

## Section 24

### Trefoil balloon valvuloplasty

Bernhard Meier

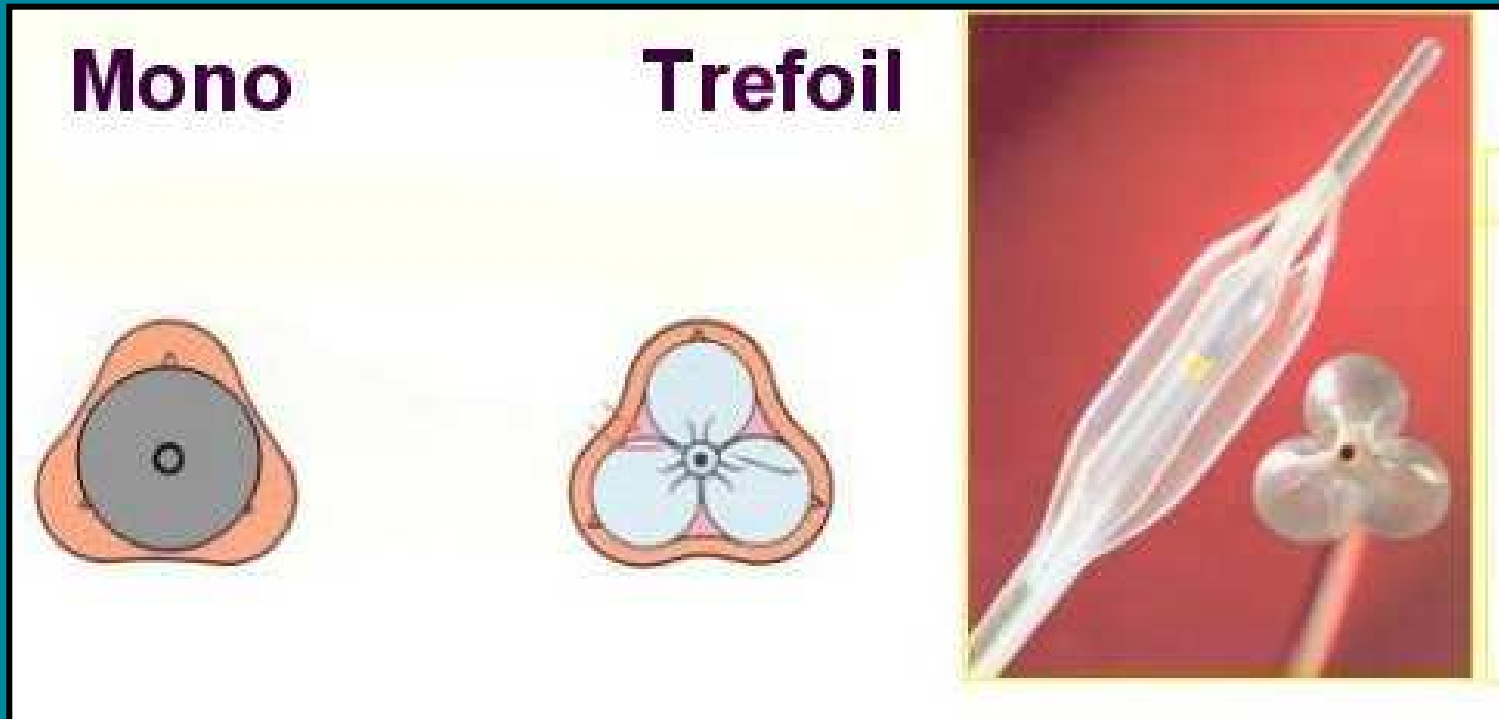
## Trefoil balloon valvuloplasty

### *History of Interventional Cardiology*

<b>1953</b>	<b>Rubio-Alvarez</b>	<b>Pulmonary wire valvuloplasty</b>
1966	Rashkind	Atrial septostomy
1966	Porstmann	PDA closure
1974	King	ASD closure
1975	Gianturco	Coil occlusion of shunt
1977	Greunzig	PTCA (coronary angioplasty)
<b>1979</b>	<b>Semb</b>	<b>Pulmonary balloon valvuloplasty (newborns)</b>
1981	Singer	Coarctation angioplasty
<b>1982</b>	<b>Kann</b>	<b>Pulmonary balloon valvuloplasty</b>
1982	Gallagher	His bundle ablation
<b>1983</b>	<b>Lababidi</b>	<b>Aortic balloon valvuloplasty</b>
<b>1984</b>	<b>Inoue</b>	<b>Mitral balloon valvuloplasty</b>
1984	Fisher	Ablation of WPW pathway
1986	Puel	Coronary stent implantation
1987	Simpson	Coronary atherectomy (debulking)
1990	Palacios	Pericardial balloon fenestration
1994	Sigwart	Transluminal ablation of septal hypertrophy
1996	Condado	Brachytherapy against coronary restenosis
1997	Oesterle	PTMR (percutaneous transmyocardial laser revascularization)
1998	Waxman	Transatrial pericardial access
<b>2000</b>	<b>Bonhoeffer</b>	<b>Percutaneous pulmonary valve replacement</b>
2001	Sievert	Obliteration of left atrial appendage in atrial fibrillation
<b>2001</b>	<b>Cribier</b>	<b>Percutaneous aortic valve replacement</b>
<b>2003</b>	<b>Block</b>	<b>Percutaneous mitral valve clipping</b>

