

요골동맥을 이용한 관동맥 중재시술의 경험

윤정¹한¹ · 이승¹환¹ · 김장¹영¹ · 이한¹효¹ · 이명¹옥¹ · 김승¹년¹ · 황성²오² · 최경¹훈¹

The Experience of Trans-Radial Coronary Intervention in Wonju

Junghan Yoon, MD¹, Seung-Hwan Lee, MD¹, Jang-Young Kim, MD¹, Han-Hyo Lee, MD¹,
Myung-Ok Lee, RN¹, Seung-Nyun Kim, RT¹, Sung-Oh Hwang, MD² and Kyung-Hoon Choe, MD¹¹Department of Internal Medicine, ²Emergency Medicine, Wonju College of Medicine, Yonsei University, Wonju, Korea

ABSTRACT

Background and Objectives : With recent advances in technology and miniaturization of equipment, the trans-radial approach has currently been advocated as an alternative method for coronary angioplasty. We tried to evaluate the feasibility of trans-radial coronary intervention (TRCI). **Materials and Methods** : 138 Allen-positive cases (159 lesions) underwent TRCI with currently available devices. Mean age was 60.8 ± 9.2 years and 67% were men. Clinical diagnoses were AMI in 49, unstable angina in 48, stable angina in 28, OMI in 9 and 4 cases of restenotic lesions. **Results** : Technical success was achieved in 124 cases (89.9%). Among the 124 successful cases, left and right radial arteries were used in 93 cases (110 lesions) and in 31 cases (35 lesions), respectively. The size of the guiding catheter used for TRCI was 6 Fr in 100 cases (80.7%), 7 Fr in 21 cases (16.9%), and 8 Fr in 3 cases (2.4%). Stent implantation and rotational atherectomy were successfully performed in 75 cases (86 lesions) and 10 cases (12 lesions), respectively. The reasons of failure were puncture failure in 2 cases, guiding failure in 6 cases, guide-wire crossing failure in 4 cases who had chronic total occlusion, and suboptimal results in 2 cases. Major cardiac complications occurred in 3 cases, one case of cardiac death, nonfatal myocardial infarction and coronary artery perforation. No major entry site complications were seen with only non-ischemic radial artery occlusions in 3 cases (2.8%). **Conclusion** : TRCI is feasible with currently available devices and is safe with a relatively acceptable procedural success rate and low complications. (Korean Circulation J 1998;28(9):1443-1451)

KEY WORDS : Radial artery · Coronary intervention.

서 론

: 1998 8 3
: 1998 9 25
: , 220 - 701 162
: (0371) 741 - 1212 · : (0371) 741 - 0502
E - mail : yoonj@wonju.yonsei.ac.kr

1989 Campeau²⁾ cm 2% 11
 20 - G
 가
 (needle) Vinca
³⁾⁴⁾ Kiemeneij ⁵⁾
 0.025 , 50 (guide wire)
 가 가 ,

(introducer sheath, Daig corp.,
 Minnesota, USA). 10,000

가 , (0.9% 10 ml,
 200 ug, 7.5 mg 100 ug
)

유도도자의 선택

대상 및 방법

대상 환자

1997 8 1998 7
 Allen 가 138
 (159)
 Allen 가 , intra -
 aortic balloon pump
 , ,

시술 및 지혈

시술 전후 이면성 초음파를 이용한 요골동맥의 평가
 가 가
 0.035 150 cm Radifocus
 (Terumo Corp., Tokyo, Japan)

ULTRAMARK 9 Linear Array(L10 - 5,
 38 mm) probe(Advanced Technology Laboratories,
 Inc., Bothell, WA, USA)

1 cm 가 ,
 1 가 - Allen 50%
 (technical success)

요골동맥 천자 (clinical success) ⁶⁾

가
 1 , 4 × 4

대상환자 및 병변의 특징

138 (159) , 61
 (60.8 ± 9.2) . 가 93 (67.4%), 가 45
 (32.6%) 가 .
 49 (35.5%) 가 ,
 48 (34.8%), 27 (19.
 6%), 8 (5.8%) , 4 (2.8%)

