

좌관상동맥 개구부 혈관성형술의 성적

문건식 · 김연중 · 김재성 · 홍석근 · 황홍곤

Outcome of Surgical Angioplasty for Isolated Coronary Ostial Stenosis

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ABSTRACT

Background : Although surgical angioplasty for isolated coronary ostial stenosis is assumed as an alternative approach to CABG, the clinical features of isolated coronary ostial stenosis, postoperative complications and follow-up angiographic results would have not been well studied. **Methods :** We retrospectively studied 24 patients (female : male = 20 : 4, mean age 50.0 ± 12.3 yr) who underwent surgical angioplasty for isolated coronary ostial stenosis using patch (22 fresh autologous pericardium, 2 saphenous vein) during the period of March 1990 through February 1998. Repeat coronary angiography (16 patients) and echocardiography (24 patients) were performed. Aortic regurgitation was evaluated semiquantitatively (Grade -Grade). **Results :** There were 3 deaths after surgical angioplasty. One death was due to acute coronary dissection perioperatively, the second due to low cardiac output syndrome 2 weeks post-surgery, and the third due to traumatic panperitonitis 10 months post-procedure. Angina recurred in 4 patients and the remaining 18 patients were symptom-free. Repeat angiography (19.3 ± 20.7 Mo) showed widely patent ostium with excellent run-off except 2 patients (1 distal patch stenosis, 1 ostial restenosis in Takayasu's arteritis). The third symptomatic patient was proven to have coronary spasm by ergonovine test. AR increased in the fourth patient (Grade with patent ostium. **Conclusion :** Surgical angioplasty may be feasible and alternative operative method to CABG for isolated coronary ostial stenosis. It should however be noted that postop AR can develop and/or increase. Further investigation is needed to evaluate the clinical significance of the AR. (**Korean Circulation J 1999;29(1):46-54**)

KEY WORDS : Surgical angioplasty · Coronary artery disease · Aortic regurgitation.

서론

(isolated coronary ostial stenosis) 0.2%

1998 11 9
1999 3 8
422 - 232

91 - 121
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44% 2)3) 가

(CABG)

(isolated left main ostial stenosis)

(left ostioplasty)

1965 Effler , 4) Sabiston

5)

45%

가, 1983 Hitchcock 6)

3, 13, 48.9 ± 11.9)
 1/3 50%
 (Fig. 1).

결 과

좌관상동맥 개구부협착의 빈도
 1990 3 1998 2
 5611 24 가
 0.43% .

연령분포 및 성별

(2
) 24 (4, 20)
 31 79 50.0 ± 12.3
 . 16 (3, 13) 33 74
 48.9 ± 11.9 (Table 1).

임상증상

24 Canadian cardiovas -
 cular angina classification class
 , 17 , 7
 . 24 9.3 ± 14.3
 (Table 2).

Table 2. Clinical feature of 24 patients

	Men	Women
Number	4	20
Age (years)	57.8 ± 16.0	48.6 ± 11.4
Angina		
Stable	3	14
Unstable	1	6
Duration of Symptom	3.8 ± 2.2	3.1 ± 2.5*
CCS class		
Class	1	9
Class	3	10
Class	0	1

*Excluded 5 cases (case No.3,14,20,22,23)

이학적소견 및 심전도

1, ST - T 6, V₁₋₃
 Q 1, 1
 15 .

위험인자

8 가 , 2
 , 1 15
 1 . 4
 , 가 11
 (Table 3).

운동부하 검사

7
 , 12 (trea -
 dmill exercise test by Bruce protocol)
 8 가 , 2 (warming -
 up phase), 5 stage , 1 stage
 . 4 (suggestive positive)

Table 3. Risk factors of 24 patients

	Men (n=4)	Women (n=20)
Smoking	4	1
Family history	0	1
Hypertension	1	7
Hyperlipidemia	0	2
Diabetes	0	1
Radiation therapy	0	1
Previous infarction	1	0
No risk factor	0	11

Table 4. Treadmill exercise test

	Men (n=4)	Women (n=20)
Positive	0	8
Warming-up phase		2
Stage		5
Stage		0
Stage		1
Stage IV		0
Suggestive positive	2	2
Negative	0	0
Not available	2	10

(Table 4).