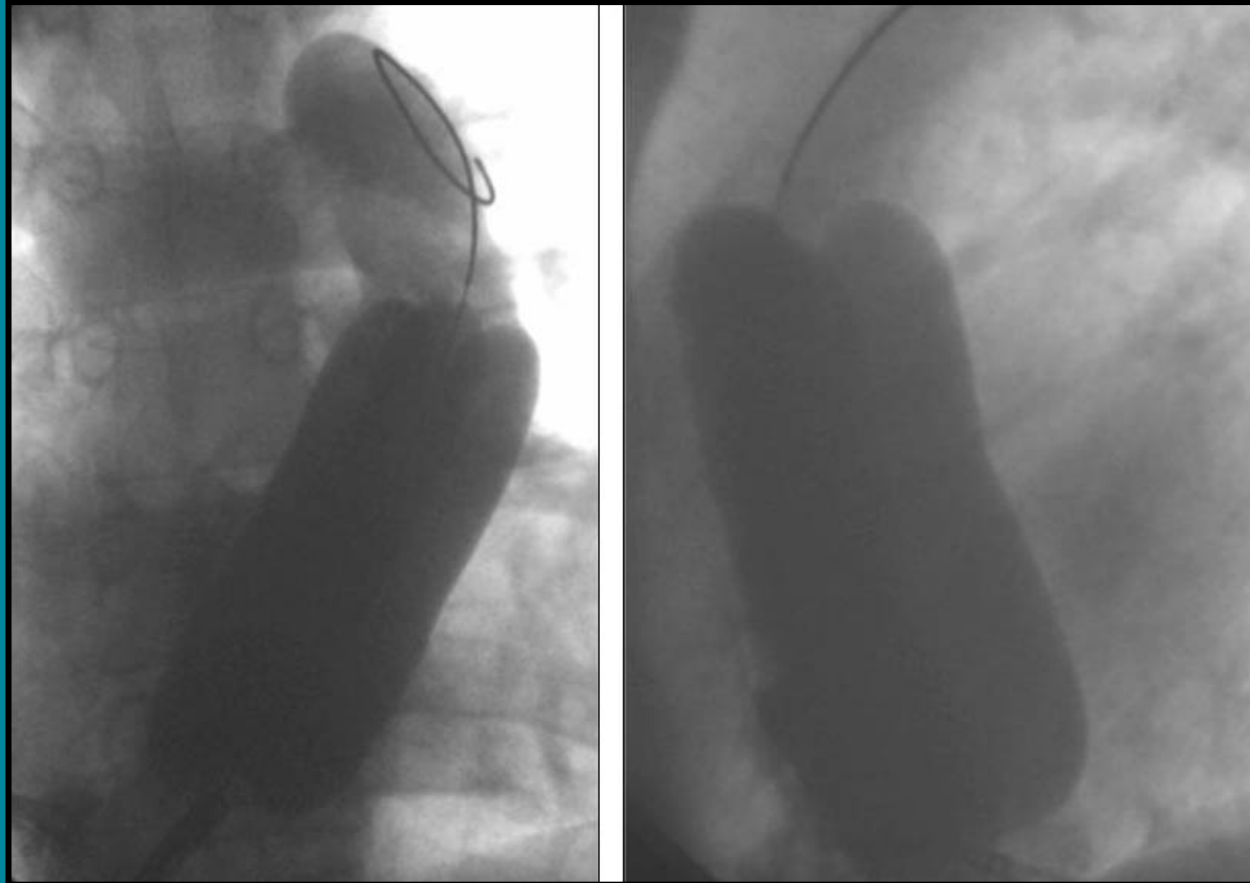
Milestones in the development of interventional cardiology

## Trefoil balloon valvuloplasty



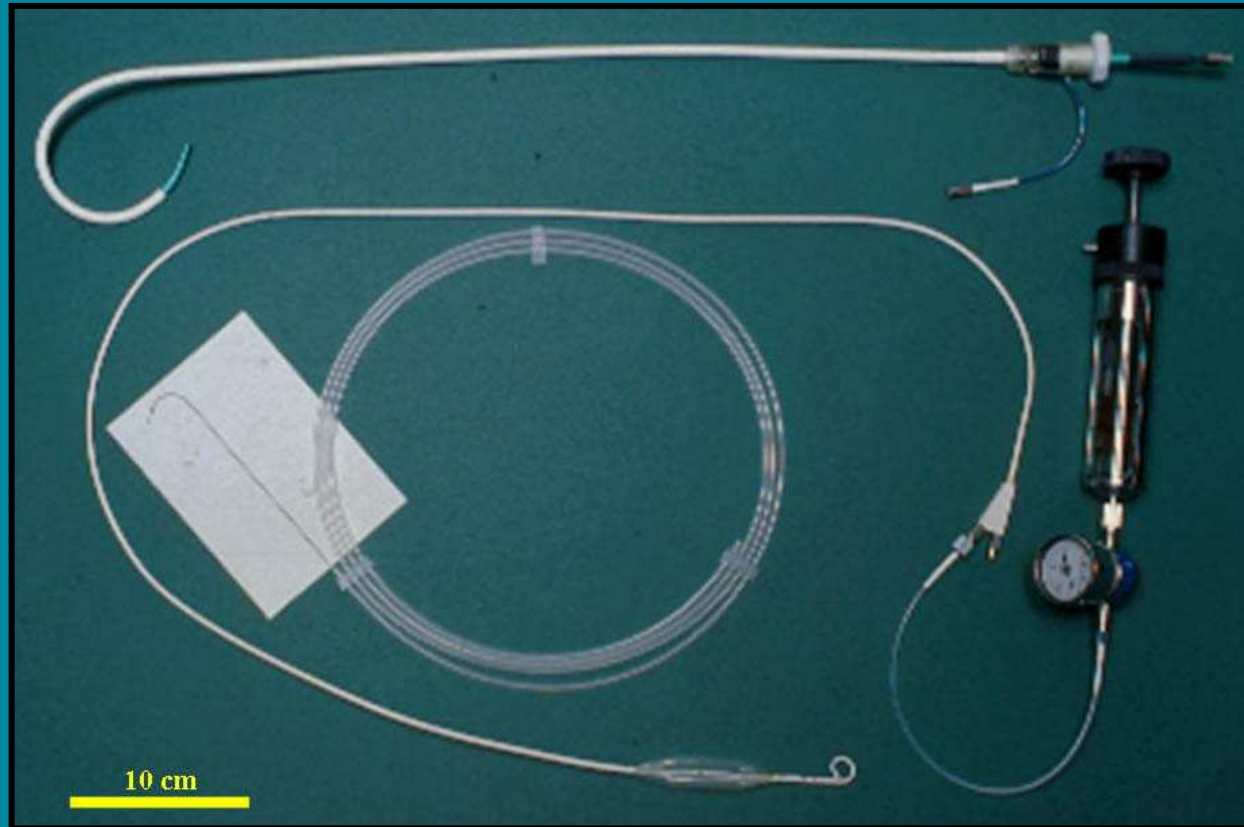
Respective cross-sections of the monofoil and the trefoil balloons

