MITRAL BALLOON VALVULOPLASTY

CASE PRESENTATION

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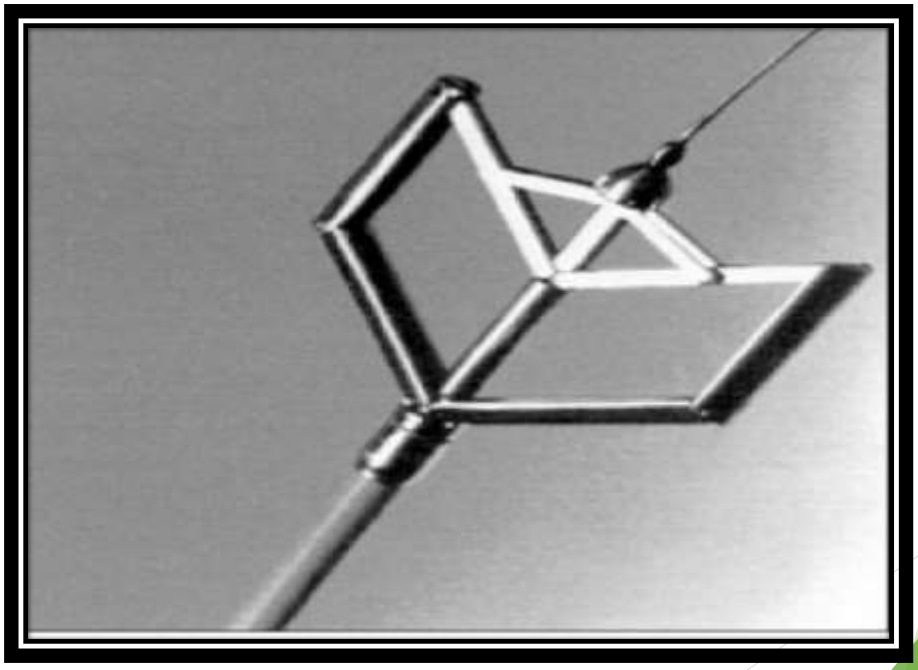
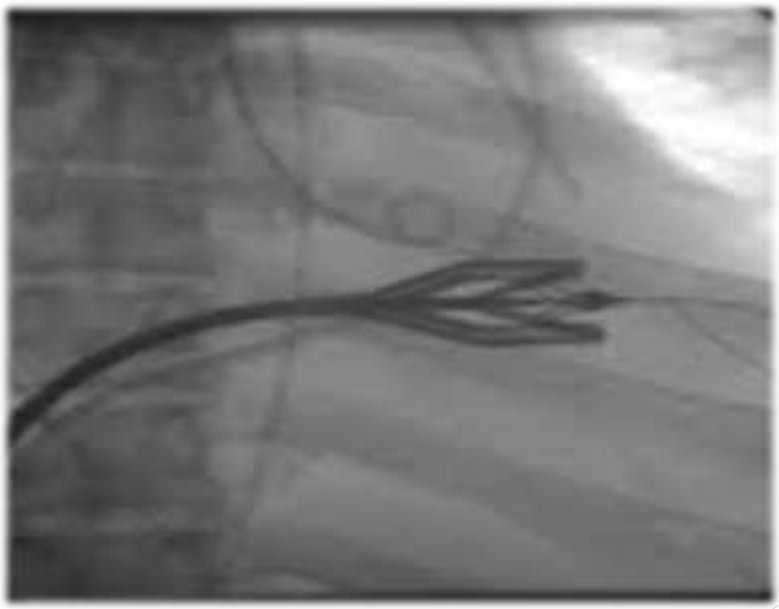
- RHEUMATIC MITRAL VALVE STENOSIS REMAINS AN IMPORTANT PUBLIC HEALTH CONCERN IN MANY COUNTRIES.
- IN THE PRESENCE OF FAVOURABLE ANATOMY, PERCUTANEOUS MITRAL VALVULOPLASTY (BALLOON OR METALLIC VALVULOPLASTY) HAS BECOME THE TREATMENT OF CHOICE FOR SEVERE PIABLE MITRAL STENOSIS.
- SEVERAL RANDOMIZED TRIALS REPORTED SIMILAR HEMDYNAMIC RESULTS WITH BMV & SURGICAL COMMISSUROTOMY.