심초음파도

2
2
(Grade 1, Grade 1)
20
가 1
8 (Grade
6, Grade 2)
Grade 1 Grade 가

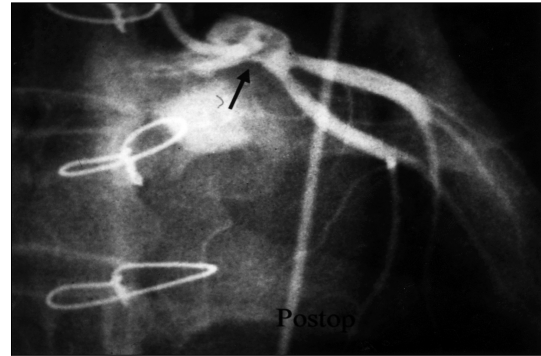


Fig. 2. Postoperative follow-up angiogram shows widely patent ostium with excellent run-off.

Table 5. Operation and result

Case No	Cause	Date of op	Op name	Patch	Recath	Restenosis	AR		Follow-up
							Preop	Postop	
1	Atheroscl	3 / 90	Left ostioplasty+ CABG	SV	5 / 90	-	-	-	Asymptomatic 103 Mo
2	Atheroscl	8 / 90	Left ostioplasty	AP	11 / 94	-	-	-	Asymptomatic 98 Mo
3	Atheroscl	10 / 90	Left ostioplasty	AP	NA	NA	-	-	Expired
4	Atheroscl	7 / 91	Left ostioplasty	AP	8 / 96	-	-	-	Asymptomatic 87 Mo
5	Fibrinomyxoid	7 / 93	Left ostioplasty	AP	3 / 94	-	-	-	Asymptomatic 6 Mo, and expired
6	Atheroscl	9 / 3	Left ostioplasty	AP	8 / 98	-	-	-	Asymptomatic 62 Mo
7	Atheroscl	6 / 94	Left ostioplasty	AP	NA	NA	-	-	Asymptomatic 52 Mo
8	Atheroscl	1 / 95	Left ostioplasty+ CABG	AP	12 / 97	-	-	-	Asymptomatic 45 Mo
9	Atheroscl	3 / 95	Bilateral ostioplasty	SV	NA	NA	-	-	Expired
10	Atheroscl	5 / 95	Left ostioplasty	AP	5 / 96	+	-	-	Successful PTCA at 12 months for recurrent LCO stenosis
11	Atheroscl	8 / 95	Left ostioplasty	AP	NA	NA	-	-	Asymptomatic 38 Mo
12	Atheroscl	11 / 95	Left ostioplasty	AP	NA	NA	-	-	Asymptomatic 35 Mo
13	Atheroscl	8 / 96	Left ostioplasty+ CABG	AP	1 / 98	-	-	-	Asymptomatic 26 Mo
14	Takayasu's arteritis	1 / 97	Bilateral ostioplasty	AP	8 / 97	+	-	-	Restenosis at 7 months steroid medication
15	Atheroscl	2 / 97	Left ostioplasty+ CABG	AP	8 / 98	-	-	-	Asymptomatic 20 Mo
16	Atheroscl	2 / 97	Left ostioplasty+ CABG	AP	NA	NA	-	-	Asymptomatic 20 Mo
17	Atheroscl	6 / 97	Left ostioplasty	AP	NA	NA	-	-	Asymptomatic 16 Mo
18	Atheroscl	7 / 97	Left ostioplasty+ CABG	AP	8 / 98	-	-	-	Asymptomatic 15 Mo
19	Atheroscl	8 / 97	Left ostioplasty	AP	NA	NA	-	-	Asymptomatic 14 Mo
20	Atheroscl	11 / 97	Left ostioplasty+ CABG	AP	8 / 98	-	-	-	Asymptomatic 11 Mo
21	Atheroscl	12 / 97	Left ostioplasty+ VVI	AP	8 / 98	-	-	-	Asymptomatic 10 Mo
22	Atheroscl	1 / 98	Left ostioplasty	AP	8 / 98	-	-	-	Asymptomatic 9 Mo
23	Atheroscl	3 / 98	Left ostioplasty	AP	5 / 98	-	-	-	Asymptomatic 7 Mo
24	Atheroscl	6 / 98	Left ostioplasty	AP	7 / 98	-	-	-	Recurrent chest pain at 1 month ergonovine test (+)

Atheroscl=athrosclerosis ; CABG=coronary artery bypass graft, LIMA to LAD bypass

VVI=permanent pacemaker VVI type ; PTCA=percutaneous transluminal coronary angioplasty

SV=saphenous vein ; AP=autologous pericardium ; NA=not available ; LCO=left coronary ostium

15 . . 1 (14) Takayasu

관상동맥조영술 소견 7

50 95% 가 , 1 (24) 1

80%, 50%, 1 50%, 50% ergonov -

50% . ine

수술 방법 및 협착원인 15 . 1 (5) 7

(left ostioplasty)

(Fig. 2), 2

(bilateral ostioplasty) , 7

(left ostioplasty+CABG)

Grade 가 Grade 가

(37.1 ± 31.3) 18 103 7

(Table 5).