## Trefoil balloon valvuloplasty



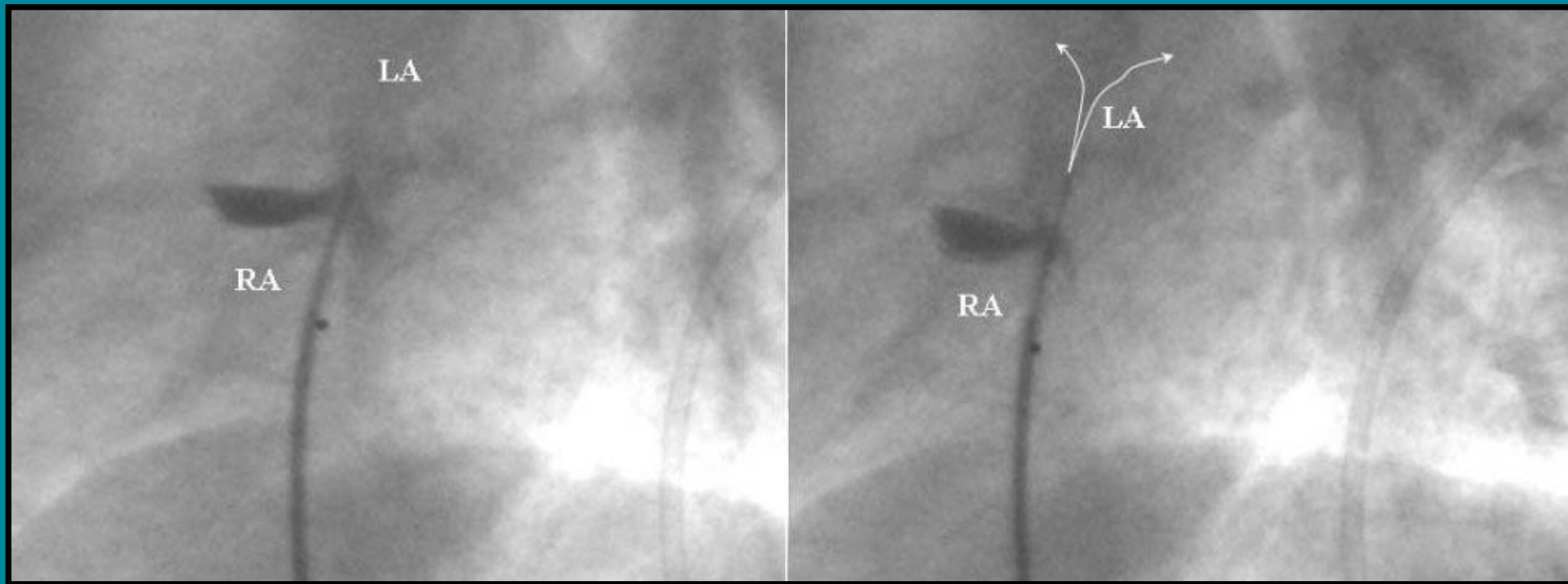
Proof of principle of the trefoil balloon in a tough pulmonary valve stenosis of a 42-year-old woman

