

## 좌심방부속기 혈전에 대한 항응고치료 후 시행한 승모판풍선성형술

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김 명 아

박 성 훈

= Abstract =

### **Percutaneous Mitral Balloon Valvuloplasty after Successful Resolution of Left Atrial Appendage Thrombi by Oral Anticoagulation**

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**Objective :** Systemic embolism related with left atrial thrombi is a well known complication of percutaneous balloon valvuloplasty of the mitral valve stenosis. The presence of left atrial thrombi is believed to be a contraindication to balloon valvuloplasty. The purpose of this study was to determine whether balloon valvuloplasty is possible in mitral stenosis patients with left atrial thrombi after oral anticoagulation therapy.

**Methods :** We studied 13 consecutive patients(12 : female, 1 : male. mean age :  $44 \pm 11$ ) who had mitral stenosis and left atrial appendage thrombi by serial transesophageal echocardiography before balloon valvuloplasty of the stenotic mitral valve from May 1995 to January 1997. We started oral anticoagulation in those 13 patients with mitral stenosis and left atrial appendage thrombi to keep the INR 2-3. Regular follow up was performed by transesophageal echocardiography to determine whether the left atrial appendage thrombi are resolved. Patients underwent percutaneous balloon valvuloplasty after complete resolution of left atrial appendage thrombi.

**Results** : 9 patients(69.2%) underwent balloon valvuloplasty after complete resolution of left atrial appendage thrombi with oral anticoagulation for average 6 months. Two(15.4%) patients had normal sinus rhythm. Three patients had coronary A-V fistular due to neovascularization to left atrial appendage thrombi. In four patients, oral anticoagulation failed to resolve the left atrial appendage thrombi and they underwent balloon valvuloplasty under TEE guide with special caution to avoid systemic embolization. There were no complications such as systemic embolization in those 4 patients.

**Conclusion** : Left atrial appendage thrombi in mitral stenosis could be resolved in high proportion(69.2%) by oral anticoagulation therapy. Percutaneous mitral balloon valvuloplasty could be a safe and effective treatment modality despite of the presence of left atrial appendage thrombi after adequate oral anticoagulation therapy.

**KEY WORDS** : Mitral stenosis · Left atrial appendage thrombi · Oral anticoagulation · Percutaneous mitral balloon valvuloplasty.

## 서 론

farin (16%) TEE ATL  
 ( Apogee CX200, 5.0MHz transducer  
 PMV )  
 1).  
 PMV  
 2,3). ( TEE )  
 가 4,5,6,7),  
 8,9,10).  
 PMV  
 test . p 0.05  
 Wilcoxon rank sum

## 대상 및 방법

1. 기간 및 연구 대상  
 1995 5 1997 1

114 ( 16 , 68 . 44±11 )

13 (11.4%)

2. 연구방법

INR 2 3

war -

PMV

## 결 과

13 가 12 ,  
 47±11 (24 58 )  
 1.0 3.8cm ( 2.0±0.8  
 cm) 11 , 2  
 (Table 1). Spontaneous echo contrast 0  
 4 13 9 (69.2%) 6 (1 3  
 )

INR 1.5 2.0  
 가 6 , 2.0 3.0 가 7  
 4 (66%), 5 (71%)  
 가 3 가 2  
 가 1  
 (mobile thrombi) 가 2

**Table 1.** Univariate predictors of thrombolysis

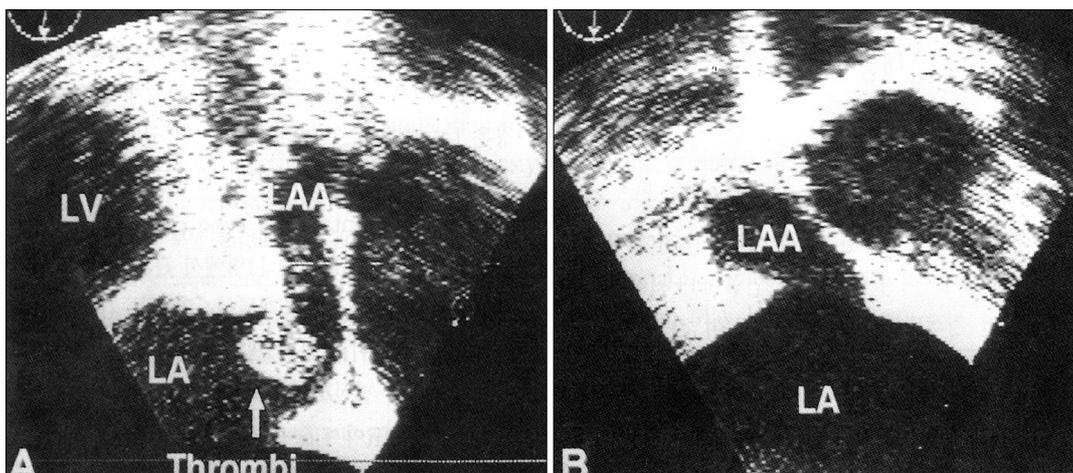
	Thrombus resolution(+) (n=9)	Thrombus resolution(-) (n=4)	p value
LA size(mm)	55 ± 8.4	57 ± 6.8	0.588
Pressure gradient(mmHg)	13 ± 2.9	14 ± 3.3	0.697
MVA(cm <sup>2</sup> )	0.8 ± 0.1	0.9 ± 0.2	0.632
EF(%)	53 ± 9.6	57 ± 8.6	0.274

