

관동정맥루 : Coil을 사용한 경피적 색전술

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= Abstract =

Coronary Arteriovenous Fistula : Percutaneous Transcatheter Coil Embolization

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Background : Coronary arteriovenous(AV) fistula is a rare congenital disease, and seldom produce symptoms during childhood. However late complications can occur including congestive heart failure, myocardial ischemia, and bacterial endocarditis. Therefore surgical repair is recommended even if the patients are asymptomatic. In these days many investigators are interested in transcatheter embolization because of high procedural success rate without risks and morbidity associated with cardiac surgery.

Method : Five patients(4 females and 1 male) of coronary AV fistula were treated with trans catheter coil embolization. All had symptom of chest pain. In coronary angiograms fistulous tracts were originated from left anterior descending artery(LAD) and drained to main pulmonary artery(MPA) in 4 cases. The other case had abnormal vessel from left circumflex artery(LCX) to bronchial artery. Transcatheter coil embolization were done with Judkins left guiding catheter, 018 inch Tracker or 3F Microferret catheter, and 018 inch coils.

Result : The fistula tracts were completely occluded in 3 cases after coil embolization. In 2 cases with multiple fistular vessels, major fistula were occluded, but minor vessels remained. There were no procedure related complications.

Conclusion : Transcatheter coil embolization may be an effective treatment modality in coronary AV fistula with excellent result and minimal complications.

KEY WORDS : Coronary AV fistula · Coil embolization.

서 론

1).

0.2~0.25%

2). (surgical ligation) (Table 2). 1 3,4). Coil 5-8). 5 Coil 8F left Judkins cathrter . 0.014inch 0.018inch (guide wire) (superselection) Tracker 18(Advanced Cardiovascular Systems Inc. Santa Clara, California) catheter 3F Microferret(Cook Incorporated, A Cook Group Company, Blooming - ton, Indiana) catheter 가 tracking catheter 0.018inch Hilal Embo - lization Microcoils(Cook Incorporated, A Cook Gr - oup Company, Bloomington Indiana)

대상 및 방법

5 가 1 , 가 4 54 (39~65) . 5 1 (crescendo (resting angina) . , 3 (Table 1).

3 1 . 1 coil 가 .

Table 1. Clinical findings of patients

Case	Age/Sex	Symptoms	Physical finding	Electrocardiogram
1	58/M	Chest pain	Systolic murmur	Sinus bradycardia
2	56/F	Chest pain, dyspnea	Systolic murmur	Nonspecific ST-T change
3	39/F	Chest pain	Continuous murmur	Within normal limit
4	65/F	Chest pain	No murmur	Complete LBBB
5	51/F	Chest pain	No murmur	Nonspecific ST-T change

Table 2. Angiographic findings and results of coil embolization

Case	Fistulae		Qp/Qs	Numbers of coil	Results
	Origin	Drainage			
1	LAD	MPA	1.8	3	Complete occlusion, no chest pain
2	LCX	Bronchial artery		5	Complete occlusion, no chest pain
3	LAD	MPA	1.16	3	Major fistula : occluded, minor fistula : remained no chest pain
4	LAD	MPA		1	Complete occlusion, no chest pain
5	LAD RCA	MPA MPA		3	Major fistula : occluded, minor fistula and fistula from RCA : remained no chest pain

LAD : left anterior descending artery, LCX : left circumflex artery, RCA : right coronary artery
MPA : main pulmonary artery