## Trefoil balloon valvuloplasty



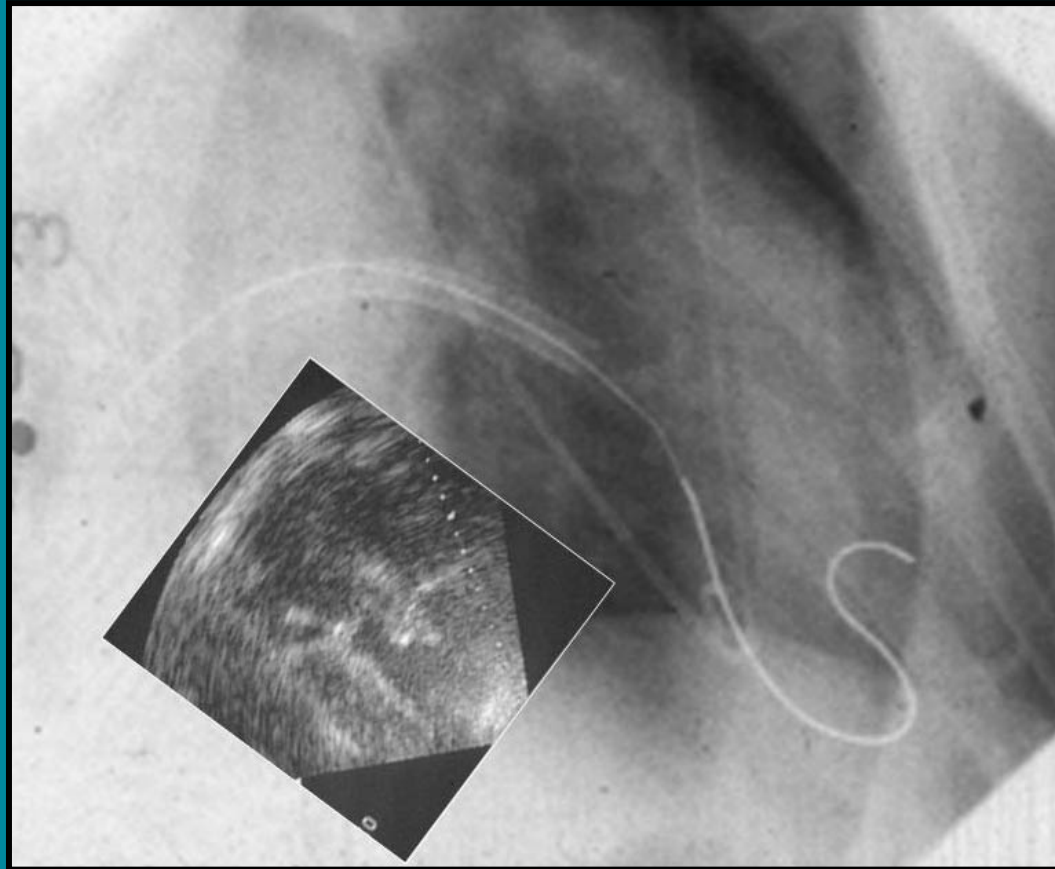
Set for valvuloplasty with a trefoil (or bifoil) balloon and the long sheath technique

## Trefoil balloon valvuloplasty



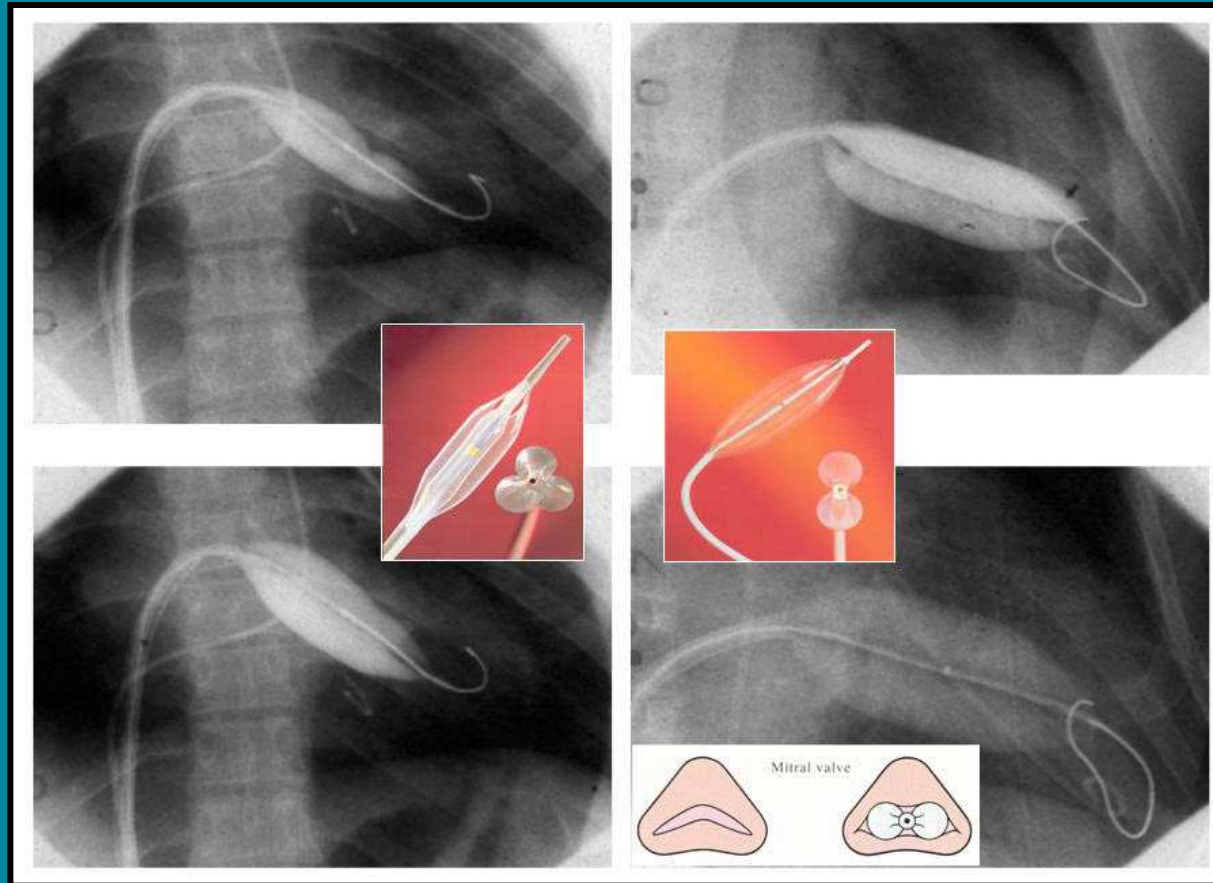
Contrast medium-guided transseptal puncture (left anterior oblique projection)