49

Table 1. Baseline characteristics of study patients

Clinical findings	
N (cases)	138
Male (%)	67.4% (93/138)
Age (years)	60.8 ± 9.2
BSA (m ²)	1.67 ± 0.19
Clinical diagnoses	
Acute MI	49
Unstable angina	48
Stable angina	28
Old MI	9
6 months Follow-up after intervention	4
Angiographic findings	
Extent of coronary artery disease	
1 vessel disease	78
2 vessel disease	38
3 vessel disease	22
Target vessel	
LAD	79
LCX	37
RCA	43
Lesion specific characteristics	
Type A	15
Type B1	47
Type B2	39
Type C	58

BSA : body surface area, LAD : left anterior descending artery, LCX : left circumflex artery, RCA : right coronary artery

가 12 ,
 가 3 , 2
 가 34 (Table 1).
 78
 (56.5%) , 2 38 (27.5%) , 3
 22 (16.0%) .
 가 79 (49.7%) 가 , 가 37
 (23.3%) , 43 (27.0%) .
 A 15 (9.5%) , B1
 47 (29.6%), B2 39 (24.2%) ,
 C 58 (36.7%) (Table 1).

시술 전-후 요골동맥의 크기

2.8 mm
 2.7 mm
 124 31 (25.0%)
 , 93 (75.0%)

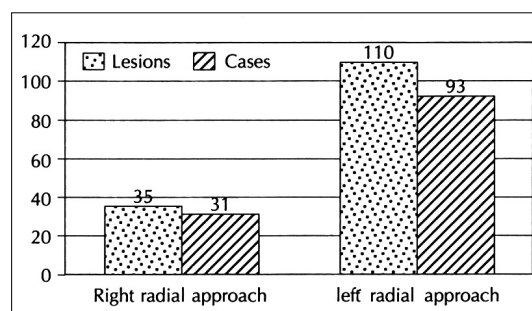


Fig. 1. Left and right radial approach in successful 145 lesions/124 cases.

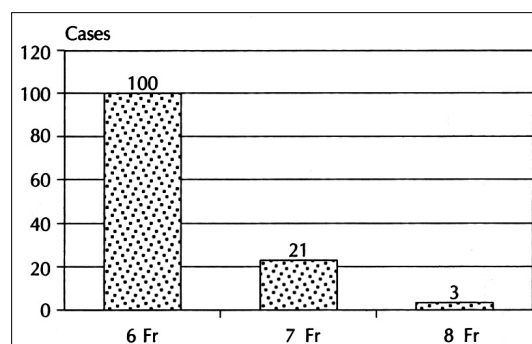


Fig. 2. Size of guiding catheters used for successful trans-radial coronary intervention in 124 cases.

(Fig. 1).

유도도자의 크기 및 종류

6F 21 (16.9%) 3 (2.4%) 100 (80.7%) Judkins(JR) 5 (45.5%) Judkins(JL) 16 (100%) 3 (27.3%) Shani 2 (18.2%) Amplatz(AL 1) 1 (9.1%) Hockyst - 8

(Fig. 2).

가

50 (85%) Judkins(JL) 5 (9%) Amplatz(AL1) 4 (6%) "스텐트" 및 "로타블레이터" 의 시술 145 " "

Judkins(JR) 6 (23. 86 (59.3%) (Fig. 5). "

1%) Shani 2 (7.7%) " de novo 58 30%

Amplatz(AL1) 2 (7.7%) Q curve 1 가 15 , 가 가 13

ystick 18 (72.0%) " "

Judkins(JL) 4 (16%) (53.4 %) , 3.5 mm가 26 (30.2),

Amplatz(AL1) 2 (8%) 4.0 mm가 5 (5.8%) 2.5 mm가 9 (10.5%)

Q curve 1 XB(4%) " "

(Fig. 3).

