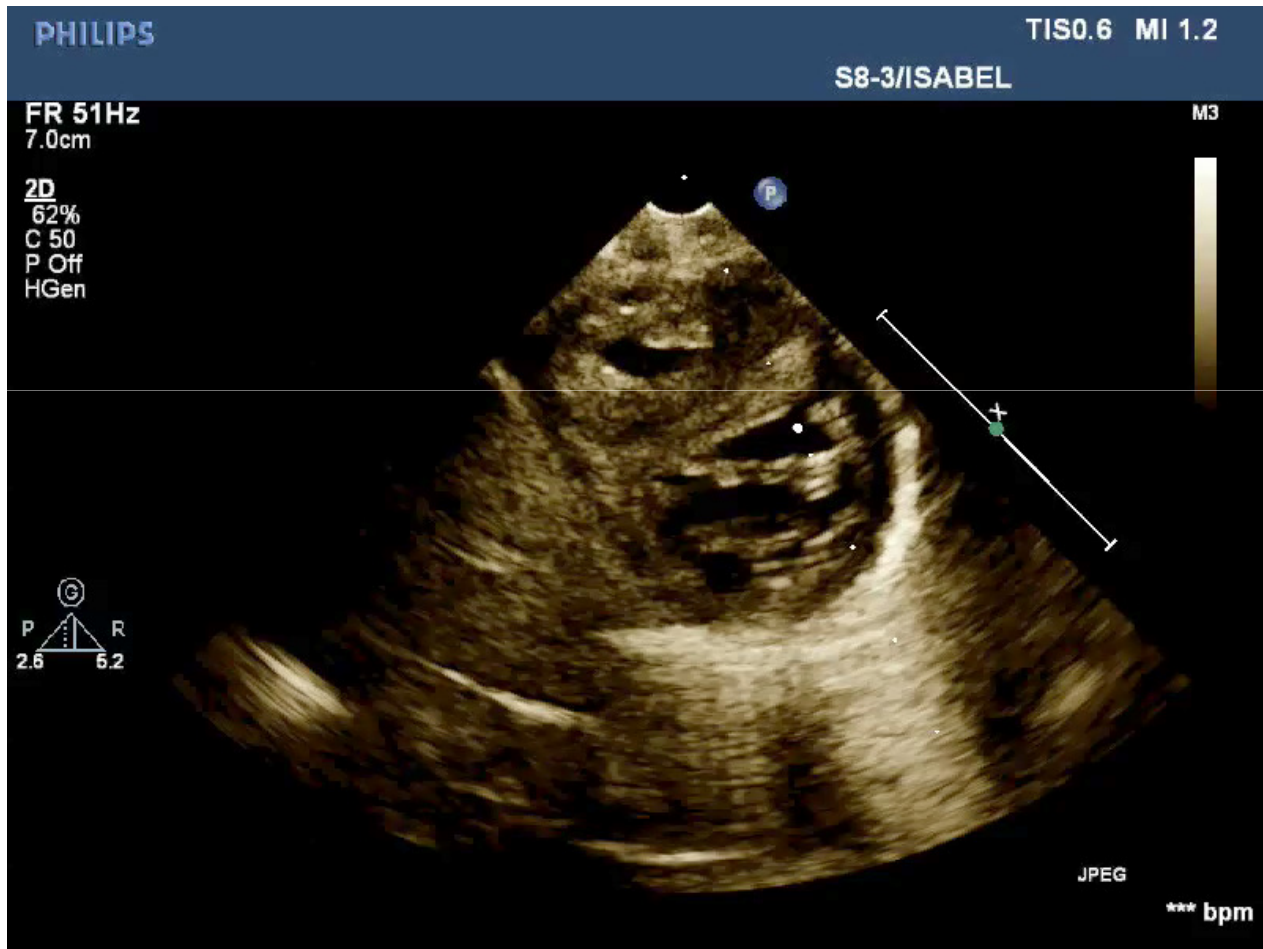
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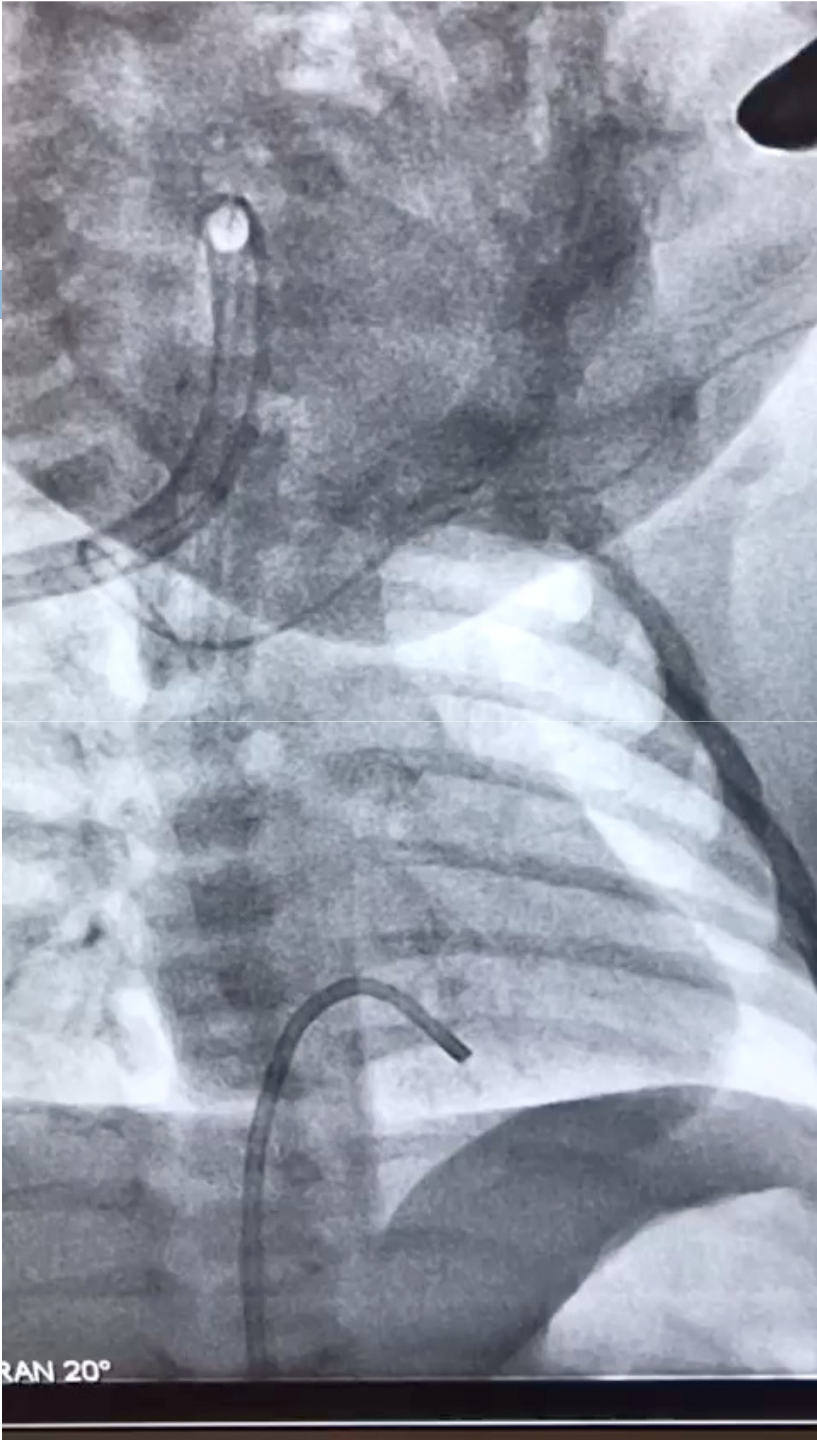