## Trefoil balloon valvuloplasty



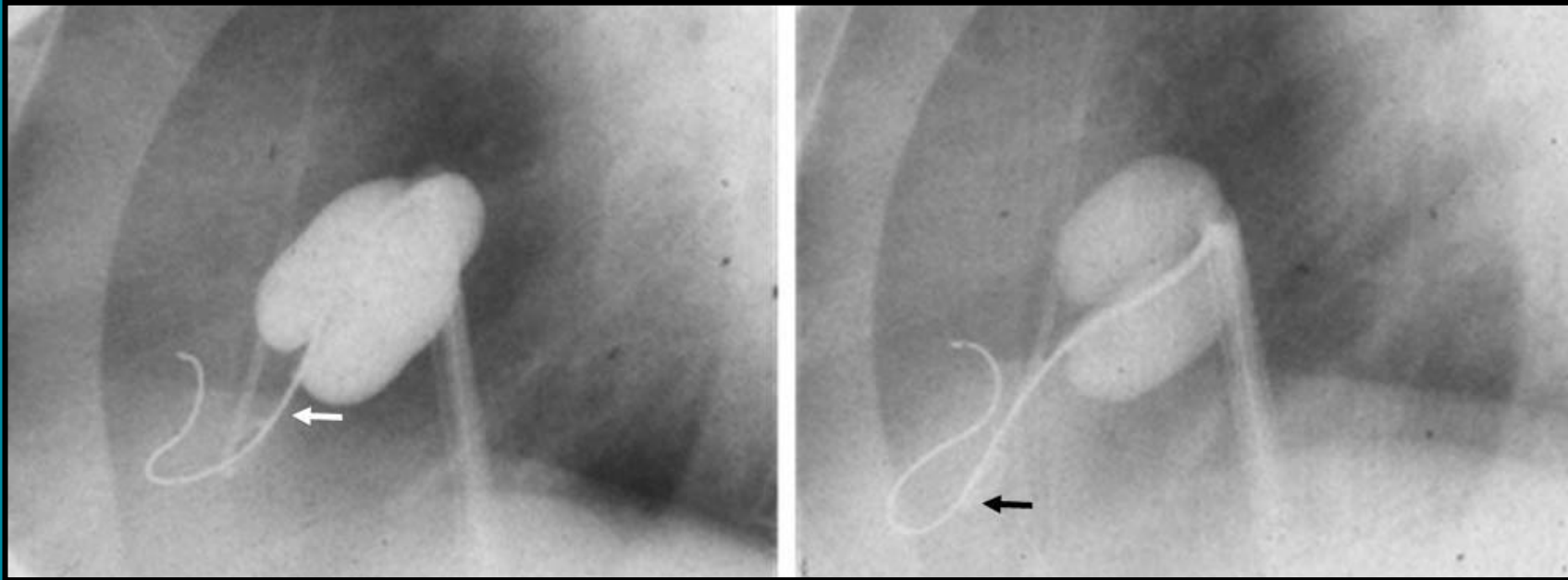
16 French curved mitral sheath inserted transeptally into the left atrium to just above the mitral valve

## Trefoil balloon valvuloplasty



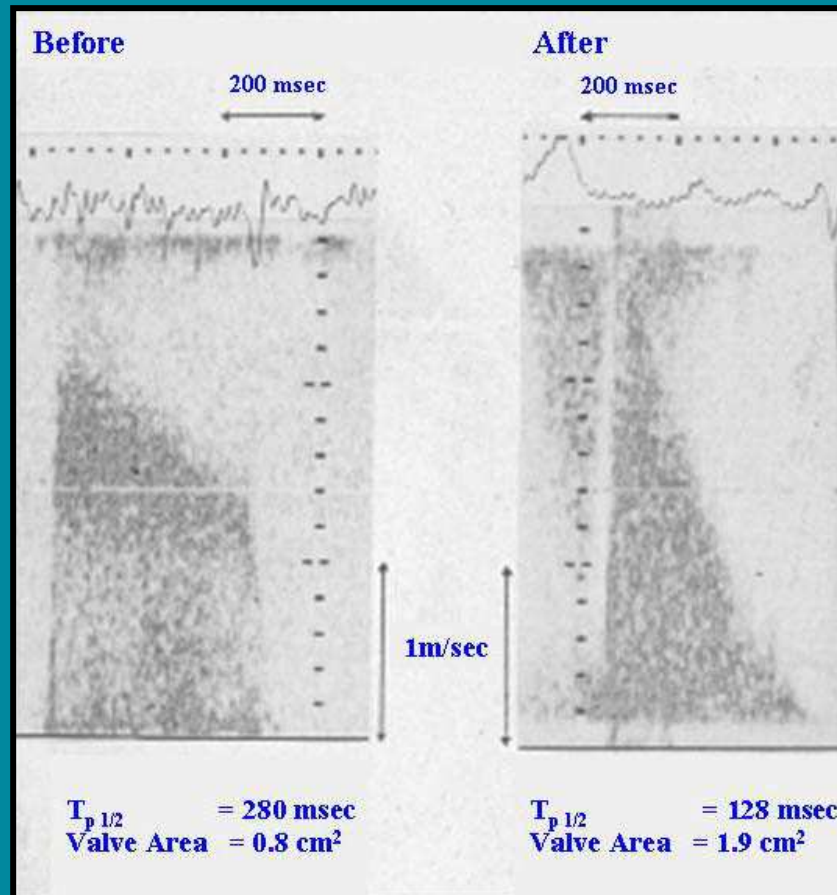
Mitral valvuloplasty with the long sheath technique and a 3 x 15 mm trefoil balloon (left panels) or a 2 x 19 mm bifoil balloon (right panels)