2 , 가 22

1 Takayasu

, 22 가 (atheroma) 가 , 1

fibromyxoid 19.3 ± 20.7 .

고 안

임상경과

3 . 1 (3) 4 1)¹¹⁾

ST 가 ,¹²⁾ ¹³⁾ Takayasu ¹⁴⁾

, ,

. 1 (9) 15 .¹⁵⁾¹⁶⁾ 22

1 Takayasu , 1

fibromyxoid

14 (low card - . Thompson ¹⁾

iac output syndrome) , 1 ((multivessel coronary artery

5) 10 disease)

. 2 2

, 4 가 ,

. 1 (10) 11 48.6 ± 11.4 ,

5 (18 59) (3.1 ± 2.5

) , 5

(PTCA)

57.8 ± 16.0 가

(3.8 ± 2.2) 10 가 (Table 6).¹⁾⁹⁾¹¹⁾¹⁸⁻²³⁾ 2

20 11 가 가 , 1 Tanaka²⁰⁾ Takayasu

7 가 . 4 , 1 15

가 24

가 가

Topaz¹⁷⁾ 가

12 5 , 7 가 14

, 12 1 (left main ostial stenosis)

4 (33%) (left main artery)

가 . 24 15 (CABG)

, 6 ST - T

8 7 가 Dion,⁸⁾ Briffa,²⁴⁾ Bortolotti⁹⁾

(warming - up & stage I) ST

Koh,²⁵⁾ Lee²⁶⁾ Yoon²⁷⁾

가 가

가 가

Table 6. Review of the literature of surgery for bilateral coronary ostial stenosis

Case	Reference	Year	Age/Sex	Cause	Operation	Outcome	Follow-up
1	Beck et al	1965	60/F	Syphilitic aortitis	Endarterectomy	OK	Not available
2	Hutter et al	1985	29/F	Not specified	Saphenous vein CABG to LAD and RCA	OK	Patent grafts at 8 months
3	Thompson et al	1986	41/F	Not specified	Saphenous vein CABG to RCA ; LIMA to LAD	OK	LIMA occlusion at 2 weeks ; successful reoperation
4	Tanaka et al	1990	17/F	Takayasu's aortitis	Saphenous vein CABG to LMCA and RCA	OK	Asymptomatic and patent grafts at 18 months
5	Eng et al	1991	32/F	Not specified	Triple CABG	OK	Not available
6	Eng et al	1991	32/M	Not specified	Saphenous vein patch angioplasty of RCA ; LCO dilatation with	OK	Not available
7	Dion et al	1991	38/F	Atherosclerosis?	RCO and LCO ostioplasty with fresh autologous pericardial patches	OK	Patent ostia at 10 months
8	Frierson et al	1993	61/M	Not specified	Saphenous vein CABG to LCX and RCA ; RIMA TO LAD	OK	Aymptomatic at 6 Months
9	Van Doorn et al	1994	35/M	Not specified	LCO and RCO dilatation*	OK	Patent ostia at 2 years
10	Bortolotti et al	1997	47/F	Aortitis	Bilateral ostioplasty with tanned autologous pericardium	OK	Patent ostia at 1 year ; Aymptomatic at 2 years

*Surgical technique not specified

LAD=left anterior descending artery ; RCA=right coronary artery ; LIMA=left internal mammary artery

LMCA=left main coronary artery ; LCO=left coronary ostium ; RCO=right coronary ostium

LCX=left circumflex artery ; RIMA=right internal mammary artery

3) 4 . 1
 , 1 Takayasu
 . 1
 ergonovine
 1
 Grade 가 Grade
 가 .
 4) 8 (Grade 6 , Gra -
 de 2) Grade
 1 Grade 가 .
 5) 18 103 7 (37.1
 ± 31.3)

결 론 :

Valsalva

가

가

중심 단어 :

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