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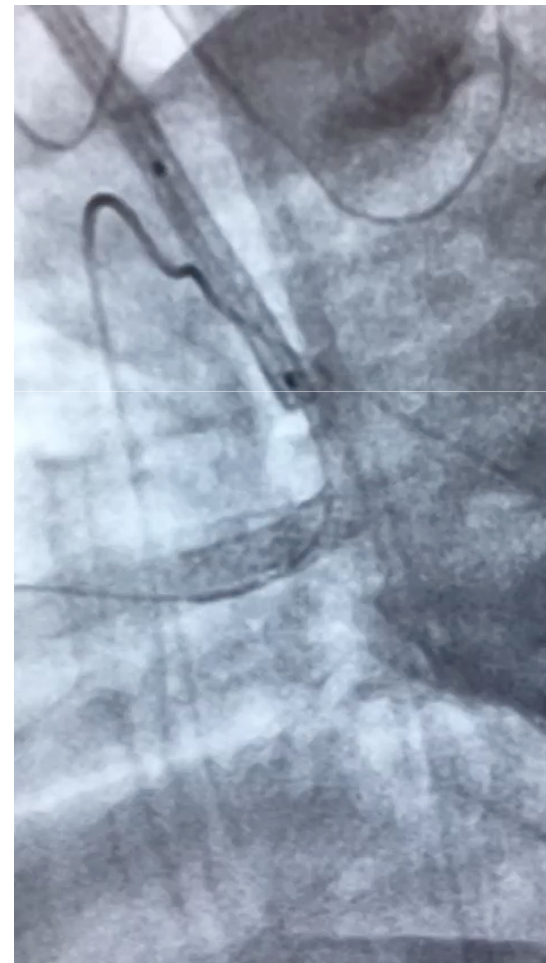
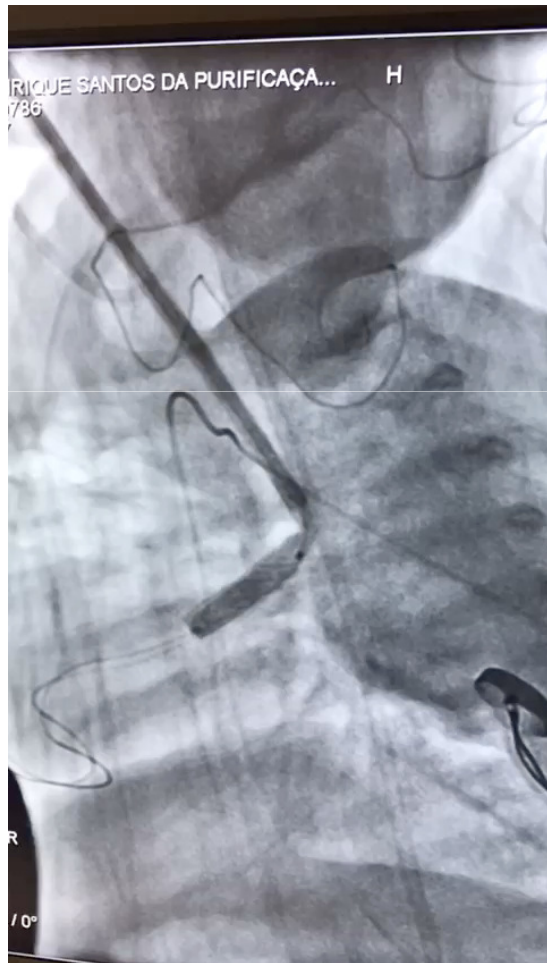