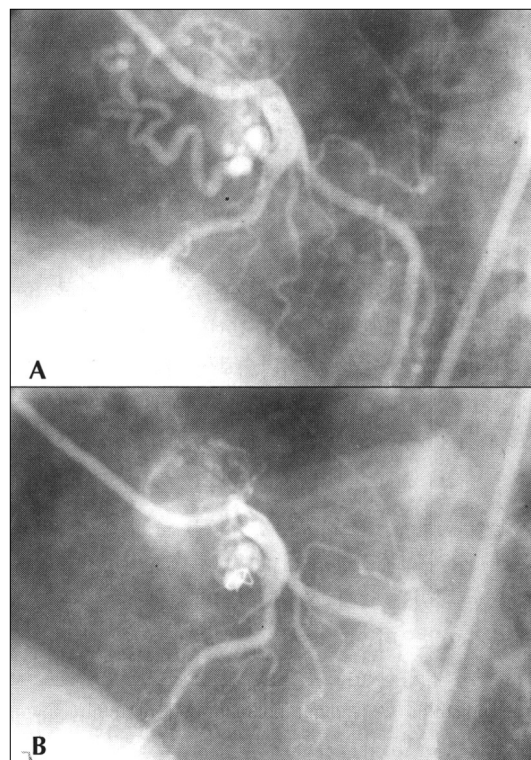
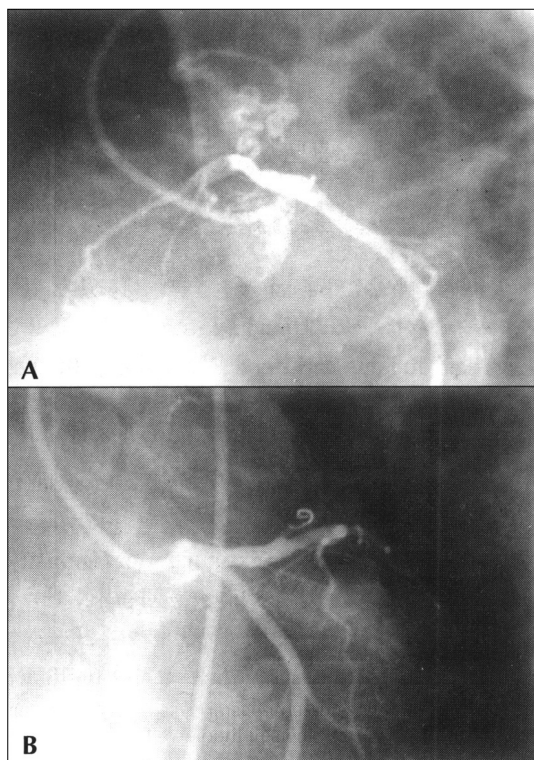


Fig. 1. A : Left coronary angiogram, LAO cranial view. This figure showed coronary arteriovenous fistula originating from LAD drained to MPA. B : Left coronary angiogram, AP caudal view in same patient. No fistula tract was observed after coil embolization.

Fig. 2. A : Left coronary angiogram, LAO cranial view. Multiple fistulous tract were observed. B : Same view. After coil embolization, major fistula was occluded, but minor vessels remained.

coil 3(1~5) , 1
가 5 coil (18-1.0-3 coil 3
, 18-2.0-2 coil 2) (Table 2).

결 과

(Fig. 1).

2 가 , coil , 가 , tracking catheter 가 , 가 (Fig. 2).

고 안

8,9)

가

13,14), 3), 3,13), 13), 13) (aortopulmonary colla -

st - teral), 54

eal, 77, 6 (5)

5). (1) 3 coil

1960 3

2~4% coil 가

3,4,15), 가 19). (left heart

side) drain

3.6% 5). 1974 Zube -

rbuhler (thoracic vessel)

16), coil de - 가

tachable balloon, polyvinyl foam

(aortopulmonary collateral) 가

19). 요 약

1983 Reidy detach -

17) ,

able balloon 5 - 9,18) 연구배경 :

1990 Detachable balloon guiding

catheter(9F)

가 (branch vessel)

1). tortuous (catheter) 가

가 coil

coil

(3F 가), coil

대상 및 방법 :

5 coil

. 5 가 4 , 가 1 ,

umbrella coil 54

가 , catheter 4

(가 11F). umbrella

coil . Judkins left

guiding catheter 018 Tracker 3F Microfe -

rret catheter, 018 coil

가 , 3 coil

결 과 :