- **In balloon commissurotomy, the two main modalities are:**
  - **the double balloon technique**
  - **the inoue technique.**
- **The double-balloon technique is effective but demanding and carries a risk of LV apical perforation by the guide wire(s) or the tips of the balloons.**

THE STEPS OF THE MULTI-TRACK DOUBLE-BALLOON TECHNIQUE

THE STEPS OF THE INOUE TECHNIQUE

WHAT TECHNIQUE WILL YOU USE IF YOU HAVE THIS PROBLEM ????!!!!

AND THIS WAS OUR CASE & HOW TO MANAGE :

**A 21 yrs SINGLE LADY.
**FUNCTIONAL CLASS III-IV.
**RAPID AF (CONTROLLED).
**ECHO REVEALED ANEURYSMAL LA.
**RELATIVELY SMALL LV CAVITY SIZE
**GOOD LV FUNCTION.
**NORMAL AV.
**MODERATE TR – RVSP = 50 mmHg.

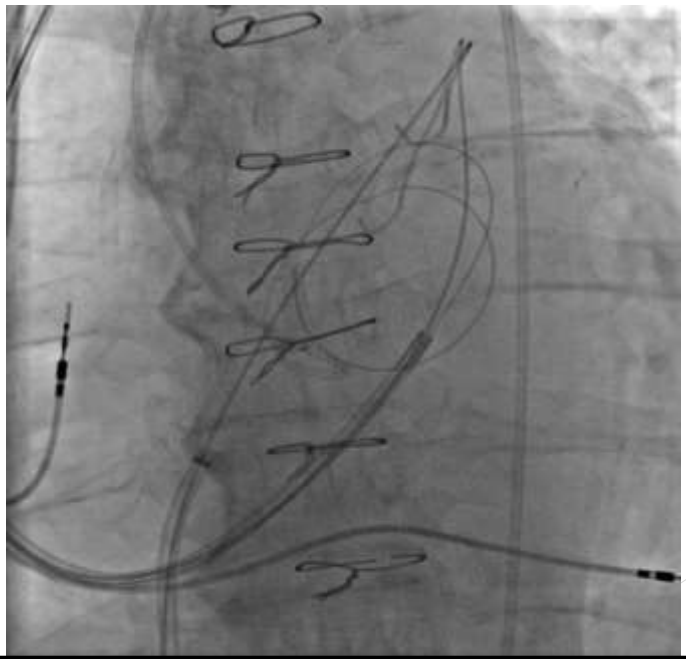
Options to solve this problem:-

1- Push the balloons & repeat the inflation.

2-Doing a lower septostomy.

3-convert to self retaining Inoue balloon.

4-???????



A Novel Technique for Multi-Track Percutaneous Balloon Mitral Valvoplasty

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SUMMARY

Percutaneous balloon mitral valvoplasty (PBMV) has become the treatment of choice for severe pliable rheumatic mitral stenosis. The multi-track system is a recent variation of the double-balloon technique and is easier owing to the use of a monorail balloon and a simple, single-guidewire approach. In the present study, we used the double-coil Inoue metal wire with a multi-track balloon instead of the conventional multi-track wire. We studied 62 consecutive patients (55 females) with significant symptomatic rheumatic mitral valve stenosis who underwent multi-track PBMV. Patients were randomized into 2 groups: the first group included 32 patients treated with the novel multi-track technique using the double-coil Inoue metal wire, and the second group included 30 patients treated with the conventional multi-track technique using a balloon endhole catheter and multi-track 0.035 inch stiff wire. None of the patients had cardiac tamponade, systemic thromboembolism, or any groin complications. No statistically significant differences were found between the 2 groups regarding any of the studied variables. There were no in-hospital deaths or complications necessitating emergent cardiac surgery in either group. In conclusion, this new technique with the double-coil Inoue metal wire achieves the double benefit of being as safe as (and indeed easier than) the conventional technique, and it utilizes fewer materials, making the multi-track system more cost-effective. (Int Heart J 2013; 54: 196-201)