## Trefoil balloon valvuloplasty



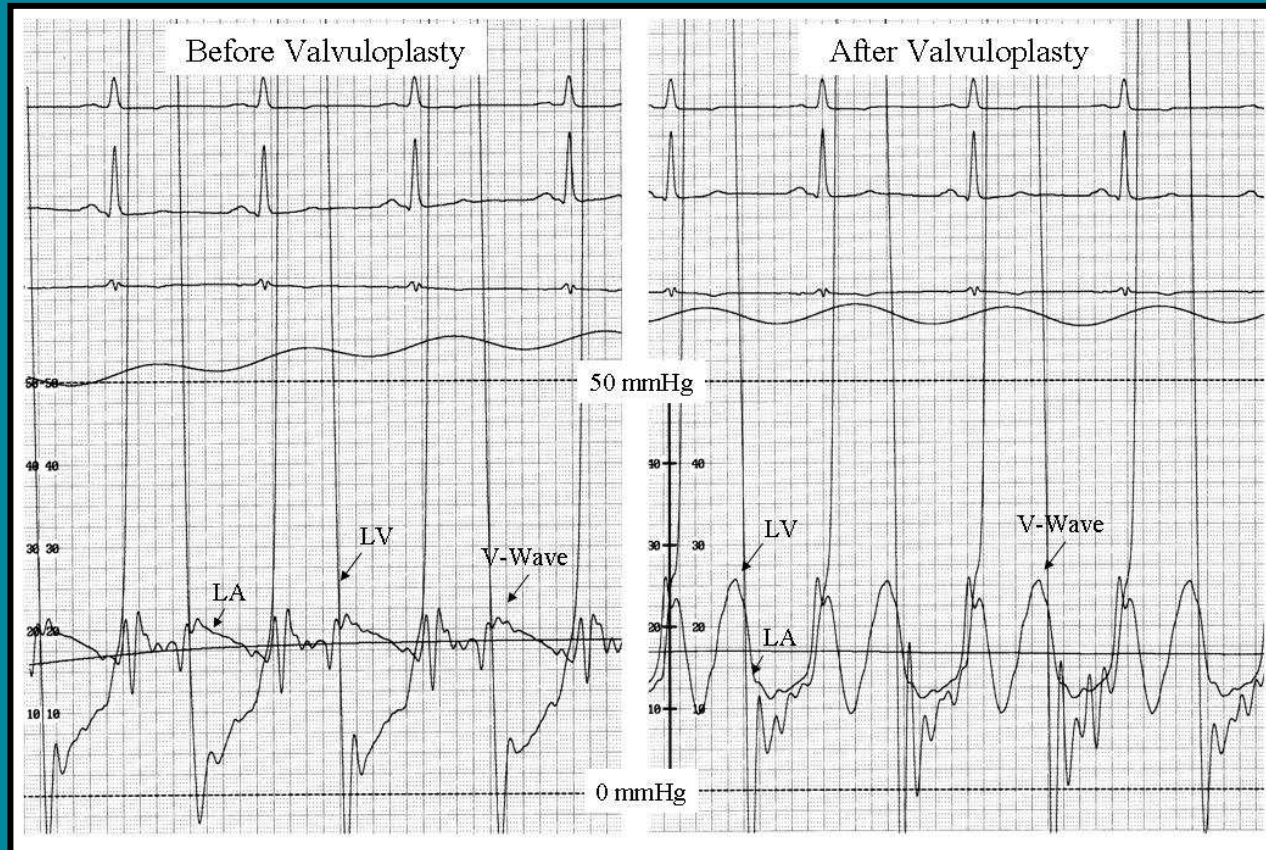
A short tip 3 x 15 mm trefoil balloon (left panel) and a pigtail tip 2 x 19 mm bifoil balloon (right panel) during mitral valvuloplasty in a left anterior oblique projection

