The Atrial Septum
Balloon Atrial Septostomy, Blade & Dilation

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1. BAS
2. Blade atrial septostomy
3. Balloon dilation
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BAS
Perhaps the oldest interventional procedure!
Enhance mixing of the oxygenated and non-oxygenated blood in TGA
1966 Bill Rashkind
Access

1. Umbilical Vein
2. Femoral Vein
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What are the available catheters?

1. Miller Catheter (Edwards Lifesciences)
2. Rashkind balloon catheter (USCI-CR Bard)
3. The Fogarty (Paul) balloon catheter (Edwards Lifesciences)
4. The NuMED septostomy catheter (NuMED Inc.)
Indications for Cardiac Catheterization and Intervention in Pediatric Cardiac Disease: A Scientific Statement From the American Heart Association
Timothy F. Feltes, Emile Bacha, Robert H. Beekman, III, John P. Cheatham, Jeffrey A. Feinstein, Antoinette S. Gomes, Ziyad M. Hijazi, Frank F. Ing, Michael de Moor, W. Robert Morrow, Charles E. Mullins, Kathryn A. Taubert, Evan M. Zahn and on behalf of the American Heart Association Congenital Cardiac Defects Committee of the Council on Cardiovascular Disease in the Young, Council on Clinical Cardiology, and Council on Cardiovascular Radiology and Intervention
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Class I

1. To augment cardiac output in the immediate postoperative period-non fenestrated Fontan patients. Level B
2. To decompress LA hypertension in patients on ECMO-Level B
Class IIa

1. Reasonable to consider in an effort to enhance mixing at the atrial level-TGA with intact or restrictive atrial communication—

2. In an effort to augment cardiac output in chronically failing Fontan with obstructive physiology.
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Class IIb

1. May be considered to decompress hypertensive pulmonary or systemic venous chamber (HLHS with intact or restrictive atrial communication; Tricuspid atriesia with restrictive atrial communication; PA/IVS with restrictive atrial communication; TAPVC and restrictive atrial communication if needed before surgery- Level B

2. In select patients with PAH who fail medical therapy, to decompress the RA-Level C
How do you do it?

Access UV/FV
End hole catheter to the LA
Guide-wire in pulmonary vein
Exchange with septostomy catheter
Full term: 1.5cc catheter. Inflate in mid LA
Strong, jerky movement to RA! just the wrist!
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**Blade Atrial Septostomy**
Is used in patients with totally intact septum or the septum is very tough!
Usually, infants older than 4-6 weeks
Same indications as BAS
Blade Atrial Septostomy

Blade is done before BAS! Otherwise, you only stretch the defect and the incision won’t be good!

Not too many cardiologists are familiar with the blade!
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Blade Atrial Septostomy
6Fr shaft
9.5 vs 13mm
Biplane fluoro
2-4 passes are needed
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Complications BAS

1. Avulsion of mitral/tricuspid valve
2. Avulsion of IVC off the heart
3. Rupture of pulmonary vein
4. Tear off PDA
5. Inability to deflate balloon
Complications Blade

1. Incising the outside of the heart
2. Incising the IVC
3. Inability to withdraw the blade into the catheter
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Static Balloon Dilation
Use of high-pressure balloons; or we also use cutting balloons to enlarge the septal defect
Potential for stent deployment
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Summary
BAS, is an essential procedure in the cath lab. Knowledge of the indications and techniques used to create/enlarge a communication in the septum is a must for every pediatric cardiologist! Further, knowledge of all potential complications is important.
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