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*** bpm



Stent no PCA



Modified Blalock-Taussig shunt versus ductal stenting for palliation of cardiac lesions with inadequate pulmonary blood flow

David Michael McMullan, MD,^a Lester Cal Permut, MD,^a Thomas Kenny Jones, MD,^b Troy Alan Johnston, MD,^b and Agustin Eduardo Rubio, MD^b

- Estudo retrospectivo
- BT em 42 pacientes
- Stent em 13 pacientes

TABLE 2. Comparison of endpoint variables stratified by group

Variable	mBTS (n = 42)	DS (n = 13)	P value
30-d Survival	98	92	.371
Overall survival	88	85	.742
Follow-up period (d)	196 (1-365)	121 (5-365)	.347
Procedural complications	3 (7)	0	1.000
Interval ipsilateral/juxtaductal reintervention	11 (26)	3 (25)	1.000
Interval to ipsilateral/juxtaductal reintervention (d)	14 (1-121)	69 (4-146)	.287
Contralateral and/or distal intervention	3 (7)	0	1.000
Ipsilateral or juxtaductal intervention at staged palliation or repair	6 (22)	1 (17)	.488

Data presented as %, median (range), or n (%). *mBTS*, Modified Blalock-Taussig systemic-to-pulmonary shunt; *DS*, ductal stenting.

J Thorac Cardiovasc Surg 2014;147:397-403

Obrigada!