LA : left atrium, MVA : mitral valve area  
 EF : Ejection fraction

**Table 2.** Individual results for the study patients

Patient	ECG	Duration of anticoagulation	TEE f/u interval (frequency)	Size(cm) of thrombi	SEC	MVA(cm <sup>2</sup> )	Thrombolysis
1	AF	1mo	1mo(x2)	2.1	2	1.0	Success
2	AF	13mo	4mo(x2)	2.2	3	0.8	Success
3	AF	4mo	2mo(x3)	1.7	3	0.6	Success
4	AF	9mo	1mo(x2)	2.2	2	1.1	Failure
5	AF	4mo	3mo(x2)	2.0	2	0.8	Success
6	NS	7mo	6mo(x2)	1.2	0	0.7	Success
7	AF	5mo	5mo(x1)	1.0	3	0.8	Failure
8	NS	2mo	2mo(x3)	1.2	3	0.9	Success
9	AF	9mo	3mo(x3)	2.4	3	0.9	Success
10	AF	6mo	3mo(x2)	3.2	3	0.8	Failure
11	AF	4mo	3mo(x2)	3.8	3	0.8	Success
12	AF	7mo	7mo(x2)	1.5	2	1.0	Success
13	AF	17mo	13mo(x2)	1.4	0	0.8	Failure
Mean		6.76mo	4.07mo	2.0±0.8	2.4	0.83±0.1	

AF : atrial fibrillation, NS : normal sinus rhythm  
 SEC : spontaneous echo contrast, MVA : mitral valve area



**Fig. 1.** Resolution of left atrial appendage thrombi after oral anticoagulation. A : mobile left atrial appendage (LAA) thrombi B : Resolution of thrombi, 2months after anticoagulation.

(Fig. 1). 2.0 7 2.0 3.0  
 4 4 (66%), 5 (7  
 TEE PMV 1%) 가  
 (INR 2 3)  
 (55±8.4 vs 57±6.8mm ; p=0.588),  
 (13±2.9 vs 14±3.3mmHg ; p=0.697),  
 (0.8±0.1 vs 0.9±0.2cm<sup>2</sup> ; p=0.632),  
 (53±9.6 vs 57±8.6% ; p=0.274)  
 가 (Table 2).  
 고 안 가 Ritoo  
 2 (15.4%) 7%(13 1 )<sup>13)</sup>  
 PMV 가 TEE  
 TEE  
<sup>11)</sup>, heparin 가 3  
 8,9,10) 가 1  
 114 TEE 2  
 13 TEE  
 3 TEE 13 1 (mobile thrombi)  
 TEE 69.2% 2  
 PMV  
 9) 14  
 9 (64%) 8  
 3 가 가  
 9 PMV 가  
 가 요 약  
 연구배경 :  
<sup>12)</sup> PT  
 INR 2 3 6 1.5

TEE

PMV

PMV 가

방 법 :

1995 5 1997 1 (PMV)

114 (TEE) 13 INR 2 3 warfarin TEE 3 (1 6 )

결 과 :

13 가 13 47±11 (24 58 ) 2.0±0.8cm 11 , 2 Spontaneous echo contrast 13 11 13 9 (69.2%) 6 (1 13 )

PMV

INR 1.5 2.0 가 6 , 2.0 3.0 가 7 4 (66%), 5 (71%)

가 3 2 4

TEE PMV

결 론 :

가

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