Key words: Inoue, Endhole, Rheumatic, Stenosis

Table I. Baseline Demographic, Clinical, and Echocardiographic Data of the Study Groups

	Novel Inoue technique ($n = 32$)	Conventional endhole technique ($n = 30$)	*P*
Demographic data			
Age (years)	36.5 ± 9.2	37.3 ± 13.1	0.781
Gender			
Male	3 (9.4%)	4 (13.3%)	0.933
Female	29 (90.6%)	26 (86.7%)	
Clinical data			
NYHA class			
II	8 (25.0%)	10 (33.3%)	0.660
III	24 (75.0%)	20 (66.7%)	
Atrial fibrillation	8 (25.0%)	9 (30.0%)	0.876
Previous MV dilatation	4 (12.5%)	3 (10.0%)	0.928
Echo data			
MV score	7.27 ± 1.16	7.14 ± 1.36	0.686
Left atrial diameter (cm)	4.97 ± 0.45	5.17 ± 0.64	0.158
LVESD (cm)	2.89 ± 0.31	3.01 ± 0.33	0.145
LVEDD (cm)	4.65 ± 0.38	4.71 ± 0.31	0.501
Aortic regurgitation			
None or trivial	28 (86.4%)	27 (90.9%)	0.875
Grade I	4 (13.6%)	3 (9.1%)	

LVEDD indicates left ventricular end diastolic dimension; LVESD, left ventricular end systolic dimension; MV, mitral valve; and NYHA, New York Heart Association.

Table II. Comparative Analysis of Pre- and Post-Procedural Data of the Study Groups

	Novel Inoue technique (n = 32)	Conventional endhole technique (n = 30)	P
MV area (cm²) by planimetry			
Pre-dilatation	1.02 ± 0.14	1.07 ± 0.17	0.209
Post-dilatation	2.01 ± 0.42	2.13 ± 0.45	0.282
Mitral regurgitation			
Pre-dilatation			
None or trivial	23 (71.9%)	20 (66.7%)	0.866
Grade I	9 (28.1%)	10 (33.3%)	
Post-dilatation			
None or trivial	7 (21.9%)	4 (13.3%)	0.150
Grade I	15 (46.9%)	13 (43.3%)	
Grade I–II	9 (28.1%)	11 (36.7%)	
Grade II–III	1 (3.1%)	2 (6.7%)	
Trans-mitral pressure gradient (mmHg)			
Pre-dilatation			
Peak pressure gradient	22.4 ± 5.2	24.6 ± 5.6	0.114
Mean pressure gradient	12.6 ± 3.13	13.7 ± 4.32	0.253
Post-dilatation			
Peak pressure gradient	12.8 ± 3.15	11.9 ± 2.12	0.195
Mean pressure gradient	6.5 ± 2.4	5.8 ± 1.4	0.169
PASP (mmHg)			
Pre-dilatation	37.9 ± 16.2	38.3 ± 15.3	0.921
Post-dilatation	30.1 ± 14.6	30.2 ± 12.5	0.977

MV indicates mitral valve and PASP, pulmonary artery systolic pressure.

- Self-limiting non-sustained ventricular tachycardia of no hemodynamic or clinical significance occurred in 9 (14.5%) patients: 5 (16%) in the Inoue group and 4 (13%) in the standard technique group (P = 0.917).

*Our study approved the superiority of this wire reguarding the stability in cases of small LV & dilated LA.

*It also decreases the incidence of LV apical perforation.

*Also it does not increase the incidence of arrhythmias,MR,HB or perforation.