8 Fr 가 70 (81.4%), 15

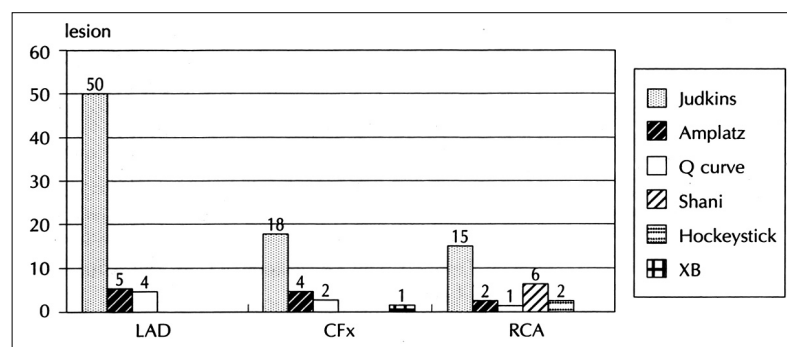


Fig. 3. Kinds of guiding catheters used with left radial approach 110 lesions (93 cases) among successful 124 cases of trans-radial coronary intervention.

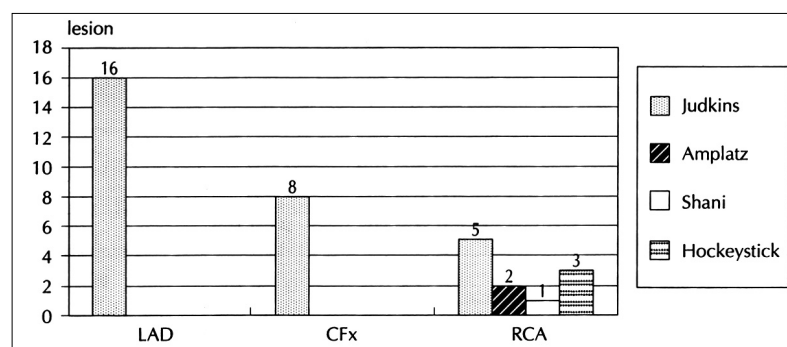


Fig. 4. Kinds of guiding catheters used with right radial approach 35 lesions (31 cases) among successful 124 cases of trans-radial coronary intervention.

(17.4%) 1 (1.2%) , 5
가 12 (10
) “ ” “ Burr ” 가 2 ,
1.25 mm 2.0 mm “ de -
bulking ” 가
, 4 (4) “ ” “ ” 2
가 4 가 4
3 . 4

요골동맥을 통한 시술의 실패원인

138 14 (10.1%) , 2

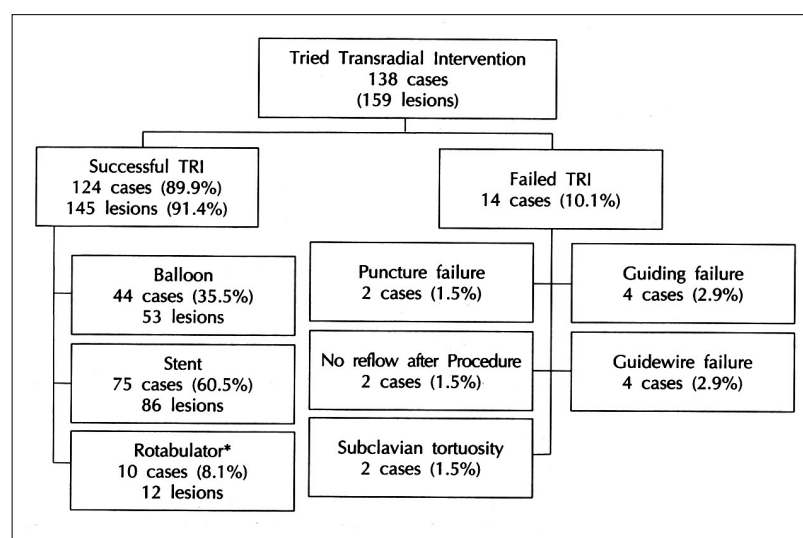


Fig. 5. Profiles of trans-radial coronary intervention.
* : Stent implantation after Rota in 4 cases (4 lesions)