## Trefoil balloon valvuloplasty



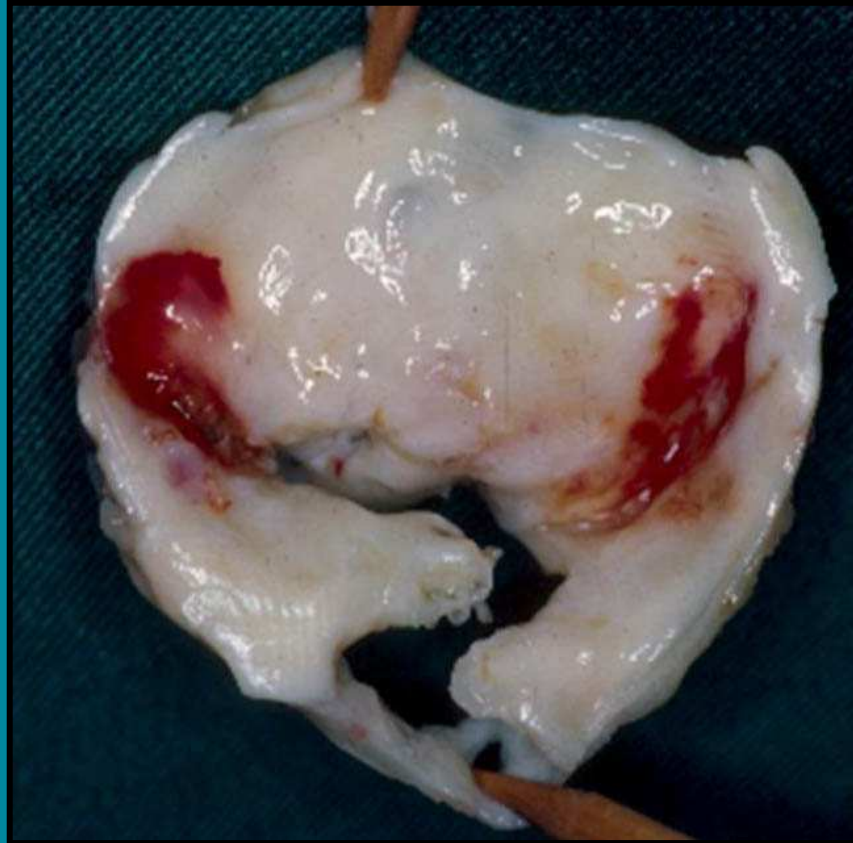
Doppler ultrasound before and after mitral valvuloplasty with a 2 x 19 mm bifoil balloon

## Trefoil balloon valvuloplasty



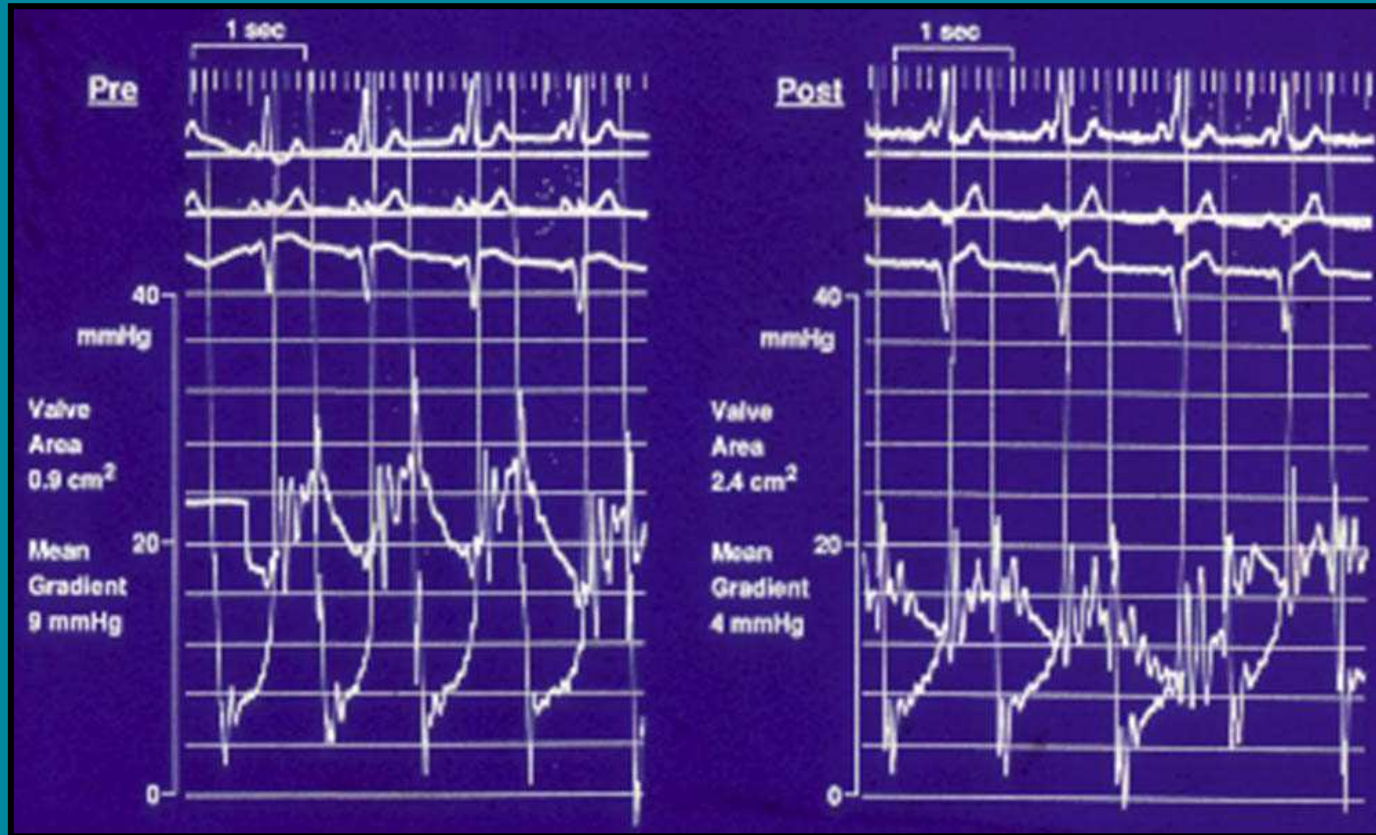
Pressure curves before and after mitral valvuloplasty with a 2 x 19 mm bifoil balloon and the long sheath technique