5 3 가

. 2 가

(guiding catheter) (guide wire) , 가

disruption,

결 론 :

coil

References

- 1) Harris WO, Andrews JC, Nichols DA, Holmes Jr DR : Percutaneous transcatheter embolization of coronary arteriovenous fistulas : case report. *Mayo Clin Proc* 71 : 37-42, 1996
- 2) Baltaxe HA, Wixson D : The incidence of congenital anomalies of the coronary arteries in the adult population. *Radiology* 122 : 47-52, 1977
- 3) Wilde P, Watt I : Congenital coronary artery fistulae : six new cases with a collective review. *Clin Radiol* 31 : 301-311, 1980
- 4) Kirklin JW, Barratt-Boyes BG : *Cardiac Surgery*. New York : John Wiley, 945-955, 1986
- 5) Reidy JF, Anjos RT, Qureshi SA, Baker EJ, Tynan MJ : Transcatheter embolization in the treatment of coronary artery fistulas. *J Am Coll Cardiol* 18 : 187-192, 1991
- 6) Perry SB, Rome J, Kean RJ, Baim DS, Lock JE : Transcatheter closure of coronary artery fistulas. *J Am Coll Cardiol* 20 : 205-209, 1992
- 7) Lacombe P, Rocha P, Marchand X, Mulot R, Rigaud M, Jondeau G, Weber JM, Kahn JC : High flow coronary fistula closure by percutaneous coil packing. *Cath and Cardiovasc Diag* 28 : 342-346, 1993
- 8) Wolf D, Terriere M, Wilde P, Reidy JF : Embolization of a coronary fistula with a controlled delivery platinum coil in a 2-year-old : case report. *Ped Cardiol* 15 : 308-310, 1994
- 9) Furniss SS, Mikchell L, Krtipawong P : Coil embolization of coronary fistula in a post-transplant patient. *Eur Heart J* 16 : 1147-1148, 1995
- 10) Griffiths SP, Ellis K, Hordof AJ : Spontaneous complete closure of a congenital coronary artery fistula. *J Am Coll Cardiol* 2 : 1169-1173, 1983
- 11) Hackett D, Hallidie-Smith KA : Spontaneous closure of coronary artery fistula. *Br Heart J* 52 : 477-479, 1984
- 12) Liberthson RR, Sagar K, Berkoben JP, Weintraub RM, Levine FH : Congenital coronary arteriovenous fistula : report of 13 patients, review of the literature and delineation of management. *Circulation* 59 : 849-854, 1979
- 13) Effler DB, Sheldon WC, Turner JJ, Groves LK : Coronary arteriovenous fistulas : diagnosis and surgical management : report of fifteen cases. *Surgery* 61 : 41-50, 1967
- 14) Levin DC, Fellows KE, Abrams HL : Hemodynamically significant primary anomalies of the coronary arteries. *Circulation* 58 : 25-34, 1978
- 15) Perry SB, Keane JF, Lock JE : Pediatric intervention. In : Grossman W, Baim DS, editors. *Cardiac Catheterization, Angiography, and Intervention*. Philadelphia : Lea and Febiger, 543-544, 1991
- 16) Zuberhuler JR, Dankner E, Zoltun R, Burkholder J, Bahnson HT : Tissue adhesive closure of aorticpulmonary communications. *Am Heart J* 88 : 41-46, 1974
- 17) Reidy JF, Sowton E, Ross DN : Transcatheter occlusion of coronary to bronchial anastomosis by detachable balloon combined with coronary angioplasty at same procedure. *Br Heart J* 49 : 248-247, 1983
- 18) Qureshi SA, Reidy JF, Alwi MB, Lim MK, Wong J, Tay J, Baker EJ, Tynan M : Use of interlocking detachable coils in embolization of coronary arteriovenous fistulas. *Am J Cardiol* 78 : 110-113, 1996
- 19) Perry SB, Radtke W, Fellows KE, Lock JE : Coil embolization to occlude aortopulmonary collateral vessels and shunts in patients with congenital heart disease. *J Am Coll Cardiol* 13 : 100-108, 1989