Table 2. Reasons of the failure in 14 cases

				Cross-over to femoral		
/						
68/M	Acute MI	RCA	Guiding failure	-		Fail
68/M	Old MI	RCA	Guidewire failure	-		Fail
53/M	Acute MI	CFx	Guiding failure	-		Fail
53/M	Unstable angina	CFx	Guiding failure	+		Success
74/F	Unstable angina	RCA	Guiding failure	+		Fail
41/M	Stable angina	LAD	Puncture failure	+		Success
47/M	Unstable angina	LAD	Puncture failure	+		Success
39/M	Acute MI	RCA	No reflow	-		Fail
63/F	Acute MI	RCA	No reflow	-		Fail
60/F	Stable angina	LAD	Lt SCA tortuosity	+		Success
39/M	Old MI	RCA + LAD	Guidewire failure	-		Fail
60/F	Unstable angina	LAD	Lt SCA tortuosity	+		Success
62/M	Stable angina	CFx	Guidewire failure	-		Fail
65/M	Unstabel angina	CFx	Guidewire failure	-		Fail

MI : myocardial infarction, RCA : right coronary artery, LAD : left anterior descending artery,
CFx : left circumflex artery, SCA : sbuclavian artery

“no reflow ”가 (Table 2).

시술 결과 및 합병증

MLD $81 \pm 12\%$ 0.59 ± 0.48 mm
 $3 \pm 12\%$ 2.96 ± 0.68 mm
 (Table 3).
 103 (83.1%)
 21 (16.9%)
 38
 (87.7%)
 (Table 4, Fig. 5).

1 가
 , 1 가
 , 1 가

3 (2.4%)

(Table 3).

Table 3. Procedural results in 124 cases/145 lesions

Reference vessel (mm)	3.06 ± 0.61
Pre – MLD (mm)	0.56 ± 0.48
Post – MLD (mm)	2.96 ± 0.68
Pre – DS (%)	81 ± 12
Post – DS (%)	3 ± 12
Acute luminal gain (mm)	2.15 ± 0.83

Table 4. Results of trans-radial coronary intervention

Success rate		
Technical success	124/138 cases	89.9%
	145/159 lesions	91.2%
Clinical success	121/138 cases	87.7%
Procedure-related complications		
Cardiac death	1	0.8%
Side branch compromise*	4	3.2%
Coronary artery perforation	1	0.8%
with impending tamponade		
Radial artery occlusion	3	2.4%
Major local bleeding	0	0%

*Non fatal MI : 1 case

고 찰

가

가
 80% 6 Fr
 , 가
 7 Fr 8 Fr 가

좌우 요골동맥의 이용도

2

Allen 가
 가
 Ad Hoc

가 93 (75.0%)
 31 (25.0%)
 2
 가
 가 가

가

가
 90.3%(93/103) 88.6%(31/35)
 6)
 가 가

가 7 Fr 가 .

6-9) 100 (80.7%) 6 Fr 7 Fr 8 Fr 가
 " " " 가 .
 24 (19.3%) 7 Fr 8 Fr 2.7 mm

“가 , 가 , 가 , “debulking” 가 .

가	Kiemeneij ⁷⁾	900
가	,	

Judkins	.	6F	91%
Judkins	Amplatz	.	
Shani	, Hockeystick	Multipur -	89.9%
pose	.	.	

101 (78.9%) latz Wu “C” 5-7)

10) 요골동맥을 이용한 중재시술의 실패 원인
2 (1.5%) , 2

75 (60.5%) “ ”가 . 가
 , 10 (8.1%) “ ” “de - 가 4 .
 bulking” .
 “ ” 2.5 3.0 mm 6 Fr ,
 가 , 3.5 mm

10)

80%

시술관련 합병증

가

1

5)

4)7)11)12) Johnson

1579

2.4%

12) Popma

1413

요 약

5.9%

연구배경 :

12%

11)

가

가

가

1)

대상 및 방법 :

1997 8

1998 7

Allen

138

60.8

± 9.2 , 가 67%

3 (2.4%)

3 7%

6)13)

가

Allen

A 159

A 15 , B1 47

, B2 39 ,

C 58

가

Allen

결 과 :

138 124 (89.9%)

, 14 (10.1%)

93 /110

31 /35

가

. 6 Fr

가 100 (80.

14)15)

7%)

, 7 Fr

8 Fr

가

21 (16.9%)

3 (2.4%)

7-9)16)

“ ” “ ” 74 (85)

Allen 가

10 (12)

가 2 (1.5%),
 가 4 (2.9%),
 가 4 (2.9%) , 가 2
 (1.5%) . , 1
 . 3 (2.4%)
 가 .
 결 론 :

가 ,
 .
 중심 단어 : .

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