## Trefoil balloon valvuloplasty



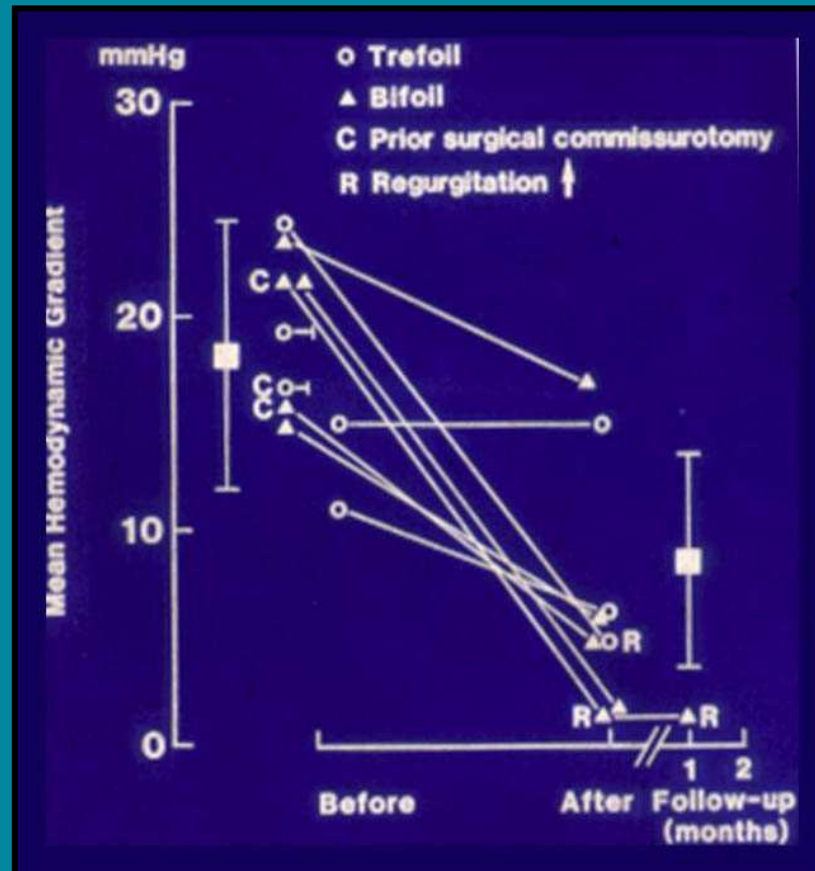
Ruptured small leaflet of a stenotic mitral valve after balloon valvuloplasty with a 2 x 19 mm bifoil balloon resulting in severe mitral regurgitation

## Trefoil balloon valvuloplasty



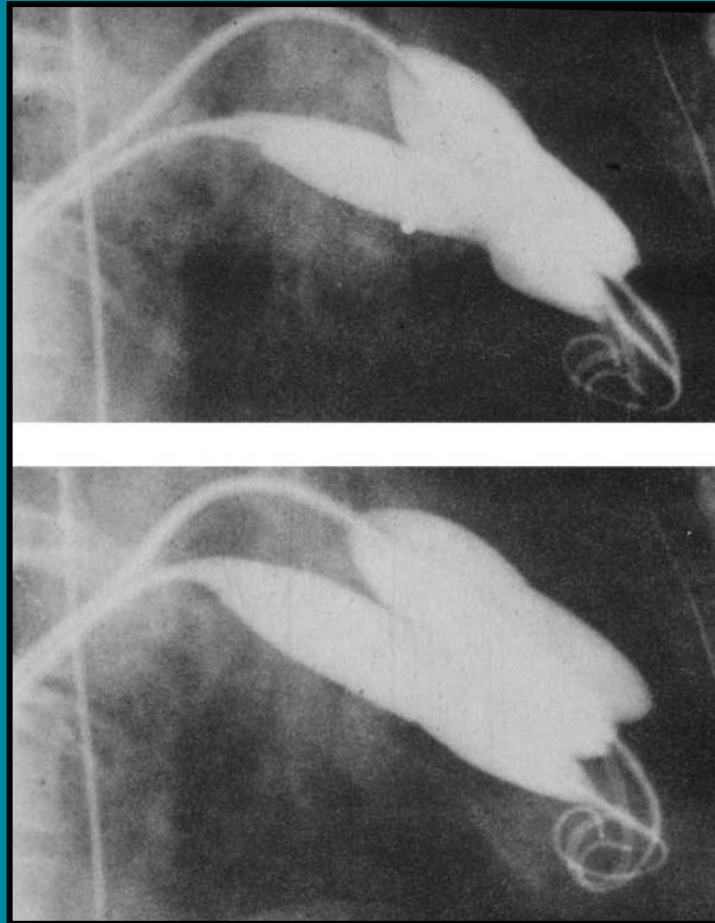
Mitral valvuloplasty with the long sheath technique and a 3 x 15 mm trefoil balloon in a 24-year-old woman with rheumatic mitral stenosis

## Trefoil balloon valvuloplasty



Results of the first 10 patients with trefoil and bifoil balloon mitral valvuloplasty and the long sheath technique

## Trefoil balloon valvuloplasty



Mitral valvuloplasty combining a trefoil balloon